

The Malaysian experience: A new approach in managing multi-disciplinary research projects

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In Malaysia, establishment of the National Higher Education Strategic Plan (NHESP) has initiated a national effort to drive research and development (R&D) excellence from within the Ministry of Higher Education (MOHE).

Launched in August 2007 by Prime Minister Abdullah Ahmad Badawi, the NHESP consists of seven components, including Improving Teaching and Learning; Accessibility to Higher Education; Internationalization; Strengthening Institutions of Higher Learning; and Enhancing Research and Innovation.

Because MOHE is a major grant provider to Malaysian research institutions, establishment of the NHESP has made it possible to systematically set comprehensive guidelines for management of funding, standards for research conduct, instruments for research performance, and standardized reporting of research and innovation output. This new approach in the management of research initiatives at the ministry level has created positive ramifications for universities, research management centers, and research leaders.

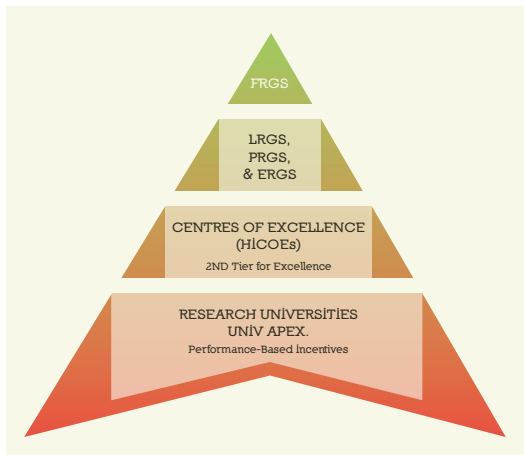
MOHE also acts as custodian of fundamental research in Malaysia through its Fundamental Research Grant Scheme (FRGS). To be approved

by the FRGS evaluation panel, applications for research funding must show elements of new knowledge generation. It is through this mechanism that MOHE has charted a new approach in managing and executing R&D activities relevant to the future needs of the nation. This shift is significant because the way MOHE and other funding agencies allocate and monitor research grants will strongly influence how research is carried out in universities.

Realizing that R&D excellence cannot happen in bits and pieces, MOHE has launched a comprehensive initiative to create synergistic efforts in promoting R&D excellence throughout Malaysia. Besides the FRGS grant, participating programs include the Research University (RU), Higher Institutions Centre of Excellence (HICOE), and the Long Term Research Grant Scheme (LRGS). See Figure 1.

To secure the new incentives MOHE provides, all parties interested in conducting research in Malaysia, including university administrators, research offices, research groups and individual researchers, must now work together in cohesive multi-disciplinary and multi-institutional teams. In an effort to emphasize this shift to consortium-based research, the Malaysian Minister of Higher

Figure 1: Malaysian Ministry of Higher Education R&D Excellence Programs



Education introduced a new slogan for R&D activities: “WORKING FOR MALAYSIA: Through Sharing of Resources.”

Before any meaningful outcomes can be achieved, however, a few challenges must be addressed. The first and most important of these is changing the mindset of researchers and research managers. As standards of R&D excellence rise, demand is expected to increase for publication, intellectual properties and commercialization of research products. Consequently, researchers must upgrade the way they plan, manage, and conduct research and monitor research performance. Quality control measures have been put in place at each stage of the research process to ensure that projects are managed professionally, using transparent evidence-based reporting, clear accountability and standard performance measures.

MOHE also utilizes a special tool called the Malaysian Research Assessment Instrument (MyRA™) to monitor R&D performance at the institutional level. Regular quarterly meetings

between MOHE and the research management offices of higher learning institutions provide a forum to discuss and sort out issues that may arise, including any needed clarification of policy matters.

Numerous additional efforts and initiatives have been put in place to encourage and foster esprit de corps among researchers, where research groups and research institutions are required to work together as cohesive teams. These parties are now entrusted with the responsibilities of collaborating to develop a research niche that serves the nation, and upgrading their performance to be at par with their international peers.

For instance, within the Long Term Research Grant Scheme, a research team must consist of members from at least three institutions. To ensure that they pursue their research topic from a comprehensive perspective, the team must also include researchers from both soft sciences (social sciences and humanities) and hard sciences (science and technology).

Similarly, the HICOE program requires research institutes selected for funding to be among the top in the country, as determined by three stages of rigorous evaluation and audits. Grantees are also expected to incorporate research groups from other local institutions working within the same research area, and to demonstrate professional management through evidence of effectiveness and efficiency in day-to-day delivery. Together these collaborating institutions must develop their research capacity and upgrade their infrastructure to foster research sustainability for the long run.

