



جامعة قطر  
QATAR UNIVERSITY

# Qatar University Research Magazine

Issue no 11 - May 2019



**Breakthrough  
discovery in the development of  
blood vessels of the brain**



Trace Metals in the  
Exclusive Economic Zone  
(EEZ) of Qatar



Women with Disabilities in  
the State of Qatar

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# Message from the VP

## Prof. Mariam Al-Maadeed

QU VP for Research and Graduate Studies



Dear Readers,

Research is an added value when we disseminate its outcomes and apply its findings, it is a means of advancing knowledge and spreading benefit.

In this issue of Qatar University Research Magazine, we highlight original research projects achieved by QU faculty and students. These projects include a breakthrough discovery in the development of blood vessels in the brain by the Biomedical Research Center, and other studies that discuss the relationship between the Arab and Indian cultures. It also looks into factors considered by high school students when choosing QU and many other studies.

The ensuing pages also cover news on the wins of distinguished awards such

as the Young Researcher Award won at the Tobacco Induced Diseases (TID) 2018 Conference in Turkey and the bronze award won by two QU programs at the Reimagine Education Conference, which was organized by Quacquarelli Symonds (QS) with the aim to drive the spirit of research and knowledge among high school students.

In addition, this issue highlights reports and articles discussing topics related to minerals, climate, sports, culture, heritage, and others. It includes an article on an ongoing research project studying the use of a contemporary scientific strategy in marketing the 2022 FIFA World Cup, which will be hosted in Qatar. It also includes an article on the exploration of Al Zubara and the electronic visualization of this ancient city that represents

a significant part of the history of the State of Qatar and its citizens. This is done in order to facilitate its exploration through displaying its historical drawings and charts.

Last but not least, this issue sheds light on numerous exciting projects and events that were established at the various QU research facilities.

Our magazine reflects our commitment to the national research priorities and our diligence to embrace talents and competencies while emphasizing our respect to the researchers “intellectual property and academic freedom”.

In closing, special thanks to everyone who contributed to this issue and I wish you a happy reading.



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Issue no 11, May 2019

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# Scientists from the Biomedical Research Center contribute to a breakthrough discovery in the development of blood vessels in the brain.

A group of researchers from Qatar University (QU) Biomedical Research Center (BRC) in collaboration with researchers from Medical College of Wisconsin (MCW), USA, made an important discovery for understanding the embryonic development of cranial blood vessels in the brain. Prof. Huseyin Cagatay Yalcin, Research Assistant Professor, led the QU research team. The latter included Dr. Fatiha M. Benslimane Postdoc Associate, Ph.D, Zain Zakaria (Student) and Mahmoud Abdelrasoul (Undergraduate Student). The MCW team was led by Prof. Ramani Ramchandran and included Research Fellow Dr. Shahram Eisa-Beygi and Clinician Dr. Patricia Burrows.

The Cardiovascular System (CVS) is a network of blood vessels to distribute nutrients and to remove produced waste in the body. The heart produces the energy to pump the blood throughout the system. CVS is the first system that starts to function in a developing embryo because other systems depend on the delivery supplied by CVS. Therefore, during development, CVS starts to function very early and continues to go through cardiogenesis while the heart functions.

Traditionally, the development of CVS was thought to be



Ms. Zain Zakaria, Graduate student, part of BRC research team

governed by biological signals only, such as hormones and other chemical cues. However, clinical observations and animal studies revealed that hemodynamics, in other words, forces due to flowing blood inside the blood vessels are also a major factor for cardiogenesis. This effect is now known as mechanobiology. The inside of the blood vessels and the heart is lined with a cellular sheet of endothelial cells. These cells are constantly exposed to hemodynamic forces, which are a pressure that acts in a perpendicular way and a frictional shear stress that acts in a tangential way. The way endothelial cells could sense hemodynamics to initiate biological signals were puzzling until the discovery of a dynamic organelles that are present in these cells, known

as cilia. Endothelial cilia are an antenna like protrusion that move dynamically in response to flowing blood and function as a mechanosensor. Presence of endothelial cilia was confirmed in multiple locations in CVS, but until now, their presence in cranial blood vessels was not studied comprehensively. More importantly, their function in the development of these vessels and their possible relevance to disease states were not known. The discovery, which is the topic of this article, came exactly on this missing part of the puzzle for function of endothelial cilia in the brain.

## How was it performed? What model was used?

The work was performed on an animal model, which is the zebrafish. Compared to other established models such as rodents or avian, zebrafish is a relatively new model for research. However, it was adapted widely by the scientific community for a variety of research applications. Why zebrafish? Due to its simplicity



and transparency properties as well as the resemblance of genetic backgrounds to human, zebrafish has been established as a key animal model for brain research. The investigation was initiated by the MCW team when they revealed the distribution of cilia in zebrafish brain throughout developmental stages. This was achieved by fluorescently labeling of endothelial cilia and visualizing via high-resolution confocal microscopy.

Surprisingly, researchers identified the presence of cilia prior to blood flow. Upon initiation of flow, cilia are mainly localized in blood vessels. These results led to questioning the functional role of cilia presence in cranial vessel development. To explore this, MCW scientists designed a set of experiments to interfere with blood flow in zebrafish brain and see its effect on cilia. The first set of experiments aimed to find out how the vessel development is affected in the brain when cilia are not present. This was studied by genetically knocking out proteins participating in cilia development. For the embryos lacking cilia, brain hemorrhage was observed demonstrating vital role of these organelles for proper vascular development and for integrity of blood vessels in the brain. The second set of experiments aimed to investigate the effect of blood flow in cilia development. For these experiments, researchers needed to disturb blood flow in the zebrafish brain. They started to explore ways to alter and quantify blood flow velocities and related parameters. At that time, a relevant methodology paper was recently published by the BRC team, which took attention of the MCW team. A collaboration was initiated accordingly. The method to alter the blood flow came right on time with a coincidental chance. One of the researchers in the collaborative team placed



QU research team leading the Zebrafish research

some embryos into an incubator with a higher ambient temperature (32°C), rather than a zebrafish incubator with the ideal conditions of 28°C, thus, exposing them to a higher temperature than they are used to. After just a few hours, the researchers realized the misplacement of the embryos. When the embryos were visualized, their heartbeats were abnormally high and they had brain hemorrhage.

The team was able to show that increasing the temperature significantly increases heartbeats, blood flow velocities and shear stress. Biologically, increased shear stress in cranial vessels resulted in disappearance of cilia, consequently causing hemorrhage.

The study findings were recently published in a highly reputable journal, *Arteriosclerosis, Thrombosis, and Vascular Biology*, an American Heart Association journal, under the title “Characterization of Endothelial Cilia Distribution During Cerebral- Vascular Development in Zebrafish (*Danio rerio*)”. The publication was also featured on the journal cover for December 2018, with an editorial comment.

The study findings opened new exploration areas and the teams are very eager to explore further aspects of the mechanobiological

development of blood vessels. The funding for the MCW study was in part by Kelleigh’s Cause ([www.kelleigh.org](http://www.kelleigh.org)), which spearheads fundraising efforts for artery-vein malformations research. The funding for BRC study was from Qatar National Research Fund (QNRF) and BRC internal funds. Dr. Huseyin Cagatay Yalcin said: “Mechanobiology is an emerging field that helps to better understand the cardiovascular system function in normal and diseased states. Applying engineering knowledge to study biological phenomenon will provide new explorations to advance human health”.

Prof. Asma Al-Thani, QU College of Health Sciences Dean and Biomedical Research Center Director, said: “This is a remarkable achievement by our researchers at QU with their overseas colleagues, demonstrating the high level of science produced at the university to serve the global community”. Prof Ramani Ramchandran said: “The role of cilia prior to flow in brain vessels is a remarkable discovery, and this collaboration with QU scientists shows how complementary research between two institutions with minimal history of collaboration can yield productive, groundbreaking outcomes laying the groundwork for future opportunities.”



# Water-pipe Smoking and Human Health

**Dr. Ala-Eddin Al Moustafa**

College of Medicine and Biomedical Research Center at Qatar University

A group of students from the College of Medicine at Qatar University (QU) supervised by Dr. Ala-Eddin Al Moustafa explored the outcome of water-pipe smoking on human health and

were awarded the best oral presentation in the 14th Annual Conference of the International Society for the Prevention of Tobacco Induced Diseases.

This amazing accomplishment of the first batch of our undergraduate students at QU College of Medicine of Qatar University started in October 2015, when Dr. Ala offered the students the possibility to become involved in a medical research in his lab at the Biomedical Research Center (BRC). The students were Anas Ashour, Mahmoud Haik and Khaled Sadek. They explored the effect of WPS on human health.

What is the importance of WPS or tobacco smoking? Why is it relevant today? Tobacco smoking, although easily preventable, is considered a major cause of morbidity and mortality worldwide, accounting for 6 million deaths each year (World Health Organization). Tobacco smoking has different forms including cigarette, cigar smoking, and e-cigarettes as well as water-pipe. WPS is the most common tobacco use in the Middle-East region. In addition, its popularity around the globe is rapidly increasing, since the social nature of WPS provides a certain degree of public acceptability that has easily integrated into local café and restaurant culture. These elements, combined with lack of water-pipe “Shisha” specific policy and regulations, are important factors for WPS prevalence globally.

In addition, common misconceptions that consider WPS less harmful than cigarettes exist. This has been pointed out in several reports. Nevertheless, recent investigations stressed the obvious harmful outcomes of WPS on human health, which is comparable, and maybe even worse than that of cigarette smoking. These harmful factors combine the effect of the common toxic elements between WPS and cigarette smoking such as high levels of nicotine, heavy metals, particulate matter, and various carcinogens with the additional harmful effect of the charcoal used to heat the tobacco. This raises health risks by producing high levels of carbon monoxide, metals, and cancer-causing chemicals.

To date, it has been well established that cigarette smoking causes multiple adverse effects on human health including cardiovascular and lung diseases in addition to several types of cancers including breast cancer. The toxic effect of cigarette smoking, or exposure to smoking in case of second-hand smokers during pregnancy has been recognized to cause numerous poor birth outcomes, such as low birth weight and preterm birth, as well as life-long health and developmental problems. Thus, it is evident that smoking in different forms can cause a serious effect on human health. However, the impact of WPS on women health especially during pregnancy and breast cancer development has not been explored yet. Thus, our students investigated, for the first time, the outcome of WPS on the early stage of embryonic development using chicken embryo as a model. In parallel, they studied the effect of WPS on human breast cancer progression using two non-invasive breast cancer cell lines, MCF7 and



BT20. Their data revealed that WPS inhibits angiogenesis of the chorioallantoic membrane (CAM) and in the embryos in comparison with their matched controls. Additionally, WPS-exposed embryos show slight reduction in their sizes. The data also reported that around 80% of WPS-exposed embryos die before ten days of incubation. More significantly, they also reported that WPS induces up-regulations of several key regulator genes related to cell apoptosis, proliferation, and migration. This work was recently published in *the Nicotine & Tobacco Research Journal* of Oxford Academic group (Ashour et al., 2018).

With regard to the impact of WPS on human breast cancer, the research data revealed, for the first time, that WPS enhances cell motility and invasion of two breast cancer cell line models in comparison with their control cells. This is accompanied by a downregulation of the E-cadherin protein, an important cell-cell adhesion molecule that is considered as tumor invasion suppressor. The students also found that WPS could activate Erk1/2 and PI3K/Akt signaling pathways, which could be the main mechanism behind E-cadherin downregulation and consequently the enhancement of cell motility and invasion. This work was newly published in the

*Cancer Cell International Journal* by Springer Nature group (Sadek et al., 2018).

Recently and in order to explore the impact of WPS on testosterone levels, the students examined the association between WPS and serum levels of total testosterone (TT), free testosterone (FT), bioavailable testosterone (BioT), and sex hormone binding globulin (SHBG) among men in Qatar. Their data revealed that there is no significant change in TT, FT, BioT, and SHBG in WP smokers when compared to non-WP smokers, after adjusting for age and cigarette smoking as confounders. The data of this work was accepted for publication in *the Tobacco Induced Diseases Journal* issued by European Publishing (Haik et al., 2019).

In conclusion, the research findings provided evidence, for the first time, that WPS can harm the normal development of the embryo and enhance breast cancer progression. However, the WPS and testosterone levels did not reveal significant effect of WPS on this hormone. Thus, it is important to highlight that additional investigations are required to elucidate the pathogenic effect of WPS on other aspects of female and male health. Meanwhile, it is essential to alert pregnant women and breast cancer patients about the potential effects of WPS on their fetuses or breast cancers progression, respectively. Finally, we would like to emphasize that our students presented their data on the effect of WPS on human health in the 14th Annual Conference of the International Society for the Prevention of Tobacco Induced Diseases, which was held in Izmir, Turkey in October 2018 and won the first prize for their oral presentation.

# Prof. Abbes Amira Profile

Prof. Amira joined Qatar University in August 2014 as professor in computer engineering after spending 15 years in academic institutions at the UK, including Queen's University Belfast and Brunel University. He was acting director of the KINDI Center for Computing Research at Qatar University (QU) before taking his current position as associate dean for research and graduate studies at QU College of Engineering.

Prof. Amira has a successful research portfolio with more than publications. In 2017-2018, he published 30 articles in journals with high impact factors, 5 book chapters, and 24 conference papers. A number of his recent journal papers are the most downloadable/cited, including an article on "Empowering Technology Enabled Care Using IoT (Internet of Things) and Smart Devices: A Review" published in *IEEE Sensors Journal*, and a paper on "Semantic Content-Based Image Retrieval: A Comprehensive Study" in the *Journal of Visual Communication*



**Prof. Amira is currently leading 3 major projects with partners from Qatar, Hong Kong, Canada and the UK.**

*and Image Representation*, Elsevier.

