

The Atlas of Islamic-World Science and Innovation

Session II: Project governance, peer review, roles and responsibilities - lessons learned

This paper sets out for JMT members (1) lessons learned from the pilot phase – and predominantly the delivery of the Malaysia report; (2) ongoing and recurrent issues around the project's governance, terms of reference and methodology (especially peer review); and correspondingly (3) proposed amendments to the project's ToR and Guide to Research Methodology; and (4) a new paper on ToR for Peer Review.

JMT members are asked to agree the amendments to these two key project documents and to approve the new document setting out the peer review ToR.

JMT members are asked to note particularly the following recommendations

- That the JMT continues to invest significant efforts to identify the most appropriate NRP who can dedicate their time to the research and, importantly, help take forward the recommendations of Atlas.
- That the JMT provides continued support for the NRP and NFP *after* the report has been launched; this will include looking for opportunities to raise the project's profile, promote the findings, disseminate the reports etc.
- That the lead researchers can be drawn from eminent scientists, highly qualified science journalists or science policy experts, supported by strong NRPs and NFPs.
- That the peer review process is amended such that
 - Each country study is peer reviewed by a Peer Review Committee, with a designated Chair, and with oversight from the PRG Coordinator;
 - The JMT collectively takes greater ownership of the peer review process, agreeing the peer reviewers, delegating responsibility of managing the peer review process to the project managers (RS and SESRIC), including resolving conflicting reviews, in consultation with the PRC Chair; and, in accordance with usual practice, that it is made very clear in all documentation and correspondence that the peer review group does not sign off the report; this is the role of the JMT.
- According to OIC request, that the Terms of Reference document is reordered more logically, bringing all relevant information together in one place, including (1) project aims; (2) project scope and dimensions; and (3) governance structure, including roles and responsibilities; it will also reiterate the importance of engaging the NFP regularly throughout the country study, recognising that this will help with the report's launch, dissemination and implementation of recommendations.

- That the Guide to Research Methodology is amended so that it
 - Builds in innovative and engaging ways of strengthening the science content of the reports e.g. text boxes describing examples of cutting-edge science in each country (akin to the Malaysia report); the systematic inclusion of formerly recognised scientists and academicians in the fieldwork; the inclusion of a wider range of data sources; at the same time, taking care to account for social and cultural perspectives, nuancing the reports as appropriate.
 - Accounts for the chapters on sustainability and prognosis.
- Again in accordance with usual practice, that it is made more explicit in the Methodology and ToR documents, and all correspondence with the NFP, that the role of the NFP is to facilitate the process but not to endorse or sign off the report before it is launched. Similarly, that this is communicated by the OIC to NFPs and all partners in the ongoing studies.

Introduction

Progress on the Atlas project to-date has been slower than expected. A variety of challenges have cropped up over the past year that are part and parcel of a pilot phase, and provide an opportunity for us to refine the methodology for the remainder of the project. The co-authors of the Malaysia report – Natalie Day and Dr Amran – have helped identify what worked well and what worked less well, during their work. These are factored into this paper. But superimposed on this are recurrent issues that challenge the core principles of the project and hinder it moving forward.

The Royal Society has played its part here. The Atlas project is both innovative and experimental, and very different to the Society's usual projects. As a result, it has not been easy assimilating it into the Science Policy Centre's portfolio. After extensive internal discussions about the nature and the governance of the project, the Society has now resolved its difficulties and can move ahead in its continued project management and oversight roles within Atlas.

There have also been ongoing debates and challenges around the **respective roles and responsibilities of the key players** in the project (the JMT, peer review group, NRPs and NFPs) and on the **nature of the project itself**. Counterbalancing these issues with the various constituents of the project, especially the project's key funders, is a delicate balance.

It is imperative that the JMT resolves these issues, agrees any refinement to the methodology, ToR and governance of the project, and enables the project to move forward in earnest.

Lessons learned from Malaysia

(1) The choice of the National Research Partner (NRP) and lead researcher

The University of Malaya and Dr Amran bin Muhammad proved to be excellent choices as the NRP and lead researcher for Malaysia. With support from the Dean of his Faculty, Dr Siti Nurani Bte Mohd Noor and other leading professors, Dr Amran was **able to dedicate appropriate time and energy to the Atlas study** – from participating in all fieldwork and coordinating workshops, to the co-authorship of the report, and the subsequent review process.

From a capacity building perspective, the research team were accompanied by at least two PhD students who gained a lot through participating in all the interviews and being exposed to some of the leading STI thinkers in Malaysia. **Building in-country capability through teams of researchers** is highly recommended for all studies, learning from the experienced lead researchers and project methodology.

