Attracting Talent from Abroad: Malaysia's Experiences

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Abstract

Attracting skilled people in science, technology and engineering (S&T) has assumed urgency in today's increasingly knowledge-intensive economy. Countries, both rich and poor, have adopted various strategies to entice top talents in S&T to their shores. This paper describes the initiatives adopted by Malaysia to attract skilled personnel to serve the country. These measures, however, have not met with much success. An account of the findings of a recent study to review these initiatives is also given. It is suggested that adoption of future initiatives accord more emphasis to developing partnerships between local scientists and their counterparts abroad.

Introduction

Attracting skilled personnel in science and technology including engineering (S&T) from abroad – both citizens as well as foreign talent – has, in recent years, emerged as an issue of increased importance not only for the advanced countries but also for the developing world. Talent, according to the Economist, has become the world's most sought-after commodity and the battles of the future will be battles for talent. Much has been written on recent trends