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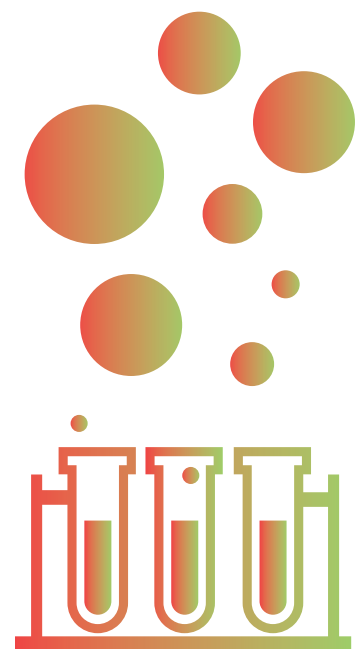
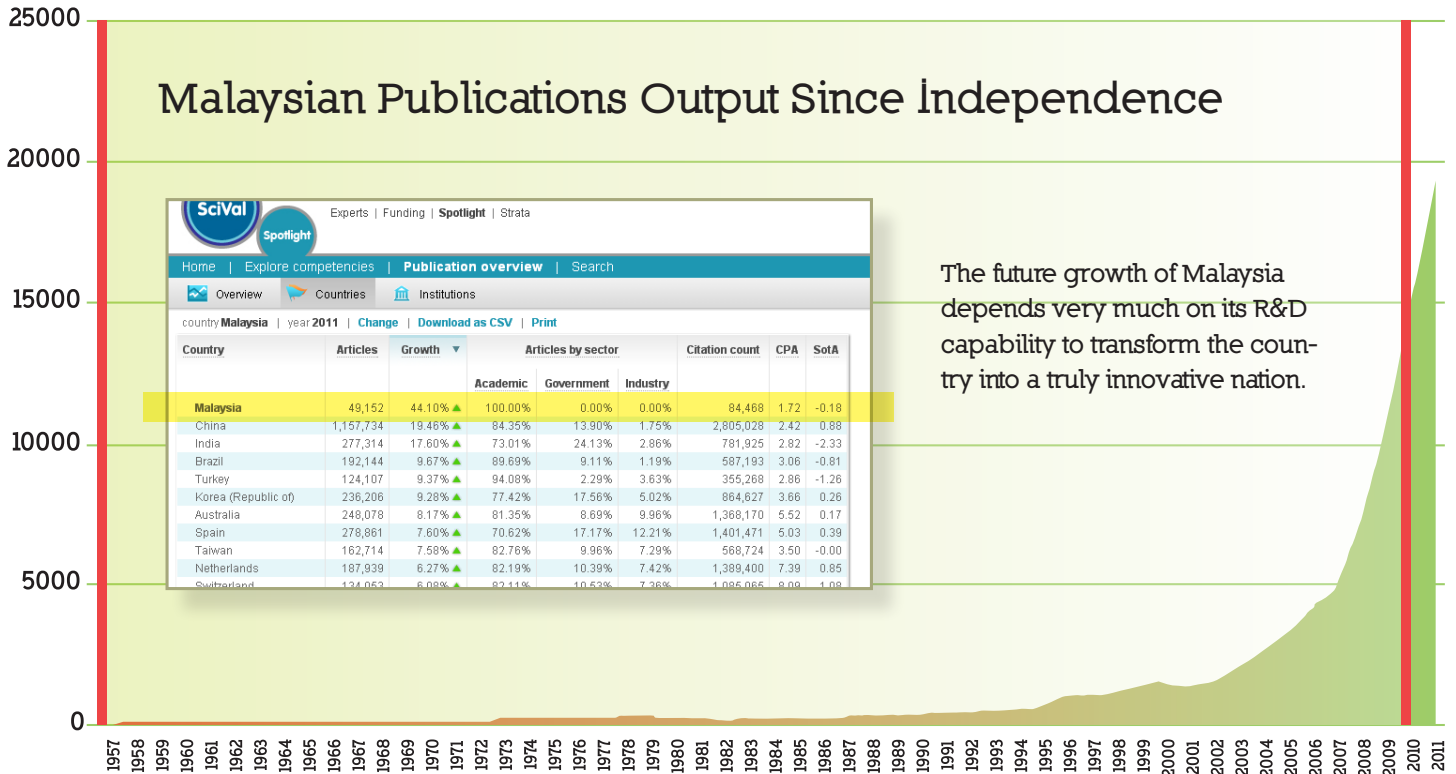


Figure 2: Malaysia's publication output growth rate tops global list



The future growth of Malaysia depends very much on its R&D capability to transform the country into a truly innovative nation.

Source: Scopus and SciVal Spotlight

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These requirements are intended to ensure successful research programs based on depth of expertise, not only in academic matters, but also in management and leadership.

During the first cycle (2006–2010) of these research initiatives, and now into the second phase (2011–2015), positive outcomes have started to emerge. These include an increase in generation of articles published in reputable journals worldwide. Currently, Malaysia is recognized for achieving the world's fastest growth rate in numbers of journal publications (Figure 2). A continuing positive trend indicates that this phenomenal growth may be sustained for the next few years.

Similar upward trends can be seen from other indicators such as the number of new intellectual

properties registered; the number of RUs, HICOEs, Ph.D. holders, and accredited research laboratories; and the number of research collaborations established with prominent research groups all over the world. Many challenges remain, such as increasing the amount of research grant funding, involving industry partners in R&D activities, commercializing R&D products, and having a direct socio-economic impact via R&D initiatives. These coming advancements will ensure that Malaysia can progress gracefully towards becoming a developed nation, which embraces the new era of the knowledge-based economy. The future growth of Malaysia depends very much on its R&D capability to transform the country into a truly innovative nation. ■