Critically, the NRP (University of Malaya) is **keen to take forward the report's recommendations and promote further discussion** and debate in Malaysia around the report. In a meeting with Dr Siti in March, she expressed her great honour that the University had been chosen for Atlas and her strong desire to now advance some of the themes of the research. The University has already hosted a private workshop on the findings, attended by over 40 academics and PhD students at UM and Dr Amran has

been approached by some 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 post graduate student studying science, which is approximately 400 students per year. **The choice of NRP and lead researchers is absolutely critical to the success of any country report.**

(2) Strong interest and support in-country from the NFP and other key authorities

Atlas-Malaysia was fortunate to receive **very strong support from key figures in STI in the country.** Professor Emeritus Dato Dr Zakri Abdul Hamid, Science Adviser to the Prime Minister, has been extremely helpful, particularly around the development of the recommendations. He has expressed his strong desire to use this report to help to influence policy and understanding within the Malaysian Government, particularly around key areas of education reform and promoting greater public awareness of biodiversity issues.

Other senior figures within MOSTI, such as the Deputy Secretary General, Prof. Datin Paduka Dr. Khatijah Binti Mohd Yusoff provided very constructive assistance as did USM Vice Chancellor, Professor Tan Sri Dato' Dzulkifli Abdul Razak (USM is the top university in Malaysia). Tan Sri Datuk Dr Omar bin Abdul Rahman, Science Adviser to the Prime Minister from 1984-2001 was also supportive and was willing to speak at the subsequently postponed launch of the report. This level of engagement is extremely positive and critical in terms of taking forward the recommendations.

The NFP was also very supportive during the fieldwork stages – demonstrating a high level of buy-in to the project. In addition to arranging the majority of interviews in the first scoping phase, MOSTI coordinated two workshops in Kuala Lumpur and Johor Bahru, whilst also providing useful documents and statistics to the research team. The comments provided on the report by senior MOSTI officials were also welcome and we are grateful to Anita Bahari in particular for her assistance. MOSTI also provided in-country support through transportation assistance.

Recommended way forward:

- **That the JMT continues to invest significant efforts to identify the most appropriate NRP who can dedicate their time to the research and, importantly, help take forward the recommendations of Atlas. The JMT also has an important role to play in supporting the NRP and NFP after the report has been launched; this includes looking for opportunities to raise the project's profile, promote the findings, disseminate the reports etc.**
- **That the NFP is consulted regularly throughout the study, recognising that this will help with the report's launch, dissemination and implementation of recommendations.**

In the end, it was **confusion about the role of the peer review group** that caused the Malaysia report to drag on for so long, and **confusion about the role of the NFP** that caused the official launch of the Malaysia study, and any prospect of media engagement, to be downplayed to (an albeit productive) discussion meeting at the eleventh hour. This was a huge missed opportunity for both the Malaysia

report and the Atlas project as a whole, and is discussed as part of the wider challenges and concerns around the project.

Challenges and concerns

Common challenges and concerns are grouped as follows:

- The continuing support and role of the Royal Society
- The fundamental nature of the project and corresponding qualifications of the lead researchers
- The peer review process
- The role of the National Focal Point

These are discussed in turn.

(1) The continuing support and role of the Royal Society

Following the last JMT meeting in Istanbul last October, there have been extensive internal discussions on project governance and the peer review process; the Society keen to ensure that (i) the project sits comfortably within the Society's own established governance framework, and (ii) science is addressed robustly in the country studies. As a result, an additional FRS peer review group was set up for the Malaysia study, under the chair of Professor Louise Johnson FRS. The group served to augment the science component of the report, providing case studies of cutting edge science projects that reflected the strengths of the Malaysian science and innovation system. These additions were well-received both by the Society's Council and by JMT members; JMT signing off the Malaysia report by e-mail during February-March 2011.

With the appointment of Sir Paul Nurse FRS as the Society's President, and Dr Julie Maxton, as the Executive Director, the Society has again reviewed its role in the Atlas project. Under new leadership and new management, and with the Malaysia report providing a robust template for future studies, the President has stood down Professor Johnson's peer review group and is keen to revert to the Atlas original model of governance, that positions the JMT very much at the heart of the project, commissioning bespoke peer review groups, with scientific gravitas, for each country study. The Society's Council will be invited to note, not endorse, the reports. Nevertheless, **the Society will continue to work with its JMT partners to ensure that the country reports are authoritative, independent and provide rigorous assessments of science and innovation systems within each country.**

(2) The fundamental nature of the project and corresponding qualifications of the lead researchers

The fundamental nature of the project remains an outstanding and obstructive issue – both in terms of the remit of the country case studies and the subsequent required attributes of the lead researchers.

