



The Atlas of Islamic-World Science and Innovation

Project Progress Report

Joint Management Team meeting
Istanbul 11-12 June

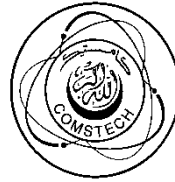
Prepared by
Project Managers



June 2011

Paper JMT-110611-1

Project Partners



The Atlas of Islamic-World Science and Innovation

Session I: Progress and current status of project

This paper updates JMT members on progress made on the country case studies since the last JMT meeting in October 2010

JMT members are asked to note

- *The successful completion of the Malaysia report and its impacts to-date*
- *Progress made on four other country studies, nearing completion*
- *Opportunities to profile and disseminate the project*

Introduction

The aim of The Atlas of Islamic-World Science and Innovation is to provide an insight into science and science-based innovation across the Islamic-world, an independent, objective and authoritative assessment of how these capabilities are changing, and an analysis of the opportunities and barriers to further progress. It does not aspire to be a comprehensive analysis of every sector, but instead is written in an accessible way, mapping key trends from which policymakers, universities, business leaders and other stakeholders can take their steer. As part of the analysis, a priority of the country reports also includes consideration of the changes that need to be made in light of international best practice so that the country's current policies to promote science, technology and innovation can be modified and enhanced, where relevant.

Detailed country studies are a key output of the project, but an equally important feature is its focus on building capacity, as well as inspiring new partnerships and collaborations. Opportunities for capacity building and inspiring new partnerships will be considered at OIC and national levels, being sensitive to the different dynamics of national policy systems. The project is also deliberately designed in phases to ensure that we have the most robust and comprehensive methodology in place to measure and benchmark science and science-based innovation performance across the OIC. The pilot phase has been used to test the methodology and allow for refinements in going forward.

Background

The Atlas of Islamic-World Science and Innovation is an ambitious project, studying the changing landscape of science and innovation across a diverse selection of countries within the OIC. With the support of the OIC Secretary General, Professor Ekmeleddin İhsanoğlu, the project is jointly managed by the Royal Society – the UK's national academy of science- and the Statistical, Economic and Social Research and Training Centre for Islamic Countries (SESRIC), based in Ankara.

The Atlas project was first endorsed by all the Kings and Head of State at the 11th Islamic Summit in Dakar, Senegal in 2008. Subsequently, the project managers reported to the 4th Islamic Conference of

Higher Education and Scientific Research Ministers in Baku, Azerbaijan in October 2008, and to the 5th in Kuala Lumpur, Malaysia in October 2010.

The project is managed by a Joint Management Team (JMT) composed of representatives of the OIC General Secretariat and key partner organisations, including SESRIC, Royal Society, Islamic Development Bank (IDB), British Council, *Nature*, the Standing Committee on Scientific and Technological Cooperation (COMSTECH), the Islamic Educational, Scientific and Cultural Organization (ISESCO), International Development Research Centre (IDRC), the Qatar Foundation and others. The JMT is responsible for overseeing the project at every stage. The JMT agreed the governance framework for the project following its first meeting in July 2008, and the Terms of Reference were finalised and agreed in June 2009. The methodology has continued to be refined, as the project has progressed.

The 2nd JMT Meeting convened in Istanbul on October 3 - 4th 2010, presided by the OIC Secretary General, who outlined his vision for the Atlas project as one of the essential elements in the OIC's 10 Year Programme of Action and Vision 1441 H (the OIC blueprint for STI). A note of the meeting is at **Annex A**.

At this October 2010 meeting, the JMT agreed

- (1) that the **structure and format of each report should be consistent** across all the country case studies;
- (2) to **strengthen the peer review process**: (i) in the **composition of the peer review group** - to typically comprise at least three specialists of the country in focus (e.g. former chief scientific advisers, senior academics etc), and Fellows of the Royal Society (FRS) with relevant expertise; and (ii) in **engaging the JMT earlier** in the process and affording them two opportunities to comment on drafts – at the same time and in parallel with the peer review process, and following the incorporation of comments;
- (3) that the **Guide to Research Methodology should guide all Atlas reports**, as the key reference document, and be clear to robustly account for science, innovation, engineering / technology and national policies;
- (4) a **clear process for the selection of the National Research Partner**, and the JMT's critical role within this process;
- (5) a clear delineation between the JMT and the Project Steering group;
- (6) that the **next tranche of countries** should include Qatar, Senegal and Kazakhstan, followed by Iran and Indonesia. Nigeria and Turkey were also discussed as future potentials;
- (7) that the project needed to **capitalise on key international events** and meetings e.g. the American Association for the Advancement of Science (AAAS) annual meetings, and the biennial World Conference of Science Journalists;
- (8) that the **Project Managers should update JMT members more regularly**, and use their networks to disseminate the project more widely.

Most of these recommendations have been implemented, if not progressed as far as the project managers might have liked. Improvements still need to be made in project communication and in getting new country studies on-stream.

Next steps identified at the October 2010 JMT included:

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| (1) revision of the Malaysia report, in light of JMT and peer reviewers' comments, and subsequent launch at the Kings and Heads of State meeting (postponed until Autumn 2011) and in Malaysia | ACHIEVED (though KHOS further postponed) |
| (2) progression of the Pakistan, Egypt and Jordan reports | ACHIEVED & ONGOING |
| (3) project partners engaging with ongoing country studies and SESRIC providing statistical support | PARTIALLY ACHIEVED |
| (4) sharing of good practice across studies | ACHIEVED AND ONGOING |
| (5) next tranche of countries (Qatar, Senegal, Kazakhstan, Iran, Indonesia) | ONGOING |
| (6) review and revision of governance and peer review mechanisms and to be discussed in next Session II: lessons learned | |
| (7) strengthening communication tools, including SESRIC setting up a project website, a JMT e-mail network, and the production of a communication strategy. | PARTIALLY ACHIEVED |

Following the Istanbul meeting in October 2010, a number of important issues were raised and needed to be resolved, and these have held the project up over the past six months. These are set out in paper JMT-110611-2 and discussed in the next session.