During his employment at QU, Prof. Amira has been awarded a number of awards including the 2017 Institution of Engineering and Technology (IET) Premium Award, first place in DELL-EMC Envision the Future Competition 2017 for DELL EMC (Part of Dell Technologies) Envision the Future 2017 Competition, Qatar National Research Fund (QNRF) 2017 Best Senior Design Project, best poster and presentation awards at ELSO-SWAC (Extracorporeal Life Support Organization-South West Asian Chapter) 2017 Conference, 2016 Best University Poster Research Award (UG Design Project), at Qatar University, selected success story for National Priorities Research Program (NPRP) project at Qatar Foundation Annual Research Conference (ARC'16), first place for the Best Senior Design Project in GCC region in 2016. He was also nominated for the Best Poster Award at the Scottish Informatics and Computer Science Alliance (SICSA) 2016



Prof. Amira working with the sensors at his lab

Conference, Scotland. In addition, he won the first place at QU 2015 Best Senior Design Contest; the first place for the best poster presentation 2016, University of the West of Scotland (UWS) PhD Research Conference; Best student Paper Award 2015, University of the West of Scotland (UWS) PhD Research Conference; Best Paper Award (PhD forum), Institute of Electrical and Electronics Engineering (IEEE/ACS) International Conference on Computer Systems and Applications (AICCSA) 2014; Best Paper Award, Institute of Electrical and Electronics Engineering International Conference on Electronics Circuits and Systems (IEEE ICECS) 2013; and the 2013 Qatar National Research Fund (QNRF) prize at Qatar Foundation Annual Research Conference (ARC'13) for the best poster presentation.

He was involved in three special issues in the area of Internet of Things (IoT) for connected health applications, including the *IEEE IoT Journal (IoT-J)* Journal

and *the Journal of sensors and actuators*.

Since 2014, he was invited to give 17 keynote and invited talks at prestigious conferences and events and two tutorials at the IEEE Symposium on Signal Processing and Information Technology (ISSPIT) 2015 and the International Conference on Electronics Circuits and Systems (ICECS) 2018, which took place in Abu Dhabi and France, respectively.

Prof. Amira has been leading three huge projects involving partners from Qatar, Hong Kong, Canada, the United Kingdom, and Greece, in the areas of oil and gas applications, connected health, Internet of Things (IoT), and robotic surgery. He is also involved with other colleagues working on projects related to energy efficiency, embedded systems and AI (Artificial Intelligence) with applications imaging and signal processing applications, including a project on the use of thermochromic ink for medical simulations

(US patent) and a project on consumer engagement towards energy saving behavior by means of exploiting micro moments and mobile recommendation systems. In addition, Prof. Amira was involved in the organization of conferences and special session including a special session on "Internet of Things (IoT) Approaches for Distributed Computing", Institute of Electronics and Electrical Engineering (IEEE) and IEEE International Conference on Ubiquitous Wireless Broadband, Spain. He also co-chaired the International Congress of Mathematicians (ICM0 2014).

As part of his role as Associate Dean for Research and Graduate Studies at QU College of Engineering, Prof. Amira has established new initiatives to increase the number of Qatari students in graduate programs and research programs with industry, maintaining high success rate for funding in the College of Engineering and proposing new graduate programs.

# Women with Disabilities in the State of Qatar

Human Rights,  
Challenges, and Means  
of Empowerment

**Dr. Asma Abdulla Al-attiyah**

Head of Department of  
Psychological Sciences

**Dr. Elsayed Elshabrawi Hassanein**

Associate Professor of  
Psychological Sciences  
College of Education  
Qatar University

Although women with disabilities and men with disabilities have different life experiences due to biological, psychological, economic, social, political and cultural characteristics associated with being female and male, women with disabilities face multiple discriminations and are often more disadvantaged than men with disabilities in similar circumstances. Underlying the double discrimination is negative attitudes about women

compounded by negative attitudes towards disability that often cut across cultures and level of development. Women and girls with disabilities are commonly stereotyped as sick, helpless, childlike, dependent, incompetent and asexual, greatly limiting their options and opportunities. The literature review indicated that women with disabilities did not exercise their rights in various fields, such as the right of self-determination and had limited opportunities to receive appropriate education because of their abilities

compared with other women and even with disabled men. Therefore, it is highly important to focus on the empowerment means for women with disabilities. It is essential that the family allows autonomy for their daughter with a disability from childhood and to encourage her to engage and interact with the community. To enable women with disabilities to access their rights, governments signed the European Convention on Human Rights and the Convention on the Right of Persons with Disabilities and worked on the legislation of several laws to ensure the rights of women with disabilities. This includes the right for education, rehabilitation, health, integration into society, life in dignity, and access to appropriate services such as health, prosthetic devices, adequate job opportunities, as well as financial support for those who are unable to work.

Qatar is among the first countries that signed the Convention on the Right of Persons with Disabilities. Qatar also plays a leading role through demonstrating the interest in the provision of education and health services as well as equal employment opportunities for women with disabilities. The country has also issued rules and regulations that defend human rights and protection for women with disabilities from the abuses that take place in all areas of work. However, few studies have sought to identify the extent of awareness of individuals with disabilities, including women with disabilities, regarding the guarantee of their rights by the law, or to assess their awareness and knowledge about their right for specialized services.

Given the lack of research in this area within the Qatari context, it is necessary to

investigate such issues in Qatar with the aim to provide national and international insights to enhance the rights of women with disabilities and provide useful insights into gender and disability worldwide. In this regard, we tried to examine the human rights of Qatari women with disabilities, the challenges these women face, and means of empowerment as perceived by Qatari women and men with or without disabilities. We explored the perspectives of 128 undergraduate students from Qatar University, who volunteered to participate in this study. We constructed the Questionnaire of the Rights of Women with Disabilities (QRWD), a self-rating questionnaire consisting of three parts and using the CRPD's Articles and CEDAW's Articles. The first part includes 28 items measuring seven categories of human rights, the second part comprises 21 items assessing three types of obstacles that prevent individuals from achieving human rights, and the third one consists of 18 items measuring four ways of empowerment. Responses are reported on a three-point Likert rating scale (agree, neutral, and disagree).

The results showed that participants with disabilities were more aware of the human rights of women with disabilities than participants without disabilities. In addition, males, especially who have no disabilities, were less aware of some rights of women with disabilities (social protection, health welfare and personal rights) than women without disabilities. Females with disabilities acknowledged more rights for family construction than females without disabilities.

Moreover, participants with disabilities rated the civil and political rights as less important

than social protection, health welfare, rights for Education, and personal rights. Women with disabilities addressed the challenges related to society more than the ones related to themselves or their families, while females without disabilities addressed challenges related to women with disabilities.

Furthermore, males without disabilities acknowledged less the ways of empowerment than females without disabilities. In addition, legislative and political empowerment was considered more important than both social and educational empowerment.

These findings may reflect the results of the attention given by the Qatari government to individuals with disabilities. Indeed, the Qatari Supreme Council for Family Affairs organizes many events (e.g., lectures, workshops, and conferences) aiming at establishing a culture that respects the human rights of men and women with disabilities. Since all participants in this study were undergraduate students enrolled at Qatar University, almost all participants with disabilities attended these events. This could explain why disabled persons were more aware of their human rights than the nondisabled individuals.

Therefore, the study recommends developing training programs to enhance public awareness of the rights of all individuals with disabilities, especially women, and to enable women with disabilities to realize their rights and gain the knowledge necessary to access available services. Additionally, there is need for the development of further legislations and laws for the integration of disabled women in various aspects of life.



# **QU Press becomes a member in two international associations**

Qatar University Press (QU Press) became a member in the Association of University Presses (AUP – established in 1937 and based in the USA) and the Association of Learned and Professional Society Publishers (ALPSP – established in 1972 and based in the UK). QU Press is the first Arab university press to join AUP. AUP is dedicated to the support of creative and effective scholarly communications. Through its programs and information resources, the association helps more than 140 nonprofit scholarly publishers fulfill their shared commitment to scholarship, the academy, and society. AUP members get several benefits that include educational and professional development opportunities; informational services such as statistics reporting, toolkits, and issue briefs; and promotional and advocacy programs. ALPSP is an international membership trade body that supports and represents nonprofit organizations and institutions that publish scholarly and professional content. Members get a wide range of benefits including advice and guidance on latest developments, in-company training courses, free access to *the Learned Publishing* journal, research reports, and seminars and workshops on key issues.

QU Press also joined EBSCO International Inc., a leading provider of research databases, e-journals, and e-books. The new partnership will allow content from QU Press to be searched within EBSCO Discovery Service™ (EDS). The agreement will add e-journal metadata and full text from QU Press into the EDS Base Index. In addition, QU Press will gain a unique exposure and worldwide recognition of its brand



while reaching new potential subscribers and tremendous outreach to researchers and students. EDS Base Index represents content from over 110,000 providers, which accounts for more than 200,000 publications from the world's top publishers and information providers.

Two QU Press journals, namely *the International Review of Law (IRL)* and *the Journal of College of Sharia and Islamic Studies*, have been indexed in the e-Marefa database as they comply with the Arab Citation & Impact Factor (ARCIF) standards. Over 4000 journals from 20 Arab countries have been evaluated by e-Marefa. Three hundred sixty-two journals only have been selected in the 2018 report. e-Marefa is the leading digital Arabic database, which complies with the international bibliographic standards. e-Marefa database comprises more than 1070 academic journals and statistical reports issued by various bodies in the Arab world in three languages: Arabic, English, and French.

Commenting on these achievements, QU Press

Founding Director and Editorial Committee Chair Dr. Talal Abdalla Al-Emadi said: "Through these milestones, QU Press is gaining important regional and global exposure. The Press will continue to deliver on its vision to be recognized as a quality scholarly publisher through a commitment to the highest standards of scholarship, effective dissemination of knowledge, and global impact. We look forward to continual growth."

QU Vice President for Research and Graduate Studies and QU Press Advisory Board Chair Prof. Mariam Al-Maadeed said: "The publishing industry continues to change as supply chain and user needs become increasingly varied. Having resources as specialized as AUP and ALPSP will provide QU Press with support and international exposure. Joining EBSCO will bring QU Press journals portfolio to the wider community and having two journals being indexed in the e-Marefa database demonstrates that they are aligned with international publishing standards."

# tadTalks® at Qatar University

# tad Talks®

**Research Matters** FOUNDED BY QATAR UNIVERSITY

The Office of Graduate Studies launched tad® (Thesis and Dissertation) Talks as part of the Qatar University Annual Research Forum and Exhibition, which was organized on April 23-24, 2019. The graduate event, the first of its kind, provides a platform to showcase the resilience and perseverance required from graduate students to complete impactful research that addresses global challenges. With nine countries being represented, twelve exceptional graduate students had ten minutes each to emphasize a particular challenge they had to overcome in their research and what strategies they used to come out on top. Following the individual sessions, tad® speakers participated in a panel where members of the audience had the opportunity to ask questions. Inspired by the well-known TED Talks, the idea behind tad® Talks is that graduate students play a major role in much of the cutting-edge research being conducted at universities all over the world, and, as such, understanding and sharing their experiences is key to supporting

graduate research. tad® Talks is an event intended to convey to current and incoming graduate students who may doubt whether they are up to the task, that taking on thesis research that directly impacts the community is doable, is highly valued, and is supported at Qatar University (QU).

Joining the brightest graduate researchers from QU, Hamad bin Khalifa University, and Doha Institute for Graduate Studies are international students from Canada, China, Denmark, Japan, Kuwait, Oman, the US, and Turkey. Commenting on the addition of tad® Talks as part of Qatar University Annual Research Forum and Exhibition, Prof. Mariam Al-Maadeed, QU Vice President for Research and Graduate Studies, said: "This is an excellent opportunity to discuss the different challenges that graduate students face in their research as well as a way to celebrate the outcome of their efforts."

Dr. Ahmed Elzatahry, QU Dean of Graduate Studies, said: "The Qatar University Research Forum and Exhibition goes from

strength to strength every year, and this year is no exception; The Graduate Studies Day of the Forum showcases the innovative research being done by QU graduate students and provides an opportunity to share the outstanding research of our students with their international peers."

Prior to the opening of the Qatar University Annual Research Forum and Exhibition, the visiting group of graduate researchers was invited for a tour of QU, its research centers and facilities prior to the opening of the Annual Research Forum and had several other opportunities to engage with the QU graduate community.

With the theme of 'Resilience in Research' Qatar's own resilience in the aftermath of the blockade serves as the backdrop for the event, perpetuating the notion that resilience in the pursuit of knowledge can overcome any obstacle. The event also featured a speech by Mr. Mohammad Al-Mannai as a special guest sharing his exceptional story of resilience as a cross-country rally car driver.



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## Resilience in Research

Tuesday 23 April 2019

8:00 am - 3:00 pm

Qatar University, Research Complex (H10)



Platinum Sponsor الراعي البلاتيني



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# Biomedical Research Center organizes a workshop on bioinformatics and laboratory investigations of emerging pathogens and epidemics



Attendees at the workshop organized by QU BRC

The connectedness of populations across the globe through international travel and trade, along with the increase of newly emerging pathogens have led to the rapid spread of diseases. This is illustrated by the Severe acute respiratory syndrome (SARS) coronavirus outbreak in 2003 and the global spread of pandemic H1N1 in 2009. To mitigate the risks of emerging diseases for public and veterinary sectors, coordinated and collaborative approaches across domains of infectious diseases (ID) are essential. With the above observations comes the notion that preparedness planning is needed to ensure adequate response to emerging ID cases or outbreaks.

Qatar faces several challenges with regard to preparedness for emerging ID threatening veterinary and human health. Qatar also knows a heavy influx of foreign labor with expatriates constituting 94% of a total labor force of 1.3 million people and originating from countries in Africa and Asia endemic for zoonoses.

