

AN ATLAS OF ISLAMIC-WORLD INNOVATION

A PROJECT PROPOSAL
FROM THE OIC, DEMOS
AND NATURE

MARCH 2008

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DEMOS

nature

THE CONTEXT

Centuries ago, scholars from the Islamic world led much of the world in medicine, astronomy and mathematics. But today, many countries with significant Muslim populations fall below the global average on key indicators of science and technology-based innovation.

Now there are signs of renewed ambition and investment, with strong support from national governments, businesses, philanthropists and bodies like the Organization of the Islamic Conference (OIC). If this is sustained, we could be witnessing the reemergence of the Islamic-world innovation.

This unique partnership between the OIC, Demos and Nature aims to produce a landmark study of science and technology-based innovation across the Islamic world. Our three-year project will map and evaluate the changing landscape of science and innovation across fifteen countries, including Egypt, Iran, Pakistan, Malaysia, Nigeria, Qatar and Turkey. Working closely with partner organisations in each country, we will chart the delicate interplay between science, innovation, faith, culture and politics.

PROJECT AIMS

1. To map key trends and trajectories in science and technology-based innovation across the 57-country membership of the OIC. The project will build substantially on three earlier studies: the 2003 Arab Human Development Report; the report *Status of Scientific Research in OIC Member States* published by the OIC in 2005; and the special issue of *Nature* on 'Islam and Science', published in 2006.
2. To look in detail at a geographically and economically diverse sample of fifteen OIC countries, and offer an independent and authoritative assessment of how their innovation capabilities are changing, and the opportunities and barriers to further progress;
3. To explore how relationships between science, innovation, faith, culture and politics are unfolding within these fifteen countries, and across the wider Islamic world;
4. To identify new opportunities for collaboration between scientists, policymakers and companies in the Islamic world and Europe, particularly directed towards shared global challenges of climate change, poverty reduction and sustainability;
5. To produce a series of agenda-setting articles, publications and events which spark scientific, policy and media discussion and debate in the Islamic world, Europe and beyond;
6. To build the skills and capacity of science and innovation decision-makers across the Islamic world, and create new networks for the exchange of ideas, policies and good practice both within the Islamic world, and between the Islamic world and Europe.

This study is of fundamental importance at a time where there is increasing misunderstanding towards the Islamic world. It will strengthen relations between institutions, governments and individual scientists, at a time when new opportunities for positive dialogue and cooperation are desperately needed.

A MOMENT OF OPPORTUNITY

The project coincides with a number of eye-catching developments that reinforce the potential for a wider shift in the innovation capabilities of the Islamic world. To give just a few examples:

- Since 2005 the OIC has embarked on an ambitious plan of action in various domains including science and technology, setting important milestones to be achieved within a period of 10 years – among them achievement of at least 1% of GDP spending in research and development in member states;
- The OIC has set a target for 20 universities from member states to join the world's top 500. Currently, the THES World University Rankings includes seven universities from within the OIC, and the Shanghai Jiaotong ranking includes none.
- In May 2007, Shaikh Mohammed bin Rashid Al-Maktoum, Vice-President and Prime Minister of the United Arab Emirates and Ruler of Dubai announced the creation of a US\$ 10 billion foundation to establish research centres in Arab universities and offer research grants to Arab scientists;
- In August 2006, King Abdullah of the Kingdom of Saudi Arabia laid the foundation stone in the city of Taif for a new US\$ 2.6 billion university devoted to science and technology. He pledged that within ten years it will be a leading international centre for medicine, pharmacology, computer science and engineering;
- In 2006, the government of Nigeria created a National Council for Research

and Development and poured US\$ 5 billion into its Petroleum Technology Development Fund to support research and education;

- In Qatar, a 2,500 acre Education City has been constructed outside Doha, containing international campuses of five of the world's top universities. The government has also set a target of 2.8 per cent of GDP to be spent on R&D by 2010;
- Turkey has doubled its research spending in the past five years and is half way to its goal of spending 2% of GDP by 2010. Since 1997, it has risen from 27th to 19th in the world rankings for rates of scientific publication;

How far and fast these countries move up the innovation league tables remains to be seen. But just as some nations such as Finland, Ireland and Singapore have proved some of the surprising success stories of global innovation in the past decade, individual countries within the Islamic world have the potential to make significant breakthroughs.

At the same time, the path to a more innovative Islamic world is not without obstacles. On average, salaries, infrastructure and research grants remain low, and there is still a substantial brain drain out of the Islamic world, with many talented scientists and engineers opting to pursue their careers in the US and Europe. A more fundamental question is the extent to which societies where open debate is not always the norm, can become centres of creativity and invention.

PROJECT METHODOLOGY

Phase 1: Scoping and initial publication

The project will be announced at the **11th OIC Summit Conference of Kings and Heads of States**, which will take place in Dakar, Senegal from 13th to 14th March 2008. The first phase will consist of mapping science and innovation trends across the OIC. Towards the start of the project, we will publish a **10,000 word scoping paper** outlining in greater detail the themes and questions that will be pursued through the rest of the research. During Phase 1, we will also launch a **project website**, in English, Arabic and French.