Project update since the last JMT

In the seven months after the last JMT, there have been a number of developments in the pilot phase:

1. Roll out of the Malaysia study and progress on four other countries

1.1 MALAYSIA

The Malaysia report was rolled out in Malaysia in March 2011. The report provides a snapshot of the key aspects of Malaysia's science and innovation system, and explores recent history and future prospects. Jointly authored by Natalie Day, a science policy adviser at the Royal Society, and Dr Amran bin Muhammad, a senior academic at the University of Malaya (the NRP), the report makes suggestions on how Malaysia might overcome some barriers to innovation, from consolidating and streamlining existing government policies to becoming a leader amongst other biodiverse countries. Whilst often overshadowed by other rising Asian powers, this study argues that the international research community would be well advised to look to Malaysia for future collaboration.

Over several months of fieldwork between July 2009 and May 2010, the authors traversed the country, interviewing around 110 policymakers, entrepreneurs, scientists and economists in nine Malaysian cities: Kuala Lumpur, Penang, Johor Bahru, Kulim, Putrajaya, Kuching, Kota Kinabalu, Lahad Datu and Langkawi. This report draws on these interviews, combined with a mix of data collection and bibliometric analysis.

The NFP - Malaysia's Ministry for Science, Technology and Innovation (MOSTI), through Malaysian Science and Technology Information Centre (MASTIC) - provided significant in-kind and intellectual support to the research team, and facilitated two workshops in Kuala Lumpur and Johor Bahru. The project secured

support at the highest level - Professor Emeritus Dato' Dr Zakri bin. Abdul Hamid, the Science Adviser to the Prime Minister, indicating that he would personally draw on the report in his science advisory capacity.

The reports were disseminated throughout Malaysia: over 500 reports to Dr Amran bin Muhammad, to deliver to Malaysian contacts made during the fieldwork; boxes to Malaysian academics and academic institutions, MOSTI and the British High Commission, Malaysia; 20 reports to each of the JMT partners (OIC, COMSTECH, IDRC, IDB, Nature, ISESCO, SESRIC, British Council); and to various high-level and operational contacts in the UK and Commonwealth.

The University of Malaya hosted a workshop on the findings, attended by over 40 academics and PhD students at UM and Dr Amran has been approached by government agencies and other institutions to meet and discuss the findings. The University has also sought permission to make the report a compulsory part of the University syllabus for undergraduate and postgraduate students studying science, which is approximately 400 students per year.

"I can't thank you enough for picking Dr Amran as your potential Research Partner and giving this Department [of Science and Technology Studies] the golden opportunity to get up close with the Royal Society."

Dr Siti Nurani Bte Mohd Noor, Associate Professor and Dean of Faculty of Science

"Though the report did not have the launch that was originally planned, it has in no way diluted the significance of its contribution or impact. You and your team must be congratulated for coming up with an excellent snapshot of Malaysia's STI landscape."

Dr. K. Thiruchelvam, Associate Professor, Dept Science and Technology Studies

Recommendation 8.3.3, on the creation of the National Science and Research Council (NSRC), has already been realised. NSRC, under the chairmanship of the PM's Science Adviser, Dr Zakri has met twice recently (March and April). It seems that Dr Zakri is using the report to oversee and steer the national research agenda and objectives.

The recommendation on international benchmarking (8.3.7) is also now a reality. Last month, the Malaysian PM was in New York chairing the 42-strong (25 of them international) *Malaysian Global Science and Innovation Advisory Council*, facilitated by the New York Academy of Sciences, looking at Malaysia's science and innovation system. The Council will help Malaysia reach its developed country ambition in an environmentally-sustainable way - lighting a path to a green, high-income economy for similar developing countries to potentially follow.

The methodology of the report has also attracted the attention of the Multimedia Development Corporation (MDEC), inviting Dr Amran to carry out a more specific study on the socio-economic impact assessment of the National Broadband Initiative launched last year.

The report featured in an interesting article in SciDevNet in April.

<http://www.scidev.net/en/science-and-innovation-policy/science-in-the-islamic-world/news/malaysia-s-science-needs-more-work-.html>. Media coverage was limited because the study could not be formally launched (OIC was unable to give the go ahead for the launch because MOSTI – and specifically the Minister – had not given it the “green light”). This is discussed more fully in Paper JMT-110611-2.



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NEWS

Malaysia's science 'needs more work'

Shiow Chin Tan
20 April 2011 | EN

[KUALA LUMPUR] Malaysia must work on its "weak" implementation of science, technology and innovation (STI) strategies, according to a report on the country's science and innovation system.

The report, released late last month (28 March), is the first in the Atlas of Islamic -World Science and Innovation series, an international project to assess the state of STI in up to fifteen Muslim-majority nations over the next three years.

It found that, although Malaysia has the potential and a keen eye for developing science strategies, the country fails to implement them and as a result has only moderate success in the sector.

The report's authors, Natalie Day, a senior policy analyst at the UK-based Royal Society and Amran Muhammad, a senior researcher at University of Malaya (UM), interviewed more than 100 scientists, policymakers, economists and entrepreneurs, and assessed economic, social and cultural data.

Malaysia has launched several initiatives to promote science and innovation over the past few decades, ranging from the First National Science and Technology Policy in 1986 to the inclusion of STI elements in the 10th Malaysia Plan (2011–2015).

The report found that women are having an increasing role in the country's STI and that there were "grounds for optimism with regard to the future of gender balance in research careers".

The country is also rich in biodiversity; has longstanding historical and cultural ties with Commonwealth nations, China and the Islamic world; and is economically and politically stable — all strengths that it can leverage to improve STI, the authors say.

But Amran told *SciDev.Net* that the country's STI performance to date has been "moderate".

Poor implementation of STI strategies is a common theme, the authors reported. Malaysia is "excellent at developing strategies, yet weak in implementation".