These increasing demands go hand-in-hand with increased risks for introduction of zoonoses into the country, which raises the alarm about the importance of preparedness planning, and building the knowledge to ensure effective responses to emerging infectious disease (ID) cases or outbreaks. Accordingly, the Biomedical Research Center (BRC) at Qatar University (QU) organized and hosted a workshop on “Bioinformatics and laboratory investigations of emerging pathogens and epidemics”, on January 14-17, 2019. The workshop, which was supported by Qatar National Research Fund (QNRF), aimed at introducing medical and public health professionals to the new bioinformatics approaches that are used in outbreak investigations of emerging and re-emerging pathogens including viral and bacterial pathogens.

The event attracted internationally renowned experts from the J. Craig Venter Institute (JCVI), which is a world leader in

genomic and bioinformatics research. The workshop was a Category 1 - Accredited Group Learning Activity as defined by the Qatar Council for Healthcare Practitioners Accreditation Department and qualified for a maximum of 30 credit hours for all topics. The event drew the participation of over 35 health care professionals from various institutes in Qatar. The opening session was delivered by Prof. Asma Al-Thani, QU College of Health Sciences (CHS) Dean and BRC Director, followed by a talk delivered by QNRF representative Dr. Mohammed Jarrar, Senior Manager of Biomedical and Health Research and Associate Professor at QNRF. The workshop was moderated by Dr. Hadi Yassine, BRC Assistant Professor of Infectious Diseases.

During the four-day event, the participants attended different theoretical sessions, followed by hands-on trainings on advanced bioinformatics tools in the field of ID.

# First International Conference on Smart Nanomaterials



Dr. Hassan Al-Derham, QU President, and other attendees at the conference organized by QU CAM

The Center for Advanced Materials (CAM) at Qatar University (QU) organized the first International Conference on Smart Nanomaterials in collaboration with Fudan University (China) on February 24-25, 2019. Attending the conference were QU President Dr. Hassan Al-Derham, Fundan University (insert his job title) Prof. Dongyuan Zhao, and CAM Director Dr. Nasser Alnuaimi, as well as researchers and experts in the field of smart nanomaterials.

The conference aimed to bring together researchers from Qatar, China, and the USA to exchange their ideas and experience on smart nanomaterials and to explore opportunities for research partnerships. It included plenary and technical sessions covering numerous topics on nanomaterials such as emerging nanomaterials, graphene and MXene nanomaterials, nanoscale electronics, nanotech for energy and environment, catalysis, nanotech in life sciences and medicine, mesoporous

and microporous materials, nanomaterials for chemical energy storage and conversion, and materials for solar energy conversion. This is for exchanging different experiences between researchers from Qatar & China, in addition to research partnerships. The conference also featured a research poster exhibition showcasing 30 posters from China, India, and Pakistan.

In his remarks, Dr. Nasser Alnuaimi said: "I believe that this conference represents an excellent interdisciplinary platform to exchange and share the experience and knowledge of various materials scientists on smart materials and their applications. It aligns with Qatar National Vision 2030 and offers the Qatari people an opportunity to realize their potential, develop their abilities, and follow their aspirations to build a knowledge-based economy and society."

Prof. Dongyuan Zhao said: "This is the first conference hosted by QU and Fudan University. Our

collaboration in nanomaterials has been growing for several years since my first joint publication with Qatar University in 2012, and in the future, we may have student exchange programs. On the personal level, I have created new friendships with researchers and learned how to understand the requirements of the labor market in this field as well as discovering a group of prestigious companies in the oil field."

It is clear that the importance of such conferences lies in the gathering of expert stakeholders and enabling the discussion of ideas and concepts to develop their careers, in addition to establishing new projects to enhance the country and the world.

The conference concluded with an award ceremony for the best research poster. The judges committee consisted of Prof. Xiaomin Li, Prof. Wei Li and Prof. Qiaowei Li from Fudan University in China, in addition to Prof. Karim Alamgir from the University of Houston in the USA.

# Research Collaboration Symposium - 2018



Part of the audience at the Research Collaboration Symposium 2018

The Office of VP for Research & Graduate

Studies (VPR&GS) at Qatar University (QU) organized the Research Collaboration Symposium - 2018 on November 18-20, 2018. The event attracted around 456 from inside and outside QU. It aimed to establish, develop, and strengthen the University's collaborative ventures with society and the industry; to enhance collaboration between QU colleges and centers; and to facilitate and encourage individual initiatives.

To stimulate, develop and strengthen the University's collaborative ventures with society and Industry

To enhance collaboration between different colleges and centers within Qatar University

To establish and develop strategic partnership with industry

To facilitate and encourage individual initiatives

The event covered three essential research topics: Energy, Environment and ICT; Health and Biomedical Sciences; and Social Sciences and Humanities.

On the first day, inaugurating Energy, Environmental & ICT Session, Prof. Mariam Al-Maadeed, QU VP for Research and Graduate Studies, said: "QU efforts are dynamic in the environmental research targeting sustainable development, protecting our land and sea resources, and preserving wildlife of all kinds.

Moreover, QU advanced in innovative technological competence capable of confronting and keeping up with the demands of the era in several fields of artificial intelligence, cybersecurity, information protection and others."

Prof. Abbas Amira, Associate Dean for Research and Graduate Studies at QU College of Engineering, Dr. Radhouane Ben Hamadou, Head of the Biological and Environmental Sciences Department at QU College of Arts and Sciences, QU College of Arts & Science, Dr. Nasser Alnuaimi, Director of QU Center for Advanced Materials, and Prof. Hamad Al-Kuwari, Director of QU Environmental Science Center, introduced the research facilities available and the research activities conducted in their respective

colleges and centers.

The second session included a panel discussion on the "4th Industrial Revolution (Industrial 4.0)-Fostering Greater Collaboration", moderated by Dr. Aiman Erbad, Director of Research Planning and Development at VPR&GS, and delivered by Mr. Felipe Daguila Simoes, Executive Director Digital Transformation at Ooredoo, Prof. Abdelmagid Hammuda, Acting Dean of QU College of Engineering, Mr. Mohamed Al-Delaimi, Executive Director of Strategy and Corporate Planning at Es'hailSat, Prof. Mohammad Abdelmoati, Environmental Consultant at Ministry of Municipality and Environment, and Mr. Ali Saeed, President and CEO of Origen.

The third session featured a roundtable discussion on Water Research (Moderator: Dr. Alaa AlHawari, Associate Professor of Civil Engineering, College of Engineering), Food Security (Moderator: Dr. Hareb AlJabri, Acting Director of Sustainable Development Center), Oil and Gas (Moderator: Dr. Abdebakil Benamour, Research Associate Professor at college of Engineering), Sustainability & Eco-tourism (Moderator: Dr. Radhouane Ben Hamadou, Acting Head of Biological & Environmental Sciences Department at College of Arts & Sciences), Renewable energy (Moderator: Dr Adel Gastli, Professor of Electrical Engineering), Materials (Moderator: Dr. Aboubakr Ali, Research Associate Professor), Cybersecurity (Moderator: Prof. Azzam Ibrahim, Research Professor at College of Engineering), Artificial Intelligence and smart systems (Moderator: Dr. Tamer Elsayed,

Associate Professor of Computer Science at College of Engineering), ICT for health (Moderator: Dr. Amr Mohamed, Associate Professor of Computer Engineering, College of Engineering), Telecommunication (Moderator: Prof. Ridha Hamila, Professor of Electrical Engineering, College of Engineering).

On the second day after inaugurating Health & Biomedical Session, Prof. Mariam Al-Maadeed said: "QU is aware of the great challenges within the health sector and we are targeting to confront them in every possible way. QU is supporting high quality medical research and has accomplished desirable results, which led to publishing high quality research papers. Furthermore, cooperation was established with well-known local and international partners. QU has worked to equip health providers with the best skills and competencies to overcome the challenges in areas of protection, treatment, and medication."

The second session included a panel discussion on "Creating Partnership between Academia, Health Institutions and end Users" moderated by Prof. Feras Alali, QU Health Director of Research and Graduate Studies. The panel comprised Dr. Mohammed Bin Hamad Al-Thani, Director of Public Health Department at the Ministry of Public Health, Prof. Egon Toft, QU Vice President for Medical and Health Sciences, Prof. Richard Kennedy, Vice President of Research, Development and Innovation at Qatar Foundation, Dr. Khalid Fakhro, Director of Human Genetics at Sidra Medicine and Dr. Jassim Al Suwaidi, Senior Consultant Cardiologist at Hamad Medical Corporation (HMC).

The third session included a roundtable discussion on Diabetes (Moderator: Dr. Abdelali Agouni, Associate Professor of Pharmaceutical Sciences), Population Medicine (Moderator: Dr. Suhail Doi, Department



Dr. Hamad Al Saad Al-Kuwari

Head of Population Medicine), Cardiovascular diseases (Moderator: Dr. Nasser Rizk, Associate Professor of Biomedical Sciences), Cancer (Moderator: Prof. Serhiy Souchelnyskyi, Professor of Molecular/Cell Biology), Infectious diseases (Moderator: Dr. Hadi Yassine, Research Assistant Professor).

On the third day, while inaugurating the Social Sciences, Arts and Humanities Session, Prof. Mariam Al-Maadeed mentioned that "QU is providing a supportive environment to consolidate the research culture in colleges and centers. The university is also promoting innovation through the development of effective programs for undergraduate and graduate students. In addition, QU is working towards enriching libraries, upgrading technology, and preparing well-trained research competencies, as well as attracting talented personnel from various fields."

Dr. Muna Al-Marzouqi, Associate Dean for Research & Graduate Studies at QU College of Law, Dr. Ibrahim Al-Ansari, Dean of QU College of Sharia and Islamic Studies, Dr. Rashid Al-Kuwari, Dean of QU College of Arts and Sciences, Dr. Hassan Al-Sayed, Director of QU Social and Economic Survey Research

Institute (SESRI), and Dr. Khalid Shams, Al-Abdulqader, Dean of College of Business and Economics introduced the research facilities available and the fresearch activities

conducted in their respective colleges.

The second session included a panel discussion on "Research Needs in Qatar and Importance of Collaboration in Health and Biomedical Areas" and moderated by Dr. Hassan Al-Sayed, Director of SESRI. The panel comprised Dr. Nayef Al-Shamari, Director of QU Ibn Khaldon Center for Humanities and Social Sciences, Dr. Khalid Al-Horr, CEO of Qatar Finance and Business Academy (QFBA), Ms. Amal Al Mannai, CEO of Qatar Foundation for Social Work (QFSW), Dr. Jamal Alyafei, Assistant Director Department of Strategic Planning - Planning & Statistics Authority, and Major General Dr. Hamad Al-Marri, Commander of the Center for Strategic Studies – Qatari Armed Forces.

The third session featured a roundtable discussion on Values and identity (Moderator: Dr. Fatima Al-Kubaisi, Head of Social Sciences Department), Education and capacity building (Moderator: Dr. Abdullah Abu-Tineh, Director of QU National Educational Development Center), Economic Diversification (Moderator: Dr. Mahmoud Khalil, Director of QU Entrepreneurship Center), Family and Women (Moderator: Dr. Suzanne Hammad, Assistant Research Professor on Sociology at QU Ibn Khaldon Center for Humanities and Social Sciences), and National security (Moderator: Dr. Mahjoob Zweiri, Acting Director of QU Gulf Studies Center).

A total of twenty roundtable discussions were organized during the symposium. The overall objective of this series of roundtables was to produce a final set of recommendations, which were ultimately used as the basis for QU research policy. It is also a platform to establish collaborations and long-term relationships. All the members actively participated in dialogs and shared their ideas and experiences.

# Al-Bairaq and SEHHA-QSBD programs at Qatar University earn the bronze prize for QS-Reimagine Education Awards



Dr. Hassan Al-Derham, QU President, and winners from Al-Bairaq program

Of the 1150 innovative education projects, Al-Bairaq won the bronze prize at the Reimagine Education conference held on December 28-30, 2018. The Reimagine Education is an international conference and competition aimed at recognizing and rewarding the most successful institutions, programs, and projects in creating educational initiatives and innovations that promote student learning outcomes and qualify them for the job market.

The award is a partnership between Wharton School of the University of Pennsylvania, one of the most prestigious universities in the United States, and Quacquarelli Symonds (QS), a leader in university ranking worldwide. Al-Bairaq is the first Qatari program that

won the Reimagine Education awards for two consecutive years (2016 and 2017). This year, Al-Bairaq was nominated and won for the third time in the Cultivating Curiosity category, among 1,150 educational projects in 17 categories from around the world. Al-Bairaq is the only Qatari and Arab program to win in this competitive category. This demonstrates the distinction and visibility of the program globally and its recognition by global learning institutions as a successful program with strong outputs.

At the conference, Eng. Ruba Ali, a member of Al-Bairaq team, delivered a presentation about Al-Bairaq Program, its objectives, methodology, and commitment to drive the culture

of research among students in the State of Qatar. The program was launched in 2010 by the Center for Advanced Materials at Qatar University (QU), under the leadership of Dr. Noora Al-Thani, President of QU Al-Bairaq Program and Head of Communication and Outreach.

At the same event, SEHHA-QSBD Dual Project has won the Bronze for the category of the Middle East Regional award at QS-Reimagine, San Francisco.

In his opening speech, Nunzio Quacquarelli, CEO of QS Reimagine Education Awards, noted that there were over than 1186 submitted projects for QS Reimagine Education Awards, but only 160 projects were nominated for the finalists.

During the conference, Dr. Omar Al-Ansari, QU Vice President of Academic Affairs, gave a speech about Qatar University and its vital role to support the educational systems worldwide. Dr. Al-Ansari also highlighted factual statistics regarding the population's size and the international collaborative work in the academic, research and community engagement fields. He indicated that QU has currently 17 research centers that work collaboratively towards research excellence.