There have been extensive discussions amongst partners of the need to remain true to the project methodology and ensure **an appropriate balance between the 'hard' science and the 'softer' science analysis, such as the cultural and social influences on STI** in the country. Following the last

JMT meeting, and specific interventions by representatives of COMSTech and the Royal Society, there was a concerted push to include more analysis of basic science (evident in the text boxes of the Malaysia report). Appreciating that this is an important addition, there have subsequently been questions as to whether the balance of the report – and perhaps subsequent reports – has shifted disproportionately in favour of the ‘harder’ scientific analysis.

The nature of the reports of course has a bearing on **the choice of lead researchers/authors**, and has stimulated a debate amongst JMT members. On the choice of lead researcher for Qatar, in an e-mail to Tracey Elliott and cc-ed to JMT on 15 April, Professor Rahman indicated that authors should be *“eminent scientists with a deep knowledge of the country.assisted by eminent journalists....I do NOT agree with continuing to appoint journalists, however eminent, to write these Reports”*.

In response, Nick Campbell, Nature, wrote to the JMT on 15 April with: *“While it is essential that the writing process is informed by scientific expertise and liaison, I and my colleagues at Nature believe that experienced, scientifically qualified journalists can take a lead and deliver very good reports for us, which is why we were happy to sign up to the original formulation of this project”*

In subsequent discussions with the IDRC and British Council, two of the main project funders, the Society was reminded that the studies need to place the science very much in its *cultural context*, and be nuanced accordingly; the studies are not intended as OECD-type, comprehensive sectoral analyses of the science in any one country, but instead to provide a readable, accessible narrative – a snapshot – of a country’s science and innovation system in context. This viewpoint was perhaps reflected in their endorsement of Waleed Al-Shobakky, a science journalist, as a co-author of the Qatar report – along with the Qatar Foundation (the other major funder of the project) who were equally content with this choice.

The JMT must resolve this fundamental issue. In doing so, members are reminded that the Research Methodology, which guides all Atlas reports, was again confirmed as the key reference document at the last JMT meeting. And that the main funders of the project signed up to the “softer science analysis”.

In the ongoing four country studies, we have been **using the Malaysia report as the broad template**. We are continuing to include separate text boxes for the cutting edge science exemplars; we are reinforcing the science content by systematically including the perspectives of formally recognised scientists in their respective countries (an obvious example here is to draw on TWAS (the Academy of Science of the Developing World) Fellows and Associates in those countries); we are drawing on a wider range of data that help with the narrative e.g. Elsevier’s scopus database, and supplement sometimes weak or unavailable data from SESRIC; and at the same time, we are endeavouring to account for social and cultural perspectives, nuancing the report as appropriate (IDRC and the British Council have the expertise to help us here and we would particularly welcome their comments during the peer review stages). It would not be appropriate for a report of this nature, with this degree of fieldwork, to set out a comprehensive and detailed road map *per se* for STI in each country: this would require more time and more resource than the project has available.

Recommended way forward:

- **That the Guide to Research Methodology is amended so that it includes the systematic inclusion of formally acknowledged national scientists e.g. academicians, and a wider range of data sources; but at the same time, taking care to account for social and cultural perspectives, and nuancing the reports as appropriate.**
- **That the lead researchers can be drawn from the scientific community, experienced science journalists or science policy experts, all with in-country knowledge, and supported by strong NRPs and NFPs.**

(3) The peer review process

At the last JMT meeting, it was agreed that the JMT would be engaged much earlier in the peer review process; the first draft being sent to them at the same time as the peer review group and NFP, and then the final draft being sent to them, and to the NFP, for final comments, immediately after incorporating the reviewers' comments. This has [will have] been put into practice with the Pakistan report.

There has been some suggestion that the reports must be endorsed by the peer reviewers. This is not in accordance with usual best practice. Based on the Society's long experience here, it is neither practical nor appropriate for peer reviewers to 'endorse' reports prior to publication. Peer reviewer comments are of crucial importance, of course, but some editorial judgement and discretion is also required, for example in reconciling contradictory statements from peer reviewers. In the case of Malaysia, the JMT should be reassured that a full and robust peer review process was followed; one that far exceeded the standard applied to a typical scientific publication. Annex A sets out the whole peer review process for Malaysia.