To combat this, Amran said, Malaysia needs better integration of the national STI system. He recommended bringing all of the country's STI-related agencies and departments under one main coordinator "to streamline and consolidate our inherently weak links between STI players, both in the public and private sectors".

Another factor holding Malaysia back is the failure to convert heavy investment in education into more highly skilled graduates for the country's science sector.



Malaysia invests heavily into education
Flickr/bobjP&S

1.2 PAKISTAN

Key players

Dr Athar Osama is the Lead Researcher for the Pakistan country case study. He is a science policy analyst and consultant, a columnist on Science in the Islamic World for SciDev.Net, and a Visiting Fellow at the Frederick S. Pardee Centre for the Study of Global Long Range Future at Boston University.

The **National Research Partner is Lahore University of Management Sciences (LUMS)**. Athar has been working with Professor Zyed Zahoor Hassan, former Vice Chancellor of LUMS, and Dr Kamran Ali Chatha, Assistant Professor at LUMS, to carry out the evidence gathering and drafting of the report. Research support was provided by Aziz Omer, Usman Latif Butt, Umair Ahmed from LUMS, and Rasha Rahman, Faizan Usmani, and Nadeem Jahangir from Technomics International. They accompanied the researchers on interviews, sat in on focus groups, and wrote case studies for the project.

The **National Focal Point is the Higher Education Commission (HEC)**. The research team has been liaising with Javaid Laghari and Dr Sohail Naqvi, Chairman and Director of the HEC respectively, as well as other officials at the HEC to gather data.

Evidence gathering

Over several months of fieldwork spread between November 2009 and September 2010 the research team interviewed over 250 policymakers, entrepreneurs, scientists and economists across seven Pakistani cities: Karachi, Islamabad, Lahore, Faisalabad, Rawalpindi, Sialkot, Taxila, and Kamra.

The study began with an initial scoping trip in late 2009. The Lead Researcher met the NRP and NFP and was introduced to key individuals and institutions in Pakistan's scientific and innovation communities. The Lead Researcher was accompanied by Ehsan Masood during this trip for his advice on this country case study. The fieldwork was planned in early 2010 and the preliminary collection of relevant data began. A launch event took place in May 2010 at LUMS to formally launch and profile Atlas and this country case study. This was followed by a number of industry sector focus groups, most of which were hosted at LUMS. One focus group on agriculture, food, and animal sciences was hosted in Islamabad by Dr Iftikhar Ahmed, Director General of the National Agricultural Research Council. Another on the defence and strategic industries was hosted by Maj. Gen. (Retd) Abid Ghumman, Secretary of the Ministry of Defence Production in Rawalpindi.

A series of workshops were held at other organisations, and various meetings were organised to interview key individuals. These included Dr Ansar Pervaiz (Chairman, Pakistan Atomic Energy Commission); Dr Iqrar A Khan (Vice Chancellor, Agriculture University, Faisalabad); Dr Arshad Ali (Director General, School of Electrical Engineering and Computer Sciences at NUST). Mr. Shahid Zaki and Izzar Mirza Husain (Director of EMBA and Executive Education, Institute of Business Administration, Karachi, respectively); Mr Zia Imran (Managing Director, Pakistan Software Export Board); Ms Jehan Ara (President, Pakistan Software Houses Association); and Mr Asad Umar (CEO, Engro – Pakistan). Other key individuals are listed in the appendix of the Pakistan report.

The research team also had close collaboration with the local offices of the British Council and Canadian International Development Research Centre. They made valuable suggestions during these meetings

regarding the content of this report and engagement with relevant stakeholders inside and outside of Pakistan.

Emerging findings of the report have been presented to leading policymakers and business leaders. This includes Mr Shams Kassim Lakha (former Vice Chancellor of the Aga Khan University), Mr Zia Imran (Managing Director of Pakistan Software Export Board), and Dr Adil Najam (Professor at Boston University). They have provided helpful feedback.

Progress so far

The report has been drafted and will be emailed to the JMT and the NFP shortly for their comments. At the same time, the report will be sent to a small expert Peer Review Committee (PRC) consisting of:

Dr Akram Sheikh	<ul style="list-style-type: none"> • Former Secretary of the Ministry of Industries • Former Executive Director of HEC • Former Deputy Chairman of the Pakistan Planning Commission (chaired by the Prime Minister; this is perhaps the most influential body in Pakistan for decision making about socio-economic development) • Former Chairman of the Pakistan Engineering Council
Dr Ishrat Hussain	<ul style="list-style-type: none"> • Rector and Director of the Institute of Business Administration, Karachi • Former Governor of the State Bank of Pakistan
Dr Kamal Munir	<ul style="list-style-type: none"> • Reader in Strategy and Policy, Judge Business School, University of Cambridge • Joint appointment at LUMS
Professor Louise Johnson FRS	<ul style="list-style-type: none"> • David Phillips Professor of Molecular Biophysics, University of Oxford • Member of Royal Society Council
Professor Muhammad Akhtar FRS	<ul style="list-style-type: none"> • Director, School of Biological Sciences, University of the Punjab, Pakistan • Emeritus Professor, Department of Biochemistry, University of Southampton • Former Member of Royal Society Council

Next steps

Here is a provisional timetable for the next stages of the Pakistan country case study report.

Once the report has been sent out to review (late May), the project managers will liaise with all project partners to prepare:

- Detailed dissemination lists of key individual and institutions in Pakistan, UK and internationally to receive copies of the report
- Plans to launch the report in Pakistan, UK and internationally. There had been discussions with the British Council about profiling the report in Islamabad, Lahore and Karachi. This remains a good opportunity to be explored further.
- Influence strategy across the 6-12 months after the launch of the report to discuss the report with key policymakers, scientists and business leaders in Pakistan and how its recommendations may be implemented. The National Focal Point along with National Research Partner will play a leading role in the execution of this strategy once it has been formulated. Project partners will also be asked to identify influential international events to profile the report.