Prof. Mariam Al-Maadeed, QU Vice President for Research and Graduate Studies, acknowledged the award winning project and said: "Embedding the aspect of career success in high school students is one of the major anchors to achieve the Qatar National Vision 2030 and increase our national capacities of Qatari health professionals, scientists and researchers". Prof. Al-Maadeed added: "We, at Qatar University, are proud to see how far this project has reached at the national and international scopes". Prof. Al-Maadeed also pointed to the statement of Her Highness Sheikha Mozah Bint Nasser during the inauguration of Sidra Medical Center on November 12, 2018, in which she said: "In the context of Healthcare services' improvement, the State of Qatar endeavors to graduate competent candidates in this area. This is a core of the professional security and a platform of the national security of any state". Her Highness pointed that the shortage of qualified professional in a sector, will render a state unable to fulfil its duties at certain point in the history.

Prof. Asma Al-Thani, Dean of QU College of Health Sciences (CHS) and Director of the Biomedical Research Center (BRC), said: "SEHHA-QSBD Dual project was established in 2013 to build national capacities in the fields of health care and natural science.



Winners of SEHHA-QSBD program receiving the bronze award at QS-Reimagine Education Awards

Up to this year, the project hosted over 470 Qatari students from 95% of the high schools across Qatar. The project offers a great opportunity to high school Qatari students to explore the career of health sciences, apply their innovative ideas, and integrate into meaningful internships.

After all, we capitalize on Qatari candidates who have interests in the careers of health and natural sciences through providing sponsorships and internships. The projects accounted of 47% of the overall Qatari admissions at the College of Health Sciences and around 57% of Qatari admission at QU-Health Cluster level. Therefore, we consider this project as a great resource to increase the Qatari national capacity in the health care sector." Prof. Al-Thani Added that the project is currently being sponsored by Qatar BioBank, operated by QU-Health and BRC, in collaboration with Hamad Medical Corporation, the Ministry of Education, The Ministry of Health, the Ministry of Interior, Al-Qannas Society, Falcon Genome Project, Sidra Medicine, and the

Primary Health Care Corporation.

The SEHHA-QSBD program falls under the Empower Generations Consortium, which is located in QU, and operated jointly under the umbrella of CHS and BRC. The consortium operates three projects: Science Education and Human Health Activities (SEHHA) Project, Qatar Scientists in BioDiversity (QSBD) Project, and Genomics and Precision Medicine (GPM) Project.

It is the only project-based consortium that tackles the career-related challenges from the secondary education's platform and connects the bridges between the schools, universities, employment and national demands. The project facilitates genuine engagement of high school students with professors and researchers, helps the new generations to meet their role models at various health care facilities, strengthens the national commitments and reinforces responsibility. Eventually, the project strives to invest in youth in order to build a secured base of the national human resources and create a culture of productivity.

# The Gas Processing Center organizes a course on petroleum exploration and production



Dr. Abu-elbashar offering a course certificate to one of the attendees

The Gas Processing Center (GPC) at Qatar University (QU) organized a course on “Introduction to petroleum exploration and production” on February 3-7, 2019. The course, which includes 30 hours, is tailored to acquaint the participants with the full scope and basic knowledge related to petroleum exploration and production business. It covers the subjects of hydrocarbon origin and migration, geological surveys, drilling engineering, production engineering, hydrocarbon processing, hydrocarbon transportation, petroleum economics, and petroleum exploration agreements. During the course, the attendees were introduced to different topics, including licensing rounds and exploration agreements, geological aspects in petroleum exploration, drilling engineering, well testing, well completion and production technology, field development planning, reserve evaluation, surface production facilities, and health safety and environmental protection in the oil industry. The course was delivered by Dr. Omar Badawi Abu-elbashar, Managing Director of PETRO-TEC and specialist in compositional and black-oil reservoir simulation, field development planning, and reservoir management.

# 2019 tad<sup>®</sup> Boot Camp at Qatar University

The Office of Graduate Studies at Qatar University (QU) hosted the 2019 tad<sup>®</sup> (thesis and dissertation) Boot Camp, which ran on January 21-23, 2019 at QU Research Complex. The boot camp is a program designed to centralize the various services available across campus to support thesis and dissertation research in one convenient location.

This 3-day event attracted 150 graduate students from QU colleges and included workshops, thesis research consultations with experienced faculty and researchers, one-to-one sessions with the Statistical Consulting Unit (SCU) and QU Social Economic Survey Research Institute, an Information Literacy Librarian from the QU Library, and support from graduate writing experts at the Office of Graduate Studies.

The tad<sup>®</sup> Boot Camp aimed to provide a supportive writing environment, where graduate students at all stages of the thesis writing process can take advantage of the many resources available across campus. This ease of access helps students replace procrastination with productivity, while leaving enough time to benefit from the boot camp experience before the university's tad<sup>®</sup> deadlines draw near.

This year, the Office of Graduate Studies also introduced the tad Boot Camp awards, which are intended to reward graduate students who produce excellent research as a consequence of their participation in tad<sup>®</sup> events that target the enhancement of graduate research. The awards



consist of funding to travel to an international conference to present an accepted paper out of the thesis research in which the student is the primary author.

The students were able to apply what they learned during the boot camp and submitted a full thesis proposal (i.e. Introduction, Literature Review, and Methodology) to the Office of Graduate Studies by the end of February for eligibility for the award. The award winners were announced by the Vice President for Research and Graduate Studies at the Annual Qatar University Research Forum and Exhibition, which was held on February 24, 2019. Prof. Mariam Al-Maadeed, QU VP for Research and Graduate Studies, commented on the event stating: "Working collaboratively is crucial to support graduate students and foster excellence in research. Such boot camps are supportive for

the development of research and creative abilities of the students".

Dr. Ahmed Elzatahry, Dean of Graduate Studies, said: "Writing a thesis or dissertation can be challenging, but the tad boot camp is about emphasizing the notion that hard work paired with a supportive environment can make any goal achievable".

The tad<sup>®</sup> Boot Camp is an annual event hosted by the Office of Graduate Studies and is followed up with the tad Writing Hours held on Mondays from 12:00 PM to 2:00 PM at the Research Complex (H10), Room G119. The Office of Graduate Studies also supports graduate writing and research through a series of specialized workshops, lectures, and seminars addressing statistics, graduate writing, and navigating library resources, which run throughout the year.

# Activities of Ibn Khaldon Center for Humanities and Social Sciences



Part of the activities organized by Ibn Khaldon Center for Humanities and Social Sciences

Ibn Khaldon Center for Humanities and Social Sciences at Qatar University is interested in issues related to the field of humanities and social sciences within its five strategic frameworks: innovation, acculturation, realism, bridging, and localization.

The Center organized a number of events related to the social issues of interest in the scientific and cultural landscape in the region, in general, and in the State of Qatar, in particular, including: A panel on “Efforts to combat discrimination against women: reading in different backgrounds and dimensions”, organized on May 15, 2018, in order to read the efforts of state institutions in this field, an academic and objective reading that benefits the society.

A student conference titled “Gulf Crisis and its Implications: Scientific Approaches” on October 27, 2018. Participants discussed various aspects of this crisis and its social, political, economic,



مركز ابن خلدون للعلوم الإنسانية والاجتماعية  
Ibn Khaldon Center for Humanities and Social Sciences

security and religious implications from the academic and scientific points of view.

A panel titled “Qatari Society and Question of Identity”, held on September 10, 2018 to discuss the dialectic of the relationship between the national, domestic and religious identities of the Qatari citizen. The attendance of both university and community members was intense in all these events.

The Center also organized several international events addressing difficult social issues, including:

- International conference titled

“National Multiculturalism in the Middle East: Toward a Common Civilizational Framework”, March 26, 2019.

- International panel on “Research Methodology in Concepts and Terminologies in Social Sciences and Sharia”, April 20, 2019.

- International panel titled “Sociology and the Question of Localization” and other events on October 26, 2019.

The Center will organize a scientific workshop on “The Crisis of Social Sciences in the Arab World” and a panel titled “The Gap between Intellectual and Reality”. It will also publish “Tajseer”, a journal dedicated to interdisciplinary research in humanities and social sciences.

For more information on the activities of Ibn Khaldon Center for Humanities and Social Sciences, please visit:

<http://www.qu.edu.qa/research/centers/IbnKhaldon>

# Six students in a QU law clinic research the Paris Agreement to enhance Qatar's NDCs

Qatar University (QU) continues a tradition of offering innovative research-based courses. The TradeLab clinic is one such example. Through a combination of practice and theory, it offers a unique opportunity to thoroughly analyze trade and investment law and jurisprudence. Highly qualified students work in small groups under the supervision of professors, mentors, and beneficiaries. The students address specific legal questions related to trade and investment law coming from “real clients”. Expert-led workshops on substantive topics related to the projects are organized, and skills sessions are held to improve legal research, writing, and analysis. At the end of the semester, the group submits a written memo, a poster presentation, and gives an oral presentation of the project. This term, spring 2019, six QU law students are participating in the International Investment Law clinic. Among the student participants are Maissa Khalid Al-Sulaiti, Noor Rashid Al-Khater, Rasha Albasha Ali, Shadw Nader Mohamed Mohamed Ibrahim, Shaikha Hamad Al-Naimi, and

Wafa Saad Al-Kuwari. The students will draft a proposal aiming to improve Qatar's trade and investment policies in its Nationally Determined Contributions (NDCs) under the Paris Agreement. This clinic is conducted in collaboration with The Graduate Institute, Geneva, Georgetown University, Washington, DC, and Doha; it is funded under a National Priorities Research Program (NPRP) grant. The project

is supervised by QU Press Founding Director and Oil & Gas Law Professor Talal Al-Emadi, Sir William Blair Chair in Alternative Dispute Resolution, Francis Botchway, and Law Clinical Professor Rafael Brown from QU College of Law. The beneficiary is the Ministry of Municipality and Environment, Office of Undersecretary for Climate Change Affairs.



# Trace Metals in the Exclusive Economic Zone (EEZ) of Qatar



**Jassem Abdulaziz Al-Thani,**

Research assistant at the Environmental Science Center (ESC),  
Qatar University

Jassem Abdulaziz Al-Thani  
A research assistant at the Environmental Science Center (ESC) at Qatar University. is a member of the chemical oceanography cluster of the Environmental science center (ESC) at Qatar university (QU), working on marine geochemistry and biogeochemical cycles. Since joining the ESC, he has contributed in several multidisciplinary research projects, conducted on the Qatari coastal and offshore marine environment. His current research focuses on the composition, fluxes and transport of different pollutants, ocean acidification and climate change in the Exclusive Economic Zone (EEZ), Qatar. His main academic goal is to use the natural setting of the Gulf to predict impacts of climate change and ocean acidification on the

marine environment's food web and essential ecosystems as well as the marine biogeochemical cycles. His first peer-reviewed publication is currently under revision. It is on the examining the effect of suspended particulate matter on the transport pathways of trace metal in the EEZ of Qatar. Jassem's interest in marine sciences started in his undergraduate studies as was fascinated by the topics of marine stressors' effects on the marine environment, such as climate change, inorganic pollution, and the marine biogeochemical cycling of elements. He selected to measure the levels and transport of metal pollution in the Doha Harbor and compare these levels to the offshore environment as his undergraduate graduation project working under the supervision of Dr. Ebrahim Al-Ansari and

Dr. Yousra Soliman in the QU Department of Biological and Environmental Sciences at Qatar University. "I was first inspired and started to think of being a marine scientist, when I was taught by Drs. Ebrahim Al-Ansari, Yousra Soliman and Ibrahim Al-Maslamani in my first year during my undergraduate studies", as mentioned by Jassem when asked why he chose this career path. During his undergraduate research project, he worked on the spatial and temporal distribution of trace metals and nutrients in the EEZ of Qatar and continues to do it with his work in the ESC, collaborating with Dr. Yousra Soliman, Dr. Ebrahim Al-Ansari and Dr. Oguz Yigiterhan. His research project won the Best Research Poster Award in the Qatar University Life Sciences Symposium of 2017. Jassem is currently working on the quantification of environmental risks and impacts induced by different stressors related to industrial development in the region, including trace metals, climate change and ocean acidification, a progressive increase in acidity

of the ocean due to the uptake of anthropogenic atmospheric carbon dioxide (CO<sub>2</sub>) emissions. The effects of ocean acidification are now considered to represent one of the biggest threats to global marine biodiversity. There are several important marine habitats in the Qatar waters, which do have regional as well as global significance. The EEZ of Qatar covers many diverse marine resources such as coral reefs, extensive seagrass meadows, mangrove swamps and oyster beds, all of which require protection and conservation. During the past three decades, the Gulf marine environment has witnessed several threats and stresses in the many existing marine ecosystems and these have endangered its marine resources. The availability of scientific data on pollution of the ecosystem with metals are minimal and scarce. Jassem is especially interested in studying trace metals pollution because they are ubiquitous and very harmful group of contaminants to the marine environments. Some of these metals occur naturally in the environment and they are micronutrients at minute concentrations while in high concentrations, they become very toxic such as (Cu, Zn Fe). While others are harmful at even the minute levels such as lead, arsenic, cadmium and mercury that pose a health risk and problem to human health. Trace metals levels in the coastal water increased immensely over the past decades due to human activities and industrial development. Pathways into the ocean include atmosphere, riverine discharge, deliberate discharges of wastewaters, dumping of wastes and fossil fuel extraction/exploitation. The Gulf is especially considered as a high-risk basin because of its semi-enclosed shallow nature and due to the dense populations



around it. The Gulf region contains over 60% of the world's proved oil reserve and exports over 30% of the world oil. This privilege comes with environmental risks of metals and hydrocarbons contaminations associated with the explorations, transportations and exploitation activities. Once in the marine environment, one pathway for these contaminants is the flux into the marine food chain and they accumulate in the tissue of the marine organisms (bioaccumulation) before they are transferred to higher trophic level – a potential threat to end consumers, mainly humans. Humans are exposed to heavy metals via consumption of the contaminated seafood. Metals bioaccumulate in the tissue of the organisms living in the environment, such as shrimp, crabs and fish and they get biomagnified as they flow through the marine food chain. Among these marine organisms are some commercial fish that are consumed by humans such as the grouper (Hammour), kingfish, swordfish, tuna, shark and shellfish (crabs and shrimps). Once the metals enter the human body, one of the most destructive effects is to accumulate in the central nervous system and exert chronic neurotoxic effects on the human body. Different metals accumulate at changing

rates in different tissues and organs of the human body. The resulting effects of heavy metal toxicity in the human body include neurological brain damage, heart disease, infertility, dementia and neurological disorders. Jassem is focusing now on advancing his research on the biogeochemistry of the marine environment and the effect of the climate change and ocean acidification on carbonate system and calcifying organisms. He considers these fields as interesting and fascinating and a hot topic in the studies of the marine environment as they are related to the global carbon cycle, which is currently a major research focus in the global marine scientific community. Jassem plans to continue his research career and graduate studies with the aim to become a future faculty member and scientist working on the marine sciences and oceanography field at QU. He is actively working on and motivated by continuing marine sciences for the future and cultural heritage of Qatar. He said: "I am hoping to always draw attention to this often-overlooked field of science in Qatar, and I plan to put the spotlight on marine sciences in QU in the future and to inspire a new generation of marine scientists along with the marine science faculty members in QU".