There has also been some concern that it is too much to ask the PRG Coordinator to engage in all of the country studies. Accordingly, the OIC have suggested the setting up of country-specific Peer Review Committees (PRCs), one per country, with a designated Chair who can oversee that particular peer review; and that the whole process is coordinated by the PRG Coordinator.

One possible way forward is for the JMT to devolve editorial control to the project managers and lead researchers, resolving conflicts in consultation with the Chairs of the PRCs.

Recommended way forward

- **That the JMT establishes Peer Review Committees for each country study, with a designated Chair to oversee the process.**
- **That the JMT collectively takes greater ownership of the peer review process, agreeing the peer reviewers and delegating responsibility for managing the peer review process to the project managers (RS and SESRIC) working with the lead researchers, in consultation with the PRC chairs and including resolving conflicting reviews; and, in accordance with usual practice, that it is made emphatically clear in all documentation and correspondence that the peer review group does not sign off the report; this is the role of the JMT.**

Annex B sets out a step-by-step guide of how the peer review process could work for the remainder of the project.

(4) The role of the National Focal Point

There is still the misconception that the NFP is required to endorse the report prior to its publication and subsequent launch. It is for this reason that the Malaysia report could not be officially launched earlier this year. MOSTI (the NFP for Malaysia) was under the impression that the NFP was required to endorse the report before its completion.

Appreciating the sensitive role of the OIC as an intergovernmental organisation and the desire to have high-level government buy-in through the role of the NFP, it remains imperative that the reports are independent. Sign-off by the NFP risks fundamentally undermining their independence. Nevertheless, it is clearly in the project's interests to engage the NFP regularly throughout the country study, recognising that this will help with the report's launch, dissemination and implementation of recommendations. Lessons to-date indicate that there is an issue around the continued engagement of the NFP and its ownership / buy-in to the process. This is a tension that needs careful management.

'Independence' is well documented through key governing resources of the project. In the case of Malaysia, the principles of independence and explanations of the Government's role in reviewing but not endorsing the final report were discussed a number of times but project documentation needs to be more explicit in this regard. Early correspondence with the NFP, through the OIC, could also be a critical time in which to highlight this fundamental principle.

It is vitally important to clarify the role of the NFP in ongoing and future case studies to prevent this misunderstanding from happening again; perhaps especially given similar issues emerging in the Pakistan case study. With Pakistan now in the final stages of review, clear communication to both the NFP and the Government of Pakistan will be paramount if the constructively critical analysis of Pakistan set out in our report is ever to be published.

Finally, it is worth noting that, in working closely with the NFP and lead researcher, the NFP has plenty of opportunities to feed in its views and help shape the report. Perhaps most critically, the NFP should be afforded the "right to reply" as part of – or even preceding – the peer review stage.

Recommended way forward:

- **That it is made more explicit in the Methodology and ToR documents, and in all correspondence with the NFP (including OIC's initial approach), that – in accordance with usual practice - the role of the National Focal Point is to facilitate the process but not to endorse or sign off the report before it is launched. Similarly, that this is communicated by the OIC to NFPs and all existing partners in the ongoing studies.**

- **That the NFP is consulted regularly throughout the study to help maximise its support and ownership of the eventual recommendations. This includes a “right to reply” to critical analyses of its science systems.**

If, in the regrettable event that an existing NFP refuses to accept these conditions, they will be asked to withdraw from their formal role in the project and will not be acknowledged as the NFP in the final report. This will naturally be handled as delicately as possible and all attempts will be made to secure continued buy-in from NFPs.

Conclusion

In the context of these challenges, progress on the country case studies has been slow. Clarity on outstanding issues around project governance and peer review should remedy this situation and enable the project to pick up renewed momentum going forward.

The project’s terms of reference and methodology documents are revised in light of the lesson learned to-date and the recommendations set out here (Annexes C and D), together with amendments to the peer review process (Annex E).

The purpose of the proposed revisions are to streamline the three governance documents i.e. (i) Terms of Reference of the Project (as June 2009), (ii) Guide to Research Methodology (December 2009) and (iii) Terms of Reference of Peer Review Process (new) as well ensuring that the three documents are compatible to one another. In this regard, we have brought the definitions/descriptions of various entities linked to the project such as National Focal Point, National Research Partner, Lead Researcher, Peer Review Process etc in the revised ToR of Project. In these descriptions, information on their roles, functions, duties, appointment etc are also included. This should provide more comprehensive information and easy reference.

JMT is invited to sign off these revisions.