Reviewers', JMT and NFP comments will be incorporated over July/August, with a view to getting the final report to the JMT for sign off in September. Allowing for report design and production, **the report should be ready for launching in late October.**

Emerging findings (NB these are early indications only and are all subject to peer review)

The report's key conclusions and recommendations are set out in the final chapter of the report. In summary, to instil a STI based development paradigm in Pakistan, it should draw on its **key strengths**:

- The talent and resilience of Pakistan's people, including its Diaspora around the world.
- Recent revival of STI investment in Pakistan, which provides an opportunity for Pakistan to engage with the global scientific enterprise.
- A track record of successfully exploiting its STI capabilities when this has been a national priority. For example, when agricultural research supported a Green Revolution in the 1960s and a strategic nuclear capability was developed in the 1970s and 1980s.
- An entrepreneurial culture is emerging that needs further nurturing.
- Key scientific sectors are ripe for commercial exploitation, especially in the defence and strategic sectors.
- Pakistan has abundant natural resources that are under exploited or poorly managed yet could help address some of its energy and water crises.

Doing so will also need to address **key challenges**, including:

- Need for broad support from Pakistani society for science
- Need for a clear national vision for science from its government
- Streamlining and strengthening science policy infrastructure.
- Formulation of a coherent and comprehensive strategy to develop its human capital.
- Developing tradition of commercialising research.
- Geopolitical instability and an over-securitisation of Pakistan's image on the international stage.
- Enhancing international scientific collaboration.

Recommendations therefore include:

1. Create a national dialogue on science and innovation to create grassroots support and political will for science in Pakistani society.
2. Establish a national science and innovation task force to review and rationalise the science and innovation policy infrastructure.
3. Task the National Commission of Science and Technology to develop a sustainable paradigm for funding science and innovation.
4. Task a government commission to carry out a thorough, system wide review of Pakistan's science and innovation value chain and formulate a human capital strategy.
5. Establish and implement a framework for joint development and public procurement that brings the country's defence and strategic sectors within the mainstream science and innovation system.
6. Establish a focused national research effort to address Pakistan's sustainability challenges. This should be on a similar scale and scope of earlier programmes in agriculture and nuclear science and technology.
7. Create a policy effort to catalyse the culture of private sector driven industrial and business innovation.
8. Developing and implementing a policy that celebrates and promotes entrepreneurship.
9. Take proactive leadership to develop a 'forward bloc' of OIC members countries to transform their complimentary STI capabilities

10. Seek to fully capitalise the relatively unexploited avenues of scientific collaboration, in particular BRIC economies, especially China, and the European Union.

Lessons learned

Working with the National Focal Point has been a little mixed. While there has been strong support for Atlas from the very top of the HEC, delays were experienced when trying to collect data from lower level officials. This was partly due to difficult administrative changes taking place in Pakistan that were affecting the HEC directly. The NFP has commented on earlier drafts of the report and the final draft is about to be sent to them.

Unlike the Malaysia report, which was co-written by one of the project managers, the Pakistan country case study has required more time than anticipated from the project managers to help edit it into Atlas style and ensure an appropriate balance of scientific, innovation and wider cultural and political issues. It is still a little long, and any steer from the JMT for its final revision would be welcomed.

1.3 EGYPT

Lead researcher:	Michael Bond, Freelance journalist
National Research Partner:	Bibliotecha Alexandrina
National Focal Point:	Academy of Scientific Research and Technology (ASRT)

Progress

The **first draft of the report has been completed**, and Michael Bond has recently spent an additional week in Egypt in order to put the draft report in context in the light of the recent revolution. We are aiming to **complete this report for the autumn**, to allow it to feed into the new Government's strategy for science. However, the additional work that has been necessary given recent events in the country will make this challenging. On the most recent visit, the research team held a two-day conference with around 25 young lecturers and PhD students who were very forthcoming about their ambitions and expectations. Subjects relating to all the chapters of the Atlas project were discussed at this event.

We would be grateful for any suggestions from the JMT of possible members for the review panel for the Egypt case study.

Emerging findings/headlines (NB these are early indications only and are subject to peer review)

The Academy of Scientific Research and Technology (the National Focal Point) seems to be playing a key role in the country's R&D, especially as the science minister has already changed twice since the revolution. Despite the recent change in political structure in the country, the science and education reform programmes that began in 2007 are still on track and a lot of initiatives that had got stuck in the bureaucracy of the old regime have now been given the green light, such as a plan to increase the number of government researchers significantly, and the ambitious scheme to build a 'development corridor' west of the Nile from the Sudanese border to the Mediterranean.

This report looks set to be especially timely and will undoubtedly attract a wide audience, not least the new Egyptian government.

1.4 JORDAN

Lead researcher: Dr Sami Mahroum, Director, Innovation and Policy Initiative, INSEAD

National Research Partner: Princess Sumaya University for Technology (PSUT)

National Focal Point: Royal Scientific Society (RSS)

Progress

A complete draft of the Jordan case study has been produced. This is now undergoing revisions following significant input from a new appointee in the research team (a joint post between PSUT and the RSS). Whilst there is no specific launch deadline for this case study, we are aiming to **publish this case study towards the end of 2011.**

Emerging findings/headlines (NB these are early indications only and are all subject to peer review)

Jordan is a country rich in human capital, with almost 60% of its population under the age of 25, but with few natural resources. Significant educational reforms that have taken place since the 1990s have resulted in a well educated population with a high literacy rate for the region. However, there is a need to focus on developing critical thinking at both school and university level, so that students can acquire the skills needed by industry. High unemployment is driving high levels of emigration from Jordan.

Possible recommendations

Recommendations are likely to be made around the following areas:

- Streamline the National Innovation System (NIS), including reducing the number of organisations, programmes and initiatives currently in place to support innovation, in combination with improved coordination and communication.
- Development of a national innovation policy.
- Continue efforts to move teaching away from an emphasis on memorizing facts and theoretical knowledge towards teaching methodologies to solve problems and improve critical thinking.
- Elevate the importance of science and technology within the school system.
- Incentives should be provided to encourage universities to shift their focus from academic or basic research to problem solving R&D, and research that seeks to identify new ideas and technologies that will help Jordan develop its competitive advantage.
- Promoting a positive environment for entrepreneurship and business - addressing cultural barriers, reforming the education system, and promoting greater emphasis on applied R&D activities, will help lay the foundations for this environment to grow and evolve.