## Graduate Studies at the College of Law

Dr. Muna Al-Marzouqi,  
Assistant Dean of  
Research & Graduate  
Studies

### **What are the graduate programs at the College of Law?**

There are two Master's programs in the College of Law: the Master's Program in Public Law and the Master's Program in Private Law. The Master's Program in Public Law is a postgraduate program specialized in public law following the bachelor's degree in law, which entitles the student to obtain a master's degree in public law if he/she meets the requirements.

Since the College of Law at Qatar University is the main provider of legal studies in the State of Qatar and has a strong reputation in the field of legal education, the launch of the Master's program in Public Law is intended to consolidate the colleges mission and contribute to the promotion of social growth in Qatar. As is well known, the State of Qatar is growing more and more economically and is thriving in its interconnected international relations, therefore, the need for more specialists in public law, with its various branches, is clear as the state aspires to make a significant progress in its legislative system at all levels. For this reason, the College of Law responded to the State's desire to create an environment supportive of the principles of the rule of law and to respond to its need to formulate advanced

legislation that must be supported by specialized and in-depth legal studies, obtained through a specialized Master's program in Public Law, to be in line with the Qatar national vision 2030, and to contribute effectively to make Qatar an active center in scientific research and intellectual activity. The Master's Program in Private Law is a graduate program specializing in private law following the bachelor's degree in law. Grants the student, if he passes all the requirements, a master's degree in private law. In line with Qatar's economic growth and its intertwined international investment relations, the need for more specialists in private law, both commercial and civil, is clear with the country's aspiration to make significant progress in its legislative system at all levels.

**What are the admission requirements for the Master Programs of Law?**

Those who wish to join the program must meet the following requirements:

- Applicants must have a bachelor's degree in law from Qatar University or a university recognized in the State of Qatar.
- The cumulative average of the applicant for the bachelor's degree shall not be less than 2.8 out of 4 according to the points system or the equivalent of the other evaluation systems.
- The applicant must attach to his/her application his/her detailed curriculum vitae. - The applicant must attach with his/her application a personal statement stating the reasons for his/her desire to join the program and the reasons for accepting it.
- The applicant must attach with His/her application two academic recommendations from the professors who have taught him previously. - To pass the personal interview requirements

successfully.

**Are there exceptions for students who do not meet the admission requirements and would like to study for a master's degree?**

There are no exceptions, but students who do not meet the requirements to study the Masters program can enroll in the graduate certificate program in legal studies. This program is designed for graduates of law who have acquired practical experience after obtaining a bachelor's degree. Those whose scores do not allow them to enroll in the Master's program at the College of Law at Qatar University, it will have the opportunity to develop information and legal research skills. This program is a bridge through which the student will pass if he/she achieved all the conditions required to join the master's program.

**What are the admission requirements for the graduate certificate program?**

The following requirements must be met to join this program:  
 - The candidate must have a bachelor's degree in law and a cumulative average ranging between 2.3 – 2.79. - To choose one of the courses of public law or private law. - Successfully pass a personal interview before the Program Admission Committee.

**What are the statistics of graduates for the past years**

Semester	Spring 2017	Fall 2017	Spring 2018
Number of graduates	19	3	25

**Are there future plans to release new programs?**

Yes, there is a proposal to release a doctoral program in law and it will be an opportunity for graduates who wish to pursue their studies in their home country.

**What are the most outstanding achievements and research projects of students in the College of Law?**

One of the most important achievement, the student Abdullah Al Mulla received the Outstanding Research Award (published abroad), an award presented by the Office of Research and Graduate Studies at Qatar University for the Academic Year 2017/2018 for his research: "The principle of Good Faith in Contracts: Qatari Law Perspective" which is published in an abroad international conference. Student Mohammad Nader Mari received the Distinguished University Thesis Award from the Graduate Studies Office, in which announced the from the Office of Graduate Studies at Qatar University during the Annual Qatar University Research Forum and Exhibition, for his research 2017/2018 for his research presented to obtain a master's degree in private law at the College of Law and titled: "Governance of Family Companies in the State of Qatar: Challenges and Alternatives". While for the legal essay competition organized for Master's students by the College of Law, LexisNexis Group and Al-Sulaiti Law Firm in 2018, the winners of the competition are: Student Shamma Jassim Al –Sulaiti, Student a Imad Hussein, Student Sara Al - Nour Al-Jaili Student Amna Jaber Al-Mari In August 2017, student Nisreen, Al-Qaisi received "Jisra" scholarship from Qatar National Research Fund.

**What is your advice for undergraduate students to urge them to enroll in masters programs?**

A student who wants to pursue graduate studies and is still in the bachelor's level is expected to persevere in his/her study in order



to obtain the required rate for applying for a master's program, which is 2.8 of the first semester of the study. This is better than waiting to improve the rate in the final semesters of the study. The master's degree is based on the concepts and skills acquired by the student in the bachelor's degree. Therefore, it is necessary to be keen during the study of the bachelor's to understand the theoretical knowledge and acquire the necessary legal skills, which are the cornerstone of a deeper and more intensive study in the master's stage. Finally, the methodology of conducting legal research from the bachelor's degree should be studied so that the student is qualified to conduct more advanced research at the master's level and concludes his/her career with a thesis under the supervision of a professor and a research output determined by the college.

**Can you briefly tell us about your academic and professional career?**

I received my bachelor's degree

with honors from the College of Law, at Qatar University. Then, I was appointed as a Teaching Assistant at the University and obtained the Excellence Award in Teaching from the College of Law. Then, I travelled abroad to complete the graduate study in law from the University of California, Berkeley, The USA, and then I enrolled in the Doctoral Program in Maritime Law at Tulane University, The USA. In the fall of 2018, I was appointed Assistant Dean for Research and Graduate Studies at the College of Law, and I also work as a lawyer in my private office.

**Can you tell us more about the subject of your doctoral thesis?**

My doctoral thesis was on the contract of shipping of goods in Qatari law, international conventions and both American and British law.

**Can you tell us about your personal experience at Qatar University and your academic achievements?**

I summarize my experience in

the word "wonderful." My work at Qatar University is diverse and not limited to teaching, but also includes community service, research, self-development in addition to the administrative work, so the opportunity to innovate is very great in those fields. The university is a fertile environment for science and continuous learning. Science does not stop and is not limited to the professor's achievement of the highest scientific degrees, but extends throughout his/her life and enlightens their mind with the latest developments and transfers them to his/her students. The professor is responsible for delivering this science; they are also widely reading for research in areas that the state needs. For the academic achievements, I won the Scientific Excellence Award for this year's PhD in the literary field and the Research Excellence Award from the College of Law, at Qatar University. Last year, I received the Research Fellowship Award from the Center for International and Regional Studies at Georgetown University in Qatar.

# Cybercrimes

Nasser Mohammed Alhajri

Master student of General Law at the  
College of Law, Qatar University

## Can you please tell us about yourself?

My name is Nasser Mohammed Alhajri, a graduate from the College Of Law at Qatar University. I earned my undergraduate degree with Honors, and now I am enrolled in The master's program in General Law here at Qatar University. I am also the president of the Student Representative Board at the College of Law, and Was formerly the president of the Legal Committee at the Student Representative Board.

## Can you please tell us about your research? Experience as a master's student

I have done a lot of research During my undergraduate and Graduate studies. But, the research That we conduct at the graduate Level is deeper and more effective Compared to the research we did At the undergraduate level. The Difference is, in part, due to the Experience we have acquired at this Level, which is more varied than what we experienced as

undergraduates. Additionally, the development of our research skills has definitely impacted the quality of our research at this stage, and, at the graduate level, we are able to benefit more from the many research resources available at the university and in the country. One of the most significant research projects we have taken on this year concerns cybercrimes, which are becoming an increasingly important area of investigation because of their negative impact on the community.

## What is the importance of cybercrimes research?

The use of computers and the Internet has become essential for both ordinary individuals and the public and private corporate entities. As a result, new investment relationships have emerged, some of which have focused on the computer industry while others are concerned with programs necessary to deal with data and information. In addition, new legal relations have emerged,

and when disputes on these relations arise, the rigidity of legal texts prevents the resolution of such disputes. The ongoing battle against electronic crimes within the legal realm is not negligible. On the contrary, it has a serious impact on the interest of society. For example, electronic crimes committed in the banking industry including crimes related to withdrawal or deposit balances by credit card, simulation and counterfeit computer programs, as well as other crimes intended to cause harm at the level of the individual have a negative impact on the community. Electronic crimes are crimes of a special nature and differ from ordinary crimes in terms of nature, methods, and elements. Consequently, this research is very important because it seeks to identify these new "crimes of a special nature", which have recently began spreading exponentially through electronic means. Even legal experts offer their services now via these modern tools. Therefore, it is necessary to identify these crimes and the mitigating actions of the Qatari legislator.

## What is the problem that initiated the idea of conducting this research?

Cybercrime is spreading dramatically. It is being introduced in new ways and with new patterns that have not been previously discussed or codified in the cybercrime prevention laws. As a result, we are often faced with facts and situations that,





under the law, do not currently constitute a crime, but are, in fact, an unexpected new crime. Therefore, questions arise on how the legislator organizes electronic crimes, what exactly are electronic crimes, how are they different from or similar to ordinary crimes or criminal behavior, and what is the extent to which it can keep pace with the development of these electronic crimes. Furthermore, there was a strong interest to investigate whether the penalties provided for cybercrimes provided for in the Qatari legislation are sufficient to ensure that these crimes are not repeated again. The foundation of this research about cybercrime is the hacking of Qatar News Agency that happened on May 2017 23rd prior to the blockade on Qatar that occurred on 5th June 2017. This event was the impetus for putting my total focus on investigating the laws that were the basis of the unacceptable actions against my country. It was then called the crime of infringement on electronic websites.

#### **What is the methodology that you have followed in conducting this research?**

This study depended on the analytical method based on an analysis of the legal texts contained in the Qatari Penal Code No. (11) of 2004 and the Prevention of Electronic Crimes Law No. (14) of 2014.

#### **What are the results of this research?**

We have found that the Qatari legislator has faced the challenges of the modern era and has passed the Prevention of Electronic Crimes Law in addition to the punitive provisions of the Penal Code to criminalize modern images of cybercrimes following the lack of legislation in this field. That is a welcome response of Qatari legislation. Also, electronic crimes and computer crimes are sophisticated and do not stop at a certain extent. These crimes are characterized with the supposed the computer, as well as the existence of the crime place, which is the technical data and information.

#### **What are your recommendations after doing this research?**

We recommend the need for permanent legislative intervention in view of the development of cybercrimes and to keep abreast of these developments with the expectation that this will be reflected in legislation related to cybercrimes as soon as possible through the intervention of the legislative body in the State. Also, we recommend increasing scientific research concerned with finding new and sophisticated solutions to control and prevent cybercrimes including the arrest and prosecution of perpetrators. Likewise, research is needed to identify how best to mitigate the

serious effects of cybercrimes on the national economy and the public and private sector. In addition, we recommend strengthening the penalties more than those provided in the law to combat cybercrimes to serve as an example for those who may be willing to commit these crimes. We also recommend that all cybercrimes, and whatever is related to them, be provided in the Prevention of Electronic Crimes Law to become comprehensive and that the Qatari Penal Code is only referred to in the narrowest possible sense. Finally, we recommend criminalizing the publication or dealing in any way with pornography in general. Only the criminalization of child pornography is stipulated in the Qatari Prevention of Electronic Crimes Law, which requires intervention and criminalization of pornography in general. And a final recommendation is to increase the cooperation on the international level in legal issues, security and international institutes concerned with this type of crimes.

#### **Anything further that you would like to add?**

I would like to thank the research and graduate studies sector for their continuous support, receiving constructive feedback, democracy, cooperation and accepting students' suggestions and ideas for participating in the department's continuous development. Also, I would like to emphasize the importance of developing undergraduate students' scientific research skills and the importance of utilizing the many resources available across Qatar University to support student research as well as the other valuable resources available in the country such as the Qatar National Library, which is considered an infinite ocean of knowledge that all students and researchers can utilize to conduct their research.

# Exploring a novel advertising strategy to deliver a successful World Cup in 2022

**Dr. Osama S. AL-KWIFI**

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Part of the football matches that happened at Khalifa international stadium at the city of Doha

## Abstract

Sports marketing is a rapidly evolving industry that can have a significant impact on a country's economic development. Event organizers therefore need sophisticated promotional strategies to attract fans and sponsors. This task becomes more challenging when a global sports event is hosted by a country that does not have the required infrastructure and tourism attractions. This research describes how Qatar is working to promote the 2022 FIFA World Cup and introduces the use of a functional Magnetic Resonance Imaging (fMRI) technique to track the level of excitement of fans when they watch the 2022 World Cup advertising campaign.