Phase 2:

In-country fieldwork and seminars

The main phase of the project will consist of a detailed programme of research in **15 OIC countries**. The membership of the OIC is diverse in terms of geography, language, culture and levels of development. Our 15 country studies will reflect this diversity. At the start of Phase 2, a workshop for representatives of the 15 countries will be hosted by the OIC, in order to build support and ownership of the project in these countries. We will then undertake a mix of **mapping, data gathering and new bibliometric analysis, followed by in-country interviews** with scientists, policymakers, thinkers, religious leaders, business leaders, political movements and civil society

organizations. The project team will spend between four and eight weeks in each country, depending on the size and scale of the research task. Within each country, we will identify a **national partner**, with which to collaborate through the research process.

The main outputs of this phase will be a series of 15 country working papers (of between 15,000 and 20,000 words). For each country, these will address the following questions:

- What are the most eye-catching and distinctive features of this innovation system?
- What are the main structures for science and technology-based innovation (institutions, policies, decision-makers, funding etc.)?
- What is the history of science and technology-based innovation, and how rapidly are things developing?
- What are the key indicators and metrics that give us a sense of the health of this system?
- What are the strengths and weaknesses of the secondary and higher education system?
- What are the flows of scientific and research talent in and out of this system?
- What are the innovation sectors and domains of particular strength?
- What is the balance between public and private sector R&D?

- What is the contribution of official development assistance and philanthropy to R&D?
- How much (if any) multinational R&D takes place in this country?
- How innovative is domestic enterprise? Is this changing?
- How does this country approach the governance and ethics of science?
- How do we understand the relationship between Islam, science and politics in this country? How is this changing?
- How well connected is it to research, business and innovation hubs in Europe, the US, Japan, China, India and elsewhere?
- How can international collaboration be strengthened? What are the barriers to this?
- How can R&D in higher education be enhanced?
- How best can eminent Muslim scientists, inventors and innovators be rewarded?

While the primary focus of the project will remain S&T-based innovation, we will also explore and begin to map some of the linkages between S&T and other forms of innovation (e.g. in services), with a view to scoping out further work that the OIC and other organisations may like to continue beyond the lifespan of this project.

Phase 3: Production of final report

Based on these working papers, in the final phase we will produce a **50,000-word overview report**, which highlights

the commonalities and differences between the fifteen countries, and then draws wider conclusions about the prospects for science and innovation in the Muslim world. The report will include recommendations and commentaries from leading thinkers in the Islamic world. The final report will be designed and produced to a high standard and will be translated into Arabic and French.

Phase 4: Launch events and dissemination

The overview report and final versions of the 15 country papers will be launched first at a meeting of the **Islamic Conference of Foreign Ministers (ICFM) in January 2010**. This will be followed by a two-day international conference in February/March 2010, and a series of smaller dissemination events in each of the fifteen countries studied.

Particular emphasis will be placed on ensuring that the findings can be taken forward and used by the OIC member states to strengthen their innovation systems. By working closely with national governments and other national partners throughout the research process, the aim will be to build capacity and practical mechanisms for regular updating and refreshing of the analysis in the years ahead.

PROJECT PARTNERS

The project is an international partnership, which has been initiated by three organisations: the OIC, Demos and *Nature*. Additional international and in-country partners are now being sought to ensure the project draws on the best available knowledge and talent.

The **OIC**, with 57 member states, is the world's largest inter-governmental organization besides the United Nations. This project has been designed with the backing and direct involvement of the OIC Secretariat, based in Jeddah, in the Kingdom of Saudi Arabia. It will contribute to the OIC's 10-year programme of action, launched in 2005, which has science, innovation and sustainability as three of its core priorities. Through the OIC's involvement, the project team will have access to senior policymakers across the Islamic world.

Demos is one of Europe's most influential think-tanks, with a track record of groundbreaking research on science and innovation policy. It recently published *The Atlas of Ideas*, which was described by the Financial Times as 'the most comprehensive assessment so far of emerging innovation in China, India and Korea' (see www.atlasofideas.org) This project will form the centrepiece of a second phase of *The Atlas of Ideas*, which is now getting underway.

Nature is the world's foremost weekly scientific journal and *Nature.com* is one of the most popular scholarly websites on the internet, serving 12 million visitors a month.

In November 2006, *Nature* published a special issue on 'Islam and Science'. The journal's involvement in this project will build on that special issue, and help to ensure that the index and country-papers will be of an unmatched quality.

SUMMARY OF OUTPUTS

1. New mapping of science and innovation trends across the 57 OIC member states;
2. Detailed analysis of science and innovation within 15 OIC member states;
3. Publication of a paper outlining the themes and questions that will be pursued for the study;
4. New empirical data on science and innovation in 15 OIC member states;
5. A project website with contents in English, Arabic and French;
6. Trained national partners to undertake the study and develop ongoing policy capacity;
7. A final overview report and a series of fifteen country reports;
8. A number of high-profile launch events across the Islamic world and Europe.

Project budget

To undertake this programme of work across fifteen countries will require a total budget of **\$2.6 million USD**, spread over three financial years.

It is hoped that this budget will be raised from three main sources:

- One third of the total from the Organization of the Islamic Conference institutions and potential contributions from the member states
- One third from EU member states, scientific and cultural organisations;
- One third from international foundations which support positive global dialogue between science and religion.

NEXT STEPS

For more information or to become involved in the project, please contact:

Dr Razley bin Mohd. Nordin

Director General of the Department of Science and Technology
at the OIC razley@oic-oci.org

Dr James Wilsdon

Head of Science and Innovation at Demos
james.wilsdon@demoss.co.uk