1.5 QATAR

Qatar's extraordinary economic growth and rise to global prominence has been one of the most intriguing geopolitical developments of the 21st century. It has made headlines by taking on a leading role in diplomacy, sport, art and broadcasting – but perhaps its most significant investment is a drive, under the leadership of Her Highness Sheikha Moza's Qatar Foundation, to bring world class education, culture and science to the nation. Its wealth is derived from its status as the world's largest producer and exporter of liquefied natural gas, but its policymakers acknowledge that these resources are finite. Qatar

therefore aspires to develop into a knowledge-based economy, and aims to spend 2.8% of its GDP on research by 2015.

Work on the Qatar case study is gathering pace. An experienced team of writers based in London and Doha has been assembled, and a period of intensive in-country fieldwork has taken place, with more to follow. A brief summary of the key players, details of the fieldwork already carried out, emerging themes from the study, and an outline of the timetable going forward are provided here.

The key players

The Qatar case study is being managed and delivered by a strong team led by Dr James Wilsdon, Director of the Royal Society's Science Policy Centre. The writers bring with them an extensive range of expertise in a number of areas, including international science policy, science journalism, molecular biology and innovation. Their work has been published in a number of internationally renowned peer-reviewed journals, major policy reports, and international media.

Waleed Al-Shobakky is co-author, with the RS project team, and the Doha-based President and founder member of the Arab Science Journalists Association. He is a freelance science writer whose articles have appeared, in Arabic and English, in regional and international publications, including AlJazeera.net, Assafir newspaper, SciDev.net, and ScienceBusiness.net.

The **National Focal Point** is the **Supreme Education Council**. The SEC was established by Emiri decree in 2002 and has overall responsibility for Qatar's education policy. It is currently tasked with directing and implementing a series of major reforms to the education system, and oversees three institutes: the Education Institute which oversees independent schools, the Evaluation Institute which is responsible for student testing, learning and the evaluation of school performance; and the Higher Education Institute which administers scholarships and grants, and provides career opportunities and advice for higher education in Qatar and abroad.

The **National Research Partner** is the **Qatar Faculty of Islamic Studies**. Further input to the study will be provided by **Dr Basma Abdelgafar**. Dr Abdelgafar is Assistant Professor of Public Policy and Program Coordinator of the Public Policy in Islam Masters Program in the Qatar Faculty of Islamic Studies, a member of Qatar Foundation. She obtained her doctorate in Public Policy from Carleton University, Ottawa. She has received several prestigious awards including the Nippon Foundation Scholarship (Japan), the Social Sciences and Humanities Research Council Award (Canada), and the Canadian Health Services Research Foundation Fellowship. Dr Abdelgafar has performed extensive research on intellectual property rights, innovation systems, and pharmaceutical industries, particularly in the context of developing countries. Past positions include Special Advisor to the President of the Canadian International Development Agency; Policy Analyst in the Canadian Federal Government; and Research Associate at Carleton University and the University of Toronto. Among her publications are *The Illusive Trade-off: Intellectual Property Rights, Innovation Systems, and Egypt's Pharmaceutical Industry* (University of Toronto Press 2006), as well as several book chapters and articles. She is a member of Qatar Foundation's Intellectual Property Committee, on the Advisory board of the Knowledge-based Business Project, as well as the academic board of the Technology, Innovation and Entrepreneurship Program.

Update on progress

The team took part in a period of extensive fieldwork in Doha in April and May, building on earlier fieldwork by James Wilsdon and colleagues. During that time, the team conducted over 50 interviews and spoke to a number of key individuals, including:

- His Excellency Dr Mohamed bin Saleh Al-Sada, Minister of Energy
- Dr Mohammad Fathy Saoud, President, Qatar Foundation
- Professor Sheikha Abdulla Al-Misnad, President of Qatar University
- His Excellency Sheikh Hamad Bin Jabor Bin Jassim Al Thani, Director General, General Secretariat for Development Planning
- Dr Abdul Sattar Al-Taie, Executive Director, Qatar National Research Fund
- Dr Bruce Nardulli, Director, RAND-Qatar Policy Institute
- Fahad al-Attiyah, Chairman, Qatar National Food Security Programme

The team are currently in the first stages of drafting the report, and writing will continue over the summer. An initial 10,000 word discussion paper will be produced for the visit of Her Highness Sheikha Moza to the Royal Society on 9 June. A second phase of field work will take place around the World Congress of Science Journalists at the end of June. The first draft of the report will go to peer review and the JMT on Monday 5 September.

Emerging findings/headlines *(NB these are early indications only and will all be subject to peer review)*

The report is in the earliest stages of drafting, but a number of key themes are emerging, namely:

- **Qatar's ambitious strategy** to capitalise on its resource-based wealth and make the transition to a knowledge-based economy, and to spend 2.8% of GDP on research by 2015
- **The Education City experiment:** how a number of leading US universities have established branch campuses in Doha, and the drive to build a world-class research culture there
- **Adapting to a desert environment:** Qatar imports 90% of its food, its water resources are under severe pressure, and its population is increasing – the case study will look at some of the national and international strategies Qatar has devised to address these challenges.
- **Human capital:** Qatar is rich in natural resources, but has a relatively small population. The importation of knowledge via expatriate workers has been a key part of its development, but how can it ensure it has the absorptive capacity to retain and build on this knowledge?

Launch

The report is scheduled to be launched at the United Nations Alliance of Civilizations annual forum in Doha from 11-13 December 2011.