## Hosting the World Cup

The FIFA World Cup has previously taken place in countries that are well developed with adequate

infrastructure and economic development. It involves significant preparation and planning to meet the high standards required across different areas, including transportation, accommodation, media coverage, and security. Most of which are already available in developed countries. FIFA believes that Qatar has the competence and commitment to organize this championship, and the ability to build the infrastructure and associated sports facilities needed for the event. FIFA's vision is endorsed by Qatar's 2030 national vision, which includes the development and redesign of the country's infrastructure to transform Qatar into a developed state, through the increased involvement in sporting activities and attractive tourism.

## Key Challenges in the Promotion of the 2022 World Cup

Hosting a successful World

Cup requires two interrelated components: (1) the availability of the required infrastructure and logistics, and (2) marketing the event to encourage participation. This section includes a discussion of some of the challenges that must be addressed during marketing and a proposal to mitigate them. Changing the World Cup Date Moving the date from summer to winter removed two critical obstacles: (1) handling the country's extreme temperatures which can cause significant costs and technological challenges, and (2) the need for fans to spend a month under air-conditioning. Under these circumstances, the championship would be unlikely to have universal appeal, and will prevent attendance. However, the new proposed period is scheduled to be in part of the normal global work year. It precedes the celebration of the New Year holiday, a holiday that many fans celebrate with family



Part of the celebration at the State of Qatar for getting the opportunity to host the World Cup 2022

and friends. It is thus necessary to understand the reactions of fans to the prospect of attending a World Cup that is close to the holiday. In addition, summer is known to be the main season for travel globally and all previous World Cup events have taken place in summer when fans and travellers could attend the sports event during their vacation.

**Qatar as a Tourist Destination**

Many of the fans who attend sports events also like to explore the host country and learn about its culture and natural beauty. Previously, host countries have had strong foundations in tourism with numerous attractive tourist sites and entertainment activities, which traditionally attract significant numbers of tourists each year. Qatar has launched several projects that provide the foundation for the tourism and leisure industry. However, the issue of promoting it on par with previous host countries remains. Effective marketing strategies are crucial to increase its visibility on the world tourism map. According to the Qatar Tourism Authority, the number of visitors to Qatar is growing at an average of 17% annually, which indicates that more travellers are considering Qatar in their holiday plans.

### **Utilizing Effective Marketing Strategies**

It is essential that there is effective worldwide advertising of the World Cup and it should be marketed as an unforgettable occasion, the first of its kind, and an event that no one should miss. Qatar's marketing strategy needs to be focused and precise to have the highest possible influence at a global level. In addition to the conventional assessment methods, we tested, for the first time, an fMRI technique to

obtain a deeper understanding of how attitudes are formed at the psychological level of individuals' brains. This can help determine the advertising images that will produce the highest level of excitement in the neurological systems of fans wanting to attend the World Cup.

**Understanding Global Perceptions of the World Cup**

The World Cup is scheduled to take place before the New Year holiday, which is an important period for intensive shopping. Thus, it is critical to understand to what extent people are willing to participate. People should therefore be encouraged to participate in filling out surveys. As an exploratory study, an fMRI experiment was conducted on several individuals while watching some images related to the World Cup 2022. During this test, their brain activities were recorded to determine their levels of excitement in relation to each promotional image. It was clear that the more attractive images produced a higher level of brain excitement.

**Understanding Global Perceptions of Qatar Tourism**

When attending a World Cup, fans generally take the opportunity to explore attractive tourist sites and experience new activities. Before making their World Cup bookings, fans are likely to study what attractions the host country has to offer and to plan their itinerary accordingly. To evaluate the level of Qatar's attractiveness as a tourism destination, an assessment would need to be done of the kinds of activities and events that would increase the likelihood of people visiting Qatar during the World Cup. Understanding people's feelings and perceptions of Qatar from different viewpoints is necessary

to determine exactly what would motivate them to invest almost one month of their time in a "new" region.

**Customized Advertising Strategies**

The previous two steps will reveal people's attitudes towards the World Cup, which will help define the appropriate marketing strategies. Different advertising tools can be used to increase the level of participation in the World Cup in the same region. For example, in Europe, where fans might be disappointed by the absence of football tournaments during winter, advertisements showing the potentially amazing experiences fans would have by joining their teams in Qatar. To ensure the effectiveness of marketing strategies, they must be introduced in advance of the World Cup to assess fans' responses worldwide. This can also help define the additional marketing activities that should be considered for urgent action.

### **Summary**

Qatar is taking the lead by hosting a huge global sports event that had never been organized in this region before. This requires a massive level of planning and preparation. However, what is needed at an international level is an effective global advertising strategy to promote wide participation in the 2022 World Cup and to build a strong brand image for Qatar, which is critical towards achieving the country's 2030 vision. Many approaches can be used to investigate the optimal advertisement strategies that fits each region. A fMRI technique can be a very important method to track human brain responses at the neurological level to various promotional strategies, which yield a better understanding of the underlying processes of individual attitudes.

# Exercise and Physical Activity Research at LARC



Dr. Zsolt Tamas Murlasits

The Laboratory Animal Research Center (LARC) at Qatar University (QU) is the premier entity of its kind in Qatar with the capability and capacity to support basic science research in the entire country. Animal research enables the investigation of various issues in the area of both performance and health-related research, which otherwise would not be possible due to their invasive nature and other concerns, thus

it can be integrated into applied research programs. In line with the national research priorities, exercise training and physical activity are at the forefront of research in LARC in order to meet the challenges of the escalating non-communicable diseases, especially type 2 diabetes (T2D) and coronary artery disease (CAD) in Qatar. Regular exercise and physical activity have been shown to

offer a considerable protection against cardiovascular and metabolic disorders by mitigating several risk factors concurrently; hypercholesterolemia, abdominal fat, and before low-grade inflammation among others. Moreover, physical fitness and exercise capacity are strongly associated with healthy lifespan in both healthy and unhealthy populations, regardless of age, gender and even concomitant diseases. To support the national goals, LARC has established and currently extending the research capabilities in the field of physical activity and exercise training, utilizing rodent models. Animal models are used with increasing utility in physical activity and health research, because they allow the exact manipulation of exercise and training variables, while the environmental conditions and nutritional intake are precisely regulated. Moreover, the responses and adaptations to dietary and exercise interventions can be followed for a lifetime and even in different generations, while any tissue/organ is available for analysis. The accessibility of genetically modified animals allows the study of specific genes and proteins in health-related outcomes. These models can support existing research areas and set a new course in applied research. Moreover, tackling the most pressing challenges requires a multidisciplinary approach, taking advantage of all resources and models that are



currently available and can be used in a collaborative manner to aid further development. Along these lines, ongoing research projects in collaboration with and supported by the Anti-Doping Laboratory Qatar (ADLQ) examine the effect of exercise on skeletal muscle vascular response to sport supplements. This study focuses on a novel anabolic agent, 20-hydroxyecdysone. Dietary supplementation is an important aspect of sports nutrition meant to ensure that elite athletes meet their essential nutritional needs and prevent deficiencies that could impact their health and performance. However, in recent years, increasing number of available supplements have been deliberately contaminated with substances such as 20-hydroxyecdysone, an ecdysteroid that could potentially enhance performance. Thus, the goal is to study the use

**Regular exercise and physical activity have been shown to offer a considerable protection against cardiovascular and metabolic disorders**

of this steroid in conjunction with running exercise under controlled conditions, which can be accomplished optimally in an animal model. In addition, a new series of studies largely supported by a recently awarded Qatar National Research Fund (QNRF) grant will bring

together expertise from various institutions (QU, Aspetar, Hamad Hospital), representing diverse fields of research in both applied and basic sciences to study obesity. The aim of this project is to understand the underlying mechanisms of the obese phenotype along with the transition between healthy and unhealthy metabolic states, focusing on the role of cardiorespiratory fitness and potential new biomarkers. Our hope is that the implementation of the outcomes will lead to clinical interventions and preventive approaches that will contribute to the attenuation of the escalating rates of obesity and diabetes. Via enhancing research and providing support services, along with the education of future generations of science and health professionals, LARC will continue to contribute to Qatar's national strategy of scientific research and human capital development.

# The deep relationship between Indians and Arabs

**“Contact between nations is not only wrapped in history books, but celebrated every moment by people through words and expressions.”**



**Dr. Rizwan Ahmad**

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“Contact between nations is not only wrapped in history books, but celebrated every moment by people through words and expressions.” Qatar’s museums have decided to celebrate 2019 as “India-Qatar Year of Culture” to make their bilateral relationship stronger — a move

greatly appreciated by Prime Minister Narendra Modi. But there is another relationship that goes beyond museums and deeper than economic, political ones between the two countries — the relationship of language. Words like waqt (time), khabar (news) and dunya (world) are used in Arabic as well as Hindi and Urdu. The mutual linguistic influences of Indian languages — particularly, Urdu and Hindi — and Arabic are quite robust and have endured the vagaries of times. Arabs in general, and the Gulf states, in particular, have had a strong trade relationship with India. As merchants and traders,

they travelled to the coastal cities of India including places in Kerala, which boasts of the first mosque built in India in 629 AD. As contact between Indians and Arabs became stronger, their transactions were no longer confined to goods alone. They started to learn each other’s languages, and as a result, Arabic words found their way into Indian languages, and similarly, Indian words became part of Gulf Arabic languages. Urdu, one of the widely spoken languages in South Asia, stands testimony to the relationship between Arabs and Indians. Although scholars argue that the influence of Arabic on Urdu is mediated by Persian, it is still indisputable that Arabic directly or indirectly did influence Urdu. The most robust and visible sign of the influence of Arabic on Indian languages is its impact on the script of Urdu and Sindhi. Urdu is written in a modified version of



A picture showing an example of Indian historical engraving artwork

the Arabic script. Sindhi used to be written in this script as well. On the spoken level, Arabic words such as qalam (pen), jeb (pocket), kitaab (book), safhaa (page), saaf (clean), kharaab (bad) and ghalat (wrong) became common words not only in Urdu, but in other Indian languages. The intensity of the influence of Arabic on Urdu is nowhere more visible than in the field of human relationships. The address terms of the father in Urdu is abbaa, abbu, abbi — all variations of the standard Arabic word abun (father). The words for “love” “lover”, and “beloved” are mohabbat, mahboob mahbooba, all borrowed from Arabic. These words are part and parcel of Bollywood songs. A more recent influence of Arabic can be seen in the use of the word khallas (finished) in some Bollywood film titles and songs. The 2007 film “Khallas” : “The Beginning of End”, directed by Sumeet Chawla is an example. In the 2002 Ram Gopal Varma film Company, Ajay Devgn delivers the famous line, “Aaj se tu aur teri company khallas (From today you and your company are finished)”. A famous song from the film also has the word khallas as a refrain in the song, “Yeh hai ishq samjha tujhe kar hi

dega khallas”. Another example is the use of the Arabic word in the song “Mayya, mayya”, which is a slightly distorted form of the Saudi Arabic word for water “moya”, which composer A.R. Rahman learned from an Arab person while performing Haj in Makkah, and asked lyricist Gulzar to incorporate it into the song. The 2002 film “Awara Paagal Deewana” has a bilingual song written in Hindi/ Urdu and Arabic with the refrain in Arabic “ya habibi (my love)”. The song was written by Sameer and sung by Adnan Sami, Shaan, and Sunidhi Chauhan. The first stanza of the song “fainak ya habi fainak (where, oh where are you my love)” is in Arabic followed by a stanza in Hindi/ Urdu starting with “dil ko chura ke mere... (after stealing my heart...)”. This linguistic influence flows the other way too. Indian languages also influenced the Arabic dialects, in general and the Gulf dialects in particular. For example, Yemenis, have had a strong trade relationship with India. Dialects spoken in many parts of Yemen contain words of Indian origin, e.g. rooti (kind of bread), kambaa (pole), seeri (ladder), katturah (bowl), banes (cold water), etc. The Gulf dialect

was also influenced by Indian languages, especially on the level of vocabulary. One of the most widely used words in Gulf Arabic is seedaa (straight), which is borrowed from Urdu/Hindi. When asking for directions, you will hear people say “Ruh seedaa (go straight)”. This word is also used in a metaphorical sense. Arabs from the Gulf might say, “Aanaa insaan seedaa (I am a straightforward person)”. Other words of Indian origin in Gulf Arabic are jooti (shoes), chaawal (steamed rice), tijoree (safe box), banka (fan) and gaari (car). Arabs who are not from the Gulf or have not lived in the Gulf do not largely use these words. This also shows that contact between nations is not only wrapped in history books, or museum articles, it is celebrated every moment by speakers through their words and expressions. Every time an Arab from the Gulf utters the word “seedaa”, they are announcing, although indirectly, the influence of Indian languages on their life, and similarly, when Indians use “mohabbat” or “dunya” they are testifying to the historical and linguistic relationships that bind the two nations together — the relationship built in vocal tracts.

# The World of Women Public Relations Practitioners in Qatar

## Dr. Mohamed Kirat

Professor of Public Relations and  
Strategic Communication  
Mass Communication Department  
Qatar University

Qatar is a young emerging nation going through a process of drastic development and social change. Qatar is committed to ensure that the benefit of that growth goes to women and men equally. The Qatar National Vision 2030 prioritized the empowerment of women through their right to work and enhancing social protection for them. Qatar also remains committed to all the international and regional agreements it signed on the rights of women led by The United Nations' (UN) Convention on the Elimination of All Forms of Discrimination against Women (CEDAW). Qatar's statement then discussed the legislation in Qatar and highlighted that it prevents discrimination against women when it comes to employment, whether in the public or private sector. It also provides women with equal opportunities with men in the assumption of leadership positions. The public relations industry in Qatar is relatively young and new in the country. From the beginning of the seventies, the Ministry of Interior

has given necessary importance for public relations considering it as a channel of contact and communication with individuals of society. As a fast-emerging growing country, Qatar cannot aspire to a good development process without the participation of more than half of the population. In addition the majority of students enrolled in universities and various high education institutions are females – over two thirds. In the department of Mass Communication at Qatar University 60% of enrolled students chose strategic Communication as their major. To what extent women are working in public relations. Good involvement of women in the public relations industry might be a good indicator of female participation in the development process. Both the quantity and the quality of such participation might help determine largely what kind of input do women have in society.