A short summary of the peer review process followed for the Malaysia study:

- AUGUST 2010: The five selected peer reviewers provided comments on the Malaysia draft (four in written form, one verbally)
- SEPTEMBER 2010: After the comments were incorporated, the amended report was sent back to the reviewers with individual summaries of where the report had changed or provided an explanation if such changes / additions were not incorporated – (ie – if substantially beyond the scope of the report, or if contradictory to another researcher etc). Feedback was received from two of these reviewers (both positive), but it was stressed that any further comments were not necessary.
- OCTOBER 2010: The JMT correctly notes that more time is need for their consideration of the report. Comments are provided from many partners immediately following the Istanbul meeting. Further comments are also provided by MOSTI as well as additional data – which are incorporated.
- NOVEMBER 2010: Within the RS, a special advisory group, chaired by Dame Louise Johnson FRS was established to assist in revising the report, particularly in its coverage of the basic sciences.
- DECEMBER 2010: Dr Zakri visits the Royal Society and meets with Dame Louise Johnson FRS, Professor Lorna Casselton FRS and Natalie Day to discuss the preliminary findings of the report and again expresses his support of the report.
- FEBRUARY 2011: A revised report is sent to the JMT for any final comments. The JMT is asked to endorse the report, subject to the final amendments. Members of the RS Advisory Group also provided comments on the draft.
- FEBRUARY 2011: At the same time as sent to the JMT, the NFP is also sent the report and asked to provide comments. Dr Zakri, Malaysia's Science Adviser to the PM, also provides comments. Majority of comments from MOSTI and Dr Zakri are incorporated.
- MARCH 2011: As the first report, Malaysia was also reviewed and noted by the Royal Society Council – the highest decision making body of the Society.
- MARCH 2011: Report printed. A full list of peer reviewers names (9 in total) is listed at the back of the report.

The following is a suggested step-by-step guide to the peer review process.

STEP 1: The project managers identify appropriate peer reviewers for each country study, in consultation with the JMT, NRP and NFP and other related individuals and/or institutions who might provide suggestions. At least three in-country experts are identified, along with up to two Fellows of the Royal Society who have appropriate expertise. These will form the Peer Review Committee (PRC) for each country study; each with a designated Chair.

STEP 2: The JMT endorses the recommended peer reviewers.

STEP 3: The project managers (RS / SESRIC) approach the reviewers on behalf of JMT, with an accompanying timeline for review. In the event that a peer reviewer is unavailable, the project managers will have identified a reserve candidate, again in consultation with the JMT.

STEP 4: Draft report is sent to the reviewers with the reviewer's proforma to guide them in this task. This template was developed in consultation with Professor Atta ur-Rahman during the Malaysia study. Ideally three weeks is provided for reviewers, subject to external factors.

STEP 5: At the same time as being sent to the peer reviewers, the report is sent to the JMT for their information. Comments are welcome, but not compulsory. Partners such as the British Council or IDRC may wish to share with their in-country offices as appropriate. Again, ideally three weeks is provided.

STEP 6: At the same time that the report is sent to the JMT and the peer reviewers, it is also sent to the NFP for their comments. Again, comments are to be encouraged.

STEP 7: Comments received from peer reviewers within allocated period of time. Lead researcher / NRP incorporate /tailor report, with oversight from project managers. Where issues arise over conflicting review comments or editorial concerns from the authors, the project managers (RS / SESRIC) will adjudicate on such matters in consultation with the Chair of the PRC.

STEP 8: Revised report, with reference to appropriate amendments is sent back to peer reviewers for noting / any further comments. Given that our reviewers are such eminent, busy people, peer reviewers are not obliged to respond to this second round of correspondence. Peer reviewers are importantly not required to endorse the report as per the standard principles of peer review.

STEP 9: Revised study, with a full report of the peer review comments and changes is provided to the JMT for any final comments / suggestions. Where appropriate, the report can be sent back to a partner if requested to see how changes have been incorporated but ideally partners will endorse the report at this stage of the process.

STEP 10: At the same time that the report is sent to the JMT, the report is also sent to the NFP. This is the final opportunity for the NFP to provide any comments on the report, and an appropriate timeline will need to be respected. Note – the NFP is not requested to endorse the report prior to publication.

STEP 11: The NFP comments are incorporated, where appropriate, by the Lead Researcher / NRP, with oversight from the project managers. Editorial judgement of the authors is reserved.

STEP 12: Once all JMT comments are incorporated, the project managers (the RS and SESRIC) send the report to the JMT for sign off, before it goes to publication.

STEP 13: Within the Royal Society, the study goes to the next Council for noting (earlier approval will rest with the President and the Executive Director).