To conclude this section, it is worth remembering that these studies have been used to test and refine the methodology. In addition to workshops conducted as part of the research process, dissemination strategies and fora to discuss the findings of the report are also critical. All JMT members are encouraged to identify opportunities to raise the profile of this unique project and make its outcomes more visible. The next section provides examples of two such dissemination opportunities that have been taken up in the past six months, and Session V explores such opportunities more fully.

2. Project dissemination: capitalising on international events

The Royal Society delivered an Atlas-related event as part of the American Association for the Advancement of Science (AAAS) conference in February 2011. The AAAS meeting is one of the largest

science meetings in the world, typically attracting around 5,000 participants, from leading scientists to educators to policy-makers, from over 50 countries. In addition, over 1000 journalists usually attend, including all of the key broadsheet science journalists from the UK.

Themed on “Science without borders”, the AAAS meeting provided an excellent opportunity to engage important US and other international stakeholders in the Atlas project. The session “Education, Science and Innovation as Tools for New Engagement with the Islamic World”, attracted well over 100 people and was chaired by Dr Naser Faruqui, IDRC. Presentations were delivered by Dr Bruce Alberts (drawing on his US Science Envoy work), Professor Abdul Hamid Zakri (Chief Scientist of Malaysia, focusing on the Malaysian and wider developing country context) and Sir Magdi Yacoub FRS (providing a personal perspective on what was happening in Egypt and the timeliness of the AIWSI project). Professor Mohamed Hassan (at the time, Executive Director of The Academy of Sciences for the Developing World (TWAS) and President of the Network of African Academies (NASAC)) and Jason Rao (from the US’ Office for Science and Technology Policy (OSTP)) joined the wide-ranging discussion, which included commentary on regional and S-S cooperation (why aren’t the rich OIC countries investing in their poorer cousins?); the role of science outreach, engaging society and encouraging science at the grass roots level; and knowledge-based economies fuelling democracy. Dr Faruqui summed up nicely with five cross-cutting themes: the importance of (1) capacity building, at individual and institutional levels; (2) women in science; (3) engaging the youth; (4) collaboration within the region - the richer countries helping the poorer; and (5) a blend of evidence combining the rigour of natural and applied sciences with the cultural nuance of social science (the project’s interdisciplinary nature).

The project was very well-received and has attracted a good deal from interest from US policy makers (if not funders) as they continue to mull over their US science envoy programme and the science diplomacy agenda. Indeed, the Royal Society and IDRC have submitted another session to the AAAS 2012 meeting in Vancouver in February 2012. Under the theme of “Flattening the World: Building the 21st Century Global Knowledge Society”, the Atlas session will explore building a global knowledge economy through global collaboration. We have invited Dr Ismail Serageldin, Dr Zahoor Hassan and Dr Siti Nurani Mohd Nor as speakers for Egypt, Pakistan and Malaysia.

AAAS 2012: BUILDING A GLOBAL KNOWLEDGE ECONOMY THROUGH GLOBAL COLLABORATION

SYNOPSIS

Our ability to address interconnected and complex global problems depends on our ability to collaborate globally, with peoples and in places where there are often striking differences in education, research and innovation systems, in politics, language and culture. Building a global knowledge economy requires us all to appreciate these differences and work with them to develop, through collaboration, both global resilience and global solutions to shared challenges.

The Atlas of Islamic World Science and Innovation (AIWSI) is a unique collaborative project that explores the changing landscape of science and innovation across diverse countries with large Muslim populations in the Middle East, Africa and Asia, including in-depth case studies of Egypt, Indonesia, Jordan, Malaysia, Pakistan, Qatar and Senegal. Across many of these countries, there is a renewed ambition and investment in education, science and innovation; an ambition that brings with it opportunity. If embraced, this opportunity could profoundly influence collaboration between parts of the world with historically little mutual understanding.

Working closely with partners in each of these countries, the project explores new opportunities for partnership and exchange with the wider world, particularly on shared global challenges. This symposium will explore some of the recurrent themes coming out of country studies to-date by looking at three such studies: Egypt, Pakistan and Malaysia.

The Atlas project will also be profiled at the forthcoming World Conference of Science Journalists, to be held in Doha 27-29 June 2011. Ehsan Masood will speak to the project in a session entitled "Unveiling Arab science"; the Atlas research team will also participate (the conference timing with the final phase of fieldwork).

WCSJ 2011: Session on Unveiling Arab Science

Science in much of the Mideast region operates under unique cultural, economic, and religious constraints. If we are to intelligently report and write about it, we must understand these constraints - and sometimes work around them. Historical tensions between belief and reason sometimes complicate scientific inquiry here, as elsewhere. Meanwhile, both science and science reporting also face constraints imposed by autocratic cultures; a highly stratified economy; economic, educational, and infrastructure problems; a traditional lack of transparency; and relative weakness in both a scientific publishing tradition and the sorts of public-information-office pipelines that Western reporters take for granted. Even as researchers and institutions in both traditional science centers like Cairo and emerging new centers such as Saudi Arabia's KAUST seek to loosen some of these constraints, journalists writing about science here face a uniquely complicated task. We'll explore these difficulties and try to leave journalists with both useful perspective and sound practical advice.

JMT partners are encouraged to think creatively about other opportunities/events for profiling the Atlas project to important audiences.

**The Atlas of Islamic-World Science and Science and Innovation
Joint Management Team / Project Steering Group Meeting
Istanbul, Turkey
03-04 October 2010**

Summary of meeting & next steps:

This paper serves as a brief summary of the recent Joint Management Team / Project Steering Group meeting held in Istanbul, October 3-4th 2010. It provides a summary of discussions, as well as the next steps and outcomes of the meeting – many of which focus on lessons from the first country case study of Malaysia.

PROJECT STEERING GROUP MEETING SUMMARY:

Saturday 2 October:

Welcome Reception and Dinner for all participants

An informal dinner was held on the first night to welcome and introduce all participants. Special thanks to Dr Savas Alpay, Director General of SESRIC, Dr James Wilsdon, Director of the Science Policy Centre at the Royal Society, and Dr Razley Mohd Nordin, Director General for Science and Technology, OIC, for their welcoming remarks.