### Methodology

The study used the survey method and the sample was women in the Public Relations(PR) field. The

researcher was able to collect 156 responses from 48 organizations including Governments and semi-Private institutions in Qatar. The findings from this survey offer a detailed and current profile of the demographics, education, job satisfaction, working conditions, roles, news values, ethics, professional orientations, and perceived impact on public.

### Findings Summary

#### Demographics

The survey appealed that almost 80% of the PR practitioners were young; aged between 20-30 years old and almost 4% were between 45-50 years old. moreover, their survey shows that more than 90% of the surveyed PR women practitioners were Qataris. Hence the media sector

in Qatar in most of the companies and government are occupied by female Qatari employees. Education and Training In terms of education and training, over 70% of the PR practitioners hold a bachelor's degree and most of them major in journalism and mass communication. However, only one among the surveyed was majoring in public relations, which is a striking finding, given the fact that each year, tens of female students graduate in public relations from Qatar University and Northwestern University in Qatar. Moreover, most of the surveyed are eager to continue their education and expressed their interest in more additional training in public relations such as PR writing, social media, event management, research techniques, and PR campaigns.

### **Job satisfaction and working Conditions**

The attitudes of these PR practitioners indicate that they are generally positive and happy about the job atmosphere and their working conditions, which is a good indicator of a healthy public relations practice in Qatar.

### **Research and outsourcing**

In terms of research and outsourcing, an overwhelming majority said they have never conducted a research, which is a main drawback of the practice of public relations in Qatar as is the case in the majority of the Gulf and Arab countries. In addition, findings from the interviews revealed that PR practitioners are aware of some weaknesses and common criticisms of public relations in Qatar, such as lack of research, counseling and managerial roles. In terms of public relations ethics, the study showed that the PR practitioners learn mostly from peers and colleagues, and from their family and religious upbringing. Seventy eight percent of the surveyed practitioners consistently



objected to the use of a range of questionable and unethical practices while performing their job. PR practitioners in this study also expressed strong support for the idea that the public relations are influential in forming public opinion.

### **Conclusion**

Looking to the future of public relations in Qatar, these findings reveal the need for training and continuing education with specific concentration on modern technology such as databanks, multimedia, and the Internet. In addition, there is a need to concentrate on learning different languages, especially English to communicate effectively in a multicultural media environment. Finally, more focus and concentration should be put on research to raise the level of PR professionalism in the country and to engage in more counseling and managerial roles. Overall, the public relations profession in Qatar needs more focus on quality rather than quantity, this is to say an orientation towards professionalism and excellence. To face these challenges, professionals of PR

should focus on the following: Specialized educational preparation to acquire unique knowledge and skills, based on a body of theory developed through research; recognition by the community of a unique and essential service; autonomy in practice and acceptance of personal responsibility by practitioners and codes of ethics and standards of performance enforced by a self-governing association of colleagues. In this regard, Dr. Kirat said: "The public relations profession has a challenging future in the Arab World. There is an urgent need for the profession to provide services to hundreds and thousands of businesses, institutions, and organizations, whether private or public in all sectors of life. The profession is badly needed to meet the challenges of economic, political and cultural globalization. However, it should be noted that excellent PR departments do not flourish in authoritarian cultures, mechanical structures, asymmetrical communication systems and organizational conditions that devalue freedom of expression and the right to know."

# Determinants of College and University Choice for High School Students in Qatar

Social and Economic Survey Research Institute (SESRI), Qatar University



Social and Economic Survey Research Institute (SESRI), Qatar University. This study investigates the determinants that underpin high school students choice for their college and university in Qatar. With more jobs demanding postsecondary education and training, attending further education in today's world is now considered a requirement to gainful employment. Belief in the traditional formula: "college = white collar job = success" often motivates parents to prepare their children to engage in additional higher education. Since skilled job opportunities generally require postsecondary credentials, a college or university degree is the ticket to a white-collar job and a middle-class lifestyle. The study sought to identify factors that significantly influence high school

students choice of a prospective college or university in Qatar, and to examine the intersection of background characteristics, institutional traits, and sociocultural variables, and their impact on the students choice of HEI. The study was guided by two main research questions: What factors drive students' choices of post secondary institutions upon graduation in Qatar? And What background characteristics significantly predict the importance of these factors? The study hypothesized that student background characteristics i.e. gender, nationality, and parental levels of education and occupation, significantly predicted their choice decisions regarding postsecondary education institutions. The data collected for the study originate from the Qatar University Image

Study (QUIS), a nationally representative survey conducted by the Social and Economic Survey Research Institute (SESRI) in November 2015. The QUIS consisted of two surveys administered to high school students and their parents. Due to resource constraints, the present study analyzed only the data of student participants. The study included students attending 11th and 12th grades (N=1,427). Of these, 38% (N=461) were Qatari and 62% (N=966) non-Qatari. Amongst Qatari students who participated in the study, 54% were in grade 11 and the remaining 46% were in grade 12. With regard to non-Qatari students, 50% were from each grade. With respect to gender, female students constitute 53% of all respondents. Overall, 84% of Qatari students were enrolled in independent schools while 46% of non-Qatari students were in independent schools, followed by Asian expatriate schools (22%) and international schools (14%). Only 5% of Qatari students attended gender mixed schools, whereas 41% of non-Qatari students attended gender mixed schools. The dependent variable was captured by responses to the statement "In general, how important is each of the following factors in your choice of where to apply to college/university?" on a three-point Likert scale (1= Very important, 2= Somewhat important, and 3= Not important), the set of items to evaluate included: Lower

education cost (e.g., low tuition, fees); Financial aid/scholarship; Quality of academic programs; Quality of professors/teachers; Quality of student life; Availability of programs/majors I am interested in; Availability of degree programs that offer good job opportunities; Prestige of the university/college; Recognition of the degrees in other countries (accreditation); Instruction in Arabic; Instruction in English; Separate campuses for male and female students; Easy admissions criteria; Campus environment is conducive to my culture/values; Family member(s) attending/attended the college/ university; Friends plan to attend the college/ university; Size of the college/ university campus; And Total number of students. Based on the factor analysis, three main aspects of HEI experience were identified as predictors of student choices: the quality of education, cultural values, and the cost of education were used as the dependent variables in the analysis. Independent variables utilized were nationality, parents' highest level of education, father's occupation, and mother's occupation. The analysis of the data revealed a range of influences that shape the postsecondary educational paths young adolescents aspire to in Qatar. Student gender appears to be strongly associated with perceptions of quality in higher education. As was expected, female students tend to report the quality of education as a determinant of choice more than males do. Another salient determinant of college/university choice that is associated with perceptions of education quality is parental education. The study's results indicate that students with highly educated parents were significantly more likely to value quality of education. These results echo the findings noted in past research on the influence parents wield on their children's education. The results derived from the study disclose a gender gap that shapes

students' views of the role of culture as a predictor of their HEI choice decisions, with females significantly more likely to report cultural values as a main driver that influences their decisions. Students' nationality emerged as an important driver of the choices they make regarding their postsecondary education plans. Qatari students reported culture as a predictor of their enrollment choices more frequently than their non- Qatari counterparts did, and were more likely to find cultural norms to be a significant determinant of higher education enrollment choices. These findings need to be interpreted against the backdrop of the local culture in Qatar. It would seem that Qatari students tend to prefer attending Qatar's public national institution of higher education, Qatar University, as it best reflects their cultural norms. Qatar University adopts a gender-segregated policy across all of its colleges. Gender is an important determinant of school choice in Qatar, as is evident from the existence of single sex schooling at all levels of public education. The results attained from this study also reveal the cost of education as a major factor in students choice decisions. The study shows that the relationship between gender and the cost of education as a determinant of students choice decisions was only applicable in the case of male students. Male students are more likely to find meaningful employment at a young age and to support their families. Since the responsibility of being the main breadwinner is generally not placed on females, their education is more likely to be supported by the family, which could be one of the reasons why cost is not mentioned as frequently as a concern. Nationality emerged as another important factor that influences students' views of the cost of education. Namely, non-Qatari students were significantly more likely to report the

cost of tuition as a key determinant in their choice of college/university. These results may be interpreted in light of the education market, as well as the differences in entitlements and benefits that Qatari and non-Qatari employees in the country enjoy. The purpose of this study was twofold: to investigate the factors that drive high school students' HEI choices in Qatar and to analyze whether and to what extent different demographic characteristics can predict the importance of those factors. Results provided evidence that quality of education, cultural values, and cost of education are important determinants and were, to varying degrees, predicted by students' gender, nationality, parental education and occupation. Findings of this study provide valuable insights for policymakers and educators in Qatar. The results call attention to the need for supporting student choices. Therefore, school counseling can play a key role in providing guidance for students, beginning at the preparatory school level. As growing numbers of Qatar's pre-college youth plan to enter tertiary education, it is incumbent that schools engage in preparing students for their postsecondary educational plans. The onus also rests with families, and student counseling would need to combine parental involvement in children's plans regarding how and when to make their choices towards postsecondary pathways. Overall, there should be greater and more transparent information on challenges and opportunities for college/ university education, including presentations, tutorials, seminars, and school teaching staff-student meetings to enable students to choose courses, programs and HEIs offering what is most important and pertinent to them.

# Overview of Auditing Practices and Reforms in Qatar



In recent years, Qatar's oil and gas production has grown. This increase was combined with the goal of economic diversification and has led to a rapid development of Qatar's economy. For instance, the Gross Domestic Product (GDP) per capital was \$92,221 in 2012 compared to \$35,897 in 2005; the compound growth rate was 15.6%, which is one of the highest recorded for any country in the recent years (International Monetary Fund, 2013). The legal framework underpinning auditing within Qatar is based on the company law that dates back to the 1970s as well as on stock exchange requirements that were introduced in the 2000s. For instance, the Ministry of Economy and Commerce (MEC) put forward Law No. 7 in 1974 titled "concerning organization of the auditing profession". This law provided the most important regular requirements of auditing appointment and its qualifications. However, the law was not specific about the auditing rotation period. In 1995, the MEC issued the Doha Securities Market Law No. 14. This law was issued as a part for



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a proposal for establishing the Doha Securities Market (DSM) known now as Qatar Exchange (QE); the DSM was subsequently established in 1997 (MEC, 1995). In these laws and establishment of DSM, many foreign companies [especially banks] shifted their operations to Qatar and relocated their regional headquarters to the capital city of Qatar – Doha.

In 2002, the MEC issued the Commercial Companies Law No. 5, and it clearly identified the auditor qualifications as well as the audit rotation policy for Qatari listed companies; policy that the auditing firm appointment must not exceed five years. Consequently, all listed companies in QE must now prepare their financial statements in accordance with IASs. Independent auditors must audit these financial statements, which must be one of the big-4 audit companies who will review whether the listed companies' annual reports give a true and fair view of their financial positions during the fiscal year. The following table summarizes the key articles of related laws to audit appointment and rotation in Qatar.

## References

Country Annual Report: Qatar, (2013), International Monetary Fund, <http://www.imf.org/external/country/QAT/index.htm> (accessed: 5/2/2019), United States of America. Ministry of Economy and Commerce (1974) "Concerning Organizations of the Auditing Profession Law No. 7", Qatar. Ministry of Economy and Commerce (1995) "Doha Securities Market Law No. 14", Qatar. Ministry of Commerce and Industry of Qatar (2002) "Commercial Company Law No. 5", Qatar.

## An Illustration of the Regulatory Authorities and Laws

Laws issued by MEC	Key Articles of Auditing Aspects of the Law
<b>Law No. 7 of 1974</b>	<p>(a) Article 1: No person shall be allowed to practice the Auditor profession in the State of Qatar, unless his name has been registered in the Register of Auditors maintained by the Department of commercial affairs and companies control in the Ministry of Economy and Commerce.</p> <p>(b) Article 3: Any natural person, desiring to be registered in the Register of Auditors shall meet the following requirements:</p> <ol style="list-style-type: none"> <li>1. Holding a university degree in the field of commerce, economy, or finance from one of the accredited universities or institutes, on the proviso that the studying program includes the subjects of accountancy.</li> <li>2. Holding membership in one of the recognized institute, society or organization of Accountant or Auditor which shall be stipulated in a Bylaw issued by the Minister of Economy and Commerce in this respect. After obtaining the university degree, he shall have an experience for a period not less than five (5)</li> </ol> <p>(c) Article 4: The Auditor may not engage in other activities that contradicts with auditing profession, and is absolutely prohibited from engaging in any commercial or financial business. The Auditor shall not be an employee of the government; public bodies, authorities and corporations thereof. The Auditor shall not try to obtain any work relevant to his profession through any other means considered prejudices the integrity of the profession.</p>
<b>Doha Securities Market Law No. 14 of 1995</b>	<p>(a) Article 11.7: [committee of the Market shall carry out the] approval of the annual budget estimates of the Market and the final accounts and appointment of auditors to listed companies.</p>
<b>Commercial Companies law No. 5 of 2002</b>	<p>(a) Article 141: every shareholding company must have one or more auditing firm appointed by the general assembly for one year. The accounts auditor (firm] wages are also fixed by the general assembly. It may reappoint [the auditing firm] for a further period provided that the period of appointment should not exceed five consecutive years. However, the founders of the company may appoint the accounts auditor [firm] who will undertake its duties until the first general assembly is held.</p> <p>(b) Article 145: [the auditing firm responsibilities as follows:] (i) Control the business of the company, (ii) Verify its accounts as per the approved auditing principles, requirements of the profession and its scientific and technical principles, (iii) Inspect the balance sheet and loss and profit statements, (iv) Verify the application of the law and statute of the company, (v) Inspect the financial and administrative systems of the company and internet financial controlling systems, (vi) Verify the assets of the company and its ownership and confirm the legality and authenticity of the liabilities on the company, (vii) Review the decisions of the board of directors and the instructions issued by the company, and (viii) Any other duties to be performed by the auditor under this Law in the future followed in auditing the accounts.</p> <p>(c) Article 149: The accounts auditing [firm] will be responsible for the authenticity of the information stipulated in its report in its capacity as the attorney of all shareholders. Every shareholder, during the meeting of the general assembly, will be free to discuss with auditor and to seek explanation about the content of the report. (d) Article 151: [During the auditing period of appointment] ... the auditing firm will be liable for compensations for any damages sustained to the company or shareholders or</p>

# From Protection to Commercialization: The QU IIP Office



Sami Al Khateeb - Student



Prof. Faris Talchon



Dr. Ibrahim Al Maslamani

Introducing a result of a research project into a new product/service/process/ solution is a critical issue to maximize the return on public investment in research activities. The actions taken to introduce the knowledge produced at universities and research centers to the industry is called “Commercialization”. This process requires a serious cooperation and interaction among the higher educational organizations, the research centers affiliated to the government, industrial companies, financial firms, investors, entrepreneurs, and academic individuals. Universities are the center of knowledge production. The contribution the academic sector has made in the last two decades is significant, yet it is still a challenge to find the way to reach the industry/market as it requires more attempts, time to test, material, fund, risk management, etc.