Sunday 03 October: Review Progress in Atlas Project

Opening Session

The meeting was honoured to hear from the JMT's Chair, Professor Ekmeleddin Ihsanoglu, Secretary General of the OIC. Professor Ihsanoglu outlined his vision for the Atlas project as one of the essential elements in the OIC's 10 Year Programme of Action and Vision 1441 H (the OIC blueprint for STI). Professor Lorna Casselton, the Foreign Secretary of the Royal Society, also welcomed participants.

Session I: Progress overview of Atlas project

Dr Razley bin Mohd Nordin, OIC, and Mehmet Fatih Serenli, Project Manager at the SESRIC provided a brief overview of the history of the Atlas project – including the governance structures, fundraising and progress to date.

Session II: Country studies in focus:

This session was an opportunity to share experiences and hear of progress in the country studies that are already underway – Malaysia, Pakistan, Egypt and Jordan.

Dr Amran bin Muhammad, the NRP for Malaysia, shared his experience conducting the field work, challenges gathering data and the benefits of being associated with the Atlas project. Natalie Day, the Lead Researcher, provided a brief outline of the recommendations of the Malaysia study. Anita Bahari, the NFP of Malaysia, also explained her role in the project and the various actions taken to overcome some of the challenges to meet the project guidelines and procedures

Following a detailed discussion about some of the Malaysia findings as well as the research experience, this session also heard useful presentations from key members of the research teams in Pakistan, Egypt and Jordan – countries studies that are all at different stages of progress.

Session III: Peer review methodology and process

Due to the diversity and local circumstances of each country some minor adjustments to the methodology may be needed but on each occasion any changes must be first agreed with the project managers. However, the structure and format of each report should remain the same to ensure consistency across all the country case studies.

Professor Atta ur-Rahman FRS, Chair of the Peer Review Group & General Coordinator of COMSTECH provided an update on the peer review methodology and process. This was followed by a detailed discussion of ways in which the Malaysia report could be further strengthened. Professor ur-Rahman stressed the importance of nominating a range of experts who either have specific knowledge and expertise in the National Innovation Systems the country under study, as well as more general reviewers with relevant expertise. The names of the proposed peer review group members for each country will be sent to the JMT for comments or objections.

The proposed composition of peer reviewers per country is typically:

- Three specialists of the country in focus (ie – former CSAs, senior NIS academics etc)
- Two FRS with relevant expertise, including at least one member of Council

As is to be expected, the first tranche of countries have provided the opportunity for project partners to review the governance structures currently in place, and to make improvements where necessary. There was a helpful discussion about the peer review process at the meeting. The outcomes of the discussions are included in the revised guidelines and procedures for country studies for subsequent applications.

Session IV: Milestones for conducting research / launching country reports & dissemination tactics

Natalie Day, Project Manager at the Royal Society, provided an overview of the typical research timeline and process for each country study as well as outlining the preferred characteristics of the National Research Partner in each country study, the process for nominating and selecting these partners.

Natalie also outlined the key project milestones in terms of potential launch dates for country studies (which were later revised) as well as other opportunities through which the project management seek to promote the Atlas project. In recent months, the Atlas project has been profiled at prestigious events, such as the World Islamic Economic Forum in Malaysia and a high-level conference on Science Diplomacy held at Wilton Park in the UK where Professor Ihsanoglu spoke.

Going forward, the Royal Society has negotiated an Atlas-related event as part of the American Association for the Advancement of Science (AAAS) conference in February in the USA; whilst the

project will also be profiled at the World Conference of Science Journalists, to be held in Egypt in May 2011. Project partners and other supporters were encouraged to think creatively about other opportunities that they might be aware of where we can profile the Atlas project to strategic audiences.

JOINT MANAGEMENT TEAM MEETING:

The JMT meeting discussed some critical issues that had arisen as part of PSG discussions as well as some pertinent issues to guide the direction of the Atlas project going forward.

- 1) MALAYSIA COUNTRY STUDY: There was a robust discussion of this draft country study and the peer review process. Professor Atta ur-Rahman FRS, Chair of the Peer Review Group, provided some comments on the report and suggested an alternative methodology. Following rigorous discussion amongst partners, the agreed Guide to Research Methodology which guides all Atlas reports was confirmed as the key reference document whilst also encapsulating Professor ur-Rahman's priority areas of science, innovation, engineering / technology and national policies. It was agreed to postpone the launch of the Malaysia report until the OIC Meeting of all the Kings and Heads of State in Egypt in March 2011.

The meeting agreed for the lead researcher and the national research partner in co-operation of the national focal point to incorporate the various comments in the revised draft report within a month. Members of JMT are also encouraged to provide their views and comments. The meeting stressed the importance of keeping the Malaysian government fully informed of progress prior to approval by JMT and launching in March 2011.

- 2) PEER REVIEW PROCESS REVIEW: The first tranche of countries provided a useful opportunity to review the peer review process and make amendments where necessary. The JMT discussed the various lessons from the Malaysia case study and the JMT's own involvement in this process. It was agreed that the JMT needed to be engaged in considering the reports far earlier – with a first draft to be sent to the JMT when it goes to the peer reviewers, and then the next version sent to the JMT for comments once all the peer review comments have been incorporated. The Royal Society referred to some internal discussions about the most appropriate governance structures for the project, and the Society will advise the JMT as to the outcomes of these discussions in due course.
- 3) IN-COUNTRY PRACTICALITIES: The JMT had some discussion on how best to engender a sense of ownership within the countries of focus. This is clearly a priority of all the Atlas reports and it is hoped that by working closely with the NFP and NRP, this will be achieved whilst also ensuring appropriate rigour and independence. Similarly, there was some discussion about the selection of the NRP in countries where it is difficult to identify an emerging centre of excellence or academic department that is independent of government. In such cases, the project managers suggested that they would seek advice from the JMT on suitable partners, following a comprehensive review of what partners are available.
- 4) JMT ROLES AND RESPONSIBILITIES: Ongoing forward, it was agreed that there needed to be a much stronger distinction between the JMT forum and the Project Steering Group as some of the discussions over the two days were only appropriate for the JMT, rather than involving all the different partners. It was agreed that it was important to revisit the JMT roles and responsibilities so that all were clear on expectations and to revise where necessary.

- 5) NEXT TRANCHE OF COUNTRIES: A productive discussion was held on the next set of countries. With Malaysia, Pakistan, Egypt and Jordan underway, future priorities now include Qatar (subject to discussions with the Qatar Foundation); Senegal (one of the IDRC countries); Kazakhstan (to kick-off at an OIC meeting in Kazakhstan in May 2011); as well as continuing discussions with Iran. Indonesia (another IDRC country) was also proposed as one of the next countries to get underway, whilst the Council expressed interest in Nigeria and Turkey. The project managers stressed the need to be realistic in terms of the number of country studies that could be underway at one time and suggested that they would review all project timelines, particularly in line of the JMT discussions, and advise as to a feasible timeline.

Monday 04 October: Looking ahead

Session VI: Maximising value with project partners

This session, led by Naser Faruqi from IDRC, provided a useful opportunity of project partners to present their objectives in supporting the Atlas project and how it might fit into broader priorities of their respective organisations.

- Lloyd Anderson from the British Council spoke of the value of Atlas in terms of understanding the changing attitudes to STI in the countries of focus as well as being a tool through which to build new networks and opportunities for engagement. He stressed that there could be greater communications between the project managers and the partners, specifically in relation to the in-country research timelines and planning so that the Council could play a more engaged role. This was noted by the project managers as an ongoing priority, whilst also acknowledging the support received to date from BC colleagues in-country.
- Nick Campbell of *Nature* spoke of the overwhelming response to their special edition of science and Islam in November 2006 and offered some very helpful suggestions of how *Nature* can help disseminate Atlas through in-kind advertising, potential new stories (subject to news agenda), potential supplements like *Nature* Outlooks, as well as greater engagement with the new *Nature* Middle East.
- Whilst the Qatar Foundation was unable to attend this meeting, Natalie spoke of the passion and commitment of Her Highness Sheikha Mozah bint Nasser al Missned to the objectives of Atlas and the desire for the Foundation to play a key role.
- For the Royal Society, some issues of governance in terms of internal management of the project were raised by the Foreign Secretary, which the Society will resolve and report back to the JMT in due course. The objectives of the project in terms of the Society's long held objective to understand and map the changing geography of international science as well as supporting science diplomacy was also highlighted.
- Dr Savas Alpay of SESRIC spoke of the 'smaller world' in which science is now operating and the need to get to know each other better so that we might work more closely. He explained that the Atlas project was a priority in terms of capacity building, particularly in the area of statistical data as well as building stronger connections.
- Naser Faruqi of IDRC described Atlas as providing a 'new opening' for fresh and creative new opportunities and how the IDRC was looking for downstream opportunities once the countries had been mapped. Naser suggested that the IDRC regional offices could become more engaged – either through their convening power, workshop facilities, as well as in providing comments on the reports as part of the review process. Developing more transparent channels of communication and engagement between partners was also stressed as a priority.

Next steps and wrap up

Below is a brief summary of the next steps, following the JMT and PSG meeting.

- 1) *Within the country studies underway:*
 - a. *Malaysia:* to be revised based on the JMT discussions and circulated to the JMT for approval. Malaysia to be launched at the Islamic Summit Conference of all the Kings and Heads of State in Egypt in March 2011, with a subsequent launch in Malaysia involving key stakeholders.
 - b. *Pakistan:* to also be launched at the Islamic Summit Conference in Egypt in March 2011, whereby allowing additional time for peer review process etc. Tentative plans for an in-country launch in partnership with the BC office and IDRC will be rescheduled until after this launch takes place.
 - c. *Egypt:* by allowing more time for research and the peer review process, it is unlikely that Egypt will be ready for the Islamic Summit in Egypt as originally planned. This is subject to further discussions between the research team and the project managers.
 - d. *Jordan:* Research now continues in earnest, with the project managers to continue working with the research team to identify a suitably high profile event at which to launch the report.
 - e. It was agreed that all project partners must continue to engage with these country studies already underway and provide as much support to in-country partners as possible. It was agreed that SESRIC would provide support in assisting research team in compiling of relevant statistics, whilst representatives of the more advanced studies (Malaysia and Pakistan) offered to share experiences with other countries that are just getting underway.
- 2) *Next tranche of countries:* As mentioned in the JMT write-up, Qatar, Senegal, Kazakhstan, Iran and Indonesia are amongst the next tranche of likely case studies. The project managers will seek advice from the JMT at all appropriate stages in this regard.
- 3) *Governance and Peer Review Processes:* This meeting helped to identify some clear room for improvement within the governance structures. The project managers will now review the current structures and report back to the JMT on ways in which to improve such structures, including the roles and responsibilities of the JMT, and importantly, how to improve the peer review system (which will also incorporate some of the suggestions which arise from the internal discussions within the Royal Society to strengthen the rigor of the peer review process).
- 4) *Strengthening Atlas communication tools:* Recognizing that the project managers have been busy getting this first tranche of countries underway, there were some helpful discussions about the need to strengthen communication and knowledge sharing amongst the partners and in terms of planning for in-country research. In this context, SESRIC offered to immediately arrange a JMT email network, as well as work on a more sophisticated project website with specific areas for partners to access and share information. The project managers also spoke on plans for regular Atlas newsletters and it was agreed that the project partners would circulate an Atlas communications strategy (including a discussion of impact and dissemination tactics) for project partners to provide valuable input to.

Special thanks to SESRIC for organizing this workshop, and to all the project partners and in-country partners for their significant contributions. On behalf of the project managers, the Royal Society and SESRIC, we look forward to working with you all on the Atlas project going forward.