As the primary higher education institution in Qatar, Qatar University (QU) focuses on the economical value of research outcomes to ensure that each research benefits the society and supports the Qatar National Vision 2030. QU’s strategic plan 2018-2022 is a timely and gamechanging plan that is fully aligned with the national vision. The plan seeks to uplift QU’s traditional teaching and research mission, and to drive the institution towards innovation, entrepreneurship, and

digitalization to commercialize more and effectively its research outcomes and achieve the level of socio-economic impact in line with the fulfillment of the Qatar National Vision 2030.

The QU Innovation and Intellectual Property (IIP) office is managing the marketing of the University’s research outcomes and is boosting the community awareness about the importance of innovation to the local community and the region. In order to create greater interest in intellectual property (IP) participation, the office provides periodic free lectures about the increasing demand of translating research into useful products and services. The office also educates about the transition process from the research idea to the market. It also contributes to the enhancement of QU’s research profile, which strengthens the University’s commitment to the Qatari society, in general and to youth, in particular. In addition, the IIP Office performs the risk management for the newly submitted ideas by conducting extensive market screening, analyzing the patentability, deciding the best filing method to be used, supporting researchers in finding the appropriate industrial partner, and formulating the legal documents of the research partnerships for the benefit of all parties. It is important to note that this kind of research partnership extremely

benefits the wider industry, because developing and commercializing new products are necessary to any organization to remain competitive in the marketplace. By establishing a connection between scientific practice, theory, and market solutions, researchers and businesses will be able to share knowledge and collaborate on projects. This can lead to innovative market solutions.

Success stories:

The IIP Office and Prof. Faris Talchon from QU College of Engineering signed a research agreement with the Qatari German Company for Medical Devices (QGMD). QU and QGMD will collaborate on the medical invention «Plunger restricted safety syringe». This innovative product will support the ministries of health worldwide, in general and the medical sector, in particular to increase safety procedures and use of syringes. The IIP Office also designed the legal agreement between QU and «SMEET Precast Qatar» for the invention «Mushroom forest artificial reef» that was by Dr. Bruno Welter Giraldes, Assistant Professor at QU Environmental Science Center (ESC). This invention will support the marine field to create and increase the habitat of marine species and consequently restore fish stock in damaged reef ecosystem, and to create underwater tourism activity releasing the pressure of tourism over the natural coral reef areas. The IIP Office is in the process of signing a licensing agreement with the Ministry of Municipality and Environment for the use of the invention «Marine Clutch» that was invented by a team led by Dr. Ibrahim Al-Maslamani. This invention aims at protecting the marine surface from the damage that occurs from the heavy fish clutches used by fishers.

# Modeling Al Zubara: Architectural Visualization of the Historical and Archaeological Knowledge about Urban Heritage of Qatar

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**A perspective of a defensive control tower attached to the castle. We can clearly see a wall with small windows to use fire guns.**

**Abstract:** Al Zubara is the oldest city in Qatar. The history of Al Zubara relates to the 18th century, during the Abbasid caliphate era. The city has been abandoned for long decades. Currently, it is covered with tons of sands making it ambiguous for the new generation of Qatar. This project discusses the possibility of interpreting the



**Two perspectives of Al Zubara**

diverse data available on Al Zubara and converting it into a spatial architectural language. It shows the possibility and the methodology of translating the historical, archaeological, and social data available about the city, and the still living oral and practiced traditions of its Qatari people, into a 3D digital model of Al Zubara. In addition, the project

clarifies how this model can allow a better understanding of the city. The research answered the questions about the possibility to construct a 3D digital model of Al Zubara city using the historical, archaeological, and social data currently available about the city, in addition to how this model can enhance the understanding of the history of Al Zubara. The problem of the abandonment of Al Zubara city has an impact on people's recognition and historical understanding of the old city. It is important to present Al Zubara to the local and international audience and increase their awareness of this landmark site. This presentation would enhance the understanding of the history of the city and will improve the image of the country not as a stereotypically economically wealthy state, but as a place of historical richness. This exposure is achieved by translating archeological and historical knowledge to architectural and urban mediums, which contributes to enhancing the knowledge of archeological mapping and historical life of the city, which



A possible perspective of the leader's castle showing the different hallways and the square control tower.



Vertical perspective of the city model shows the city blocks that become smaller as they get closer to the sea.

expanded the understanding of Al Zubara of how buildings existed in Al Zubara in the 18th and 19th century. Apart from having the city virtually accessible at any time, it is also modifiable in case of any further information about the city will be provided on a later date. Finally, the research outcomes will benefit Qatar government and citizens, and the local and international researchers. The excavated archeological sample of the city and available resources about the its history and its past social and cultural life were interpreted and translated into architectural and urban design knowledge that provided a comprehensive and visual understanding of the city. This interpretation was urgently done in light of the surviving archaeological and textual knowledge about the history of the city and the living tradition which risks vanishing with the swift transformation of Qatari society. Al Zubara translated into the architectural language will be accessible a wide range of researchers and tourists who through this Interdisciplinary research project can better understand and cherish Qatari tradition and make it relevant to the 21-century Qatari experience. The research team included three students from the history department and three students

from the architecture and urban planning department at Qatar University.

#### Methodology:

Computer applications are being used in recent research projects for better documentation and visualization of the past. 3D models are being created to study, analyze and document buildings and cities. However, the process of data transformation from textual, oral and physical to virtual models requires overcoming many challenges and complexities. The aim of this literature review is to study similar cases where data is converted into 3D models, to know different methodologies applied in data collection, and to understand potential challenges, which can occur during the process of the work. In addition, it aims to link these studies to the case of Al Zubara city, in order to answer whether it is possible to construct a 3D virtual model of Al Zubara city using the historical, archaeological and social data we currently have, along with the still living oral and practiced tradition of its Qatari people. This literature review is divided into two sections. The first section discusses three-dimensional modeling using conventional methods of data gathering, which is similar to what is going to be applied in the case of Al Zubara.

The second section discusses three-dimensional modeling using advanced modeling technology for existing tangible heritage sites. Discussion and Findings: This research concerned with Al Zubara, a historical site that ruined by time and events. The evolution record of Qatar settlement is embedded in its historic heritage. Al Zubara includes distinctive architecture and urban layout that reveals the inhabitants' lifestyle, culture, and responsive design to the harsh environment. Because Al Zubara's buildings are mostly destroyed, an intensive study is carried by students from the History Department to guide students from the Department of Architecture and Urban Planning to envision the complete form of selected buildings. Based on the data analysis, a 3D digital model has been constructed using the methodology of converting the 2D plans into 3D solid masses. The 2D drawing has been provided by QM (Qatar Museums), while the 3D model has been constructed by three architecture students working in this project from Qatar University. As an Islamic city, the urban fabric of Al Zubara are characterized by their complexity and density, a result of the demographical change over time. The morphological of the city had been influenced by many factors,

such as social, political, economic, physical, archaeological, demographical and climatic.

We found out that Al Zubara's constituent buildings and urban fabric is an analog to Islamic cities in regards to its density, evolution, and layout. Buildings one or two stories high, and street narrow with a curvilinear shape. As mentioned before, occupants of Al Zubara were Bedouins, following the hierarchy of the tribal system which was ruled by the tribe sheik (ruler). Al Zubara settlement was developed to include the city complexity on several levels - residential, economic, political, and defense. The residential building was built to be extendable to accommodate more family members. As our built-up model, we find out that the house had its inner courtyard forming the heart of the house, allowing for the inward openings of all rooms. Guest room found indirect access to the entrance to guarantee good separation from the family zone. Storage area and area for food preparation took place in the building as well. Furthermore, the house model shows the existence of a house with almost a squared-plan watching tower. The overall analysis of the house layout, we concluded that the wealthier the family, the better defensible outer wall of their resident were evident. The model reveals the location of the defense aspects of Al Zubara. There are two city-walls built for defense purpose. It is more likely each one built at difference period. It is arguable that the out wall was built to add more land to the growing settlement. Furthermore, there are a couple of citadels located in the south-west side of the settlement. Regarding the economic aspect of Al Zubara, people used to rely on fishing and pearl activities. The market (souq) was built as small adjacent shops for trading. Two vertical layers of walls had been found; this means that the



**Two perspective of the fortified Al Zubarah city showing doubled defensive walls with attached control towers.**

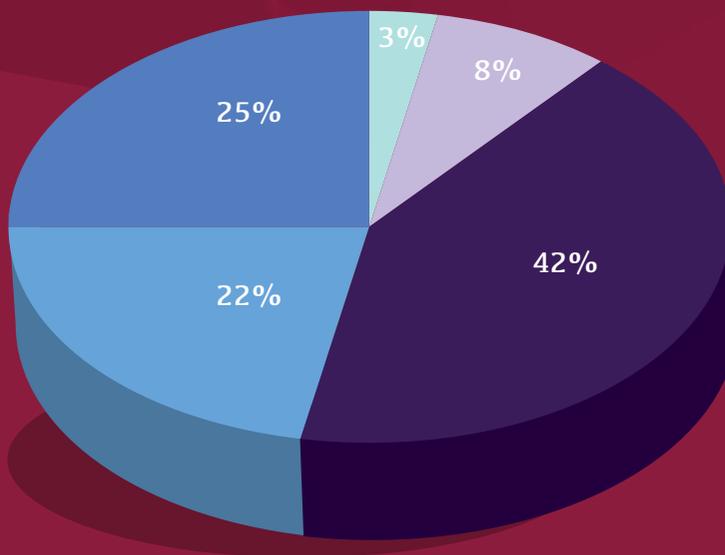
original souq had been damaged, and a new one had been built. Another source of economic for people there is Al-Madbasa, a small room of one-meter square where the date is squeezed by a heavy load on the top to produce date syrup. Al-Madbasa found in houses. People relied on the local building construction materials. The use of palm trunk, for spanning their room, limited the size of their rooms to the length of the trunk. Therefore, their houses and public buildings had small enclosure areas, or narrow halls, like the prayer hall in mosques. In mosques, no Mihrab (prayer niche) was found. Additionally, there was an arcade for structure purpose inside the prayer hall. Finally, we find that rooms proceeded by riwaq (corridor) open to the inner courtyard to protect the room from direct sun, protect, and provide shade for the user of the open space. Finally, by constructing this model, it has been found that the possibility of making the model based on the available data about Al-Zubarah city has been approved. Specifically, it would be possible to develop a 3D digital model with the help of the site excavation photos and aerial photos, as well as the historical references and research which have been used as additional aids to enrich the details of each building type. 3D modeling is the best way to represent an explanation of how

was life at Alzubara city. However, it can be the optimum solution regarding economy and flexibility.

**Conclusions and**

**Recommendations:** Al Zubara city is one of the most important sites in terms of archaeology. A digital model of Al Zubara archaeological site has been constructed in order to allow a better understanding of the city and to support the hypothesis of this paper (the possibility of constructing a 3D digital model of Al Zubara). In other words, the translatability of different types of available data from one medium to another is possible. Since excavating, the site is a very complicated and impractical issue, the digital model can be a simulation tool to introduce the Qatari city to the whole world. Virtual reality is a fast, economic and flexible tool compared to site excavations. The flexibility of the digital model allows it to be quickly and easily updated in case if any new data or new excavations have been revealed later. It is recommended to give the interested people and individuals a copy of this model, especially if they belong to different disciplines similar to the project researchers. This gives the opportunity to each discipline to contribute to the process of enriching this model based on its perspective and knowledge. It would be also recommended if this model would be published and introduced to the public, especially Qataris. It might evoke them to know more about their history and traditions. They might also provide the government with finance and other types of aids, in order to facilitate the excavation and preservation process of Al-Zubarah archaeological site. Awards and Achievements This project received a grant from the Undergraduate Research Experience Program, Qatar Foundation Project ID: UREP 20-081-6-008.

# Qatar University was awarded 36 grants in the 11<sup>th</sup> Cycle of National Priorities Research Program



The total amount of fund for these projects has reached to (20.5 million USD) for the specified cycle

- Engineering and Technology
- Natural Sciences
- Social Sciences
- Agricultural Sciences
- Medical and Health Sciences

Qatar University (QU) was awarded 36 number of grants out of 141 reviewed proposals with a success percentage 26% in the 11th cycle of National Priorities Research Program (NPRP), a flagship program of Qatar National Research Fund (QNRF). The projects were awarded almost 20.5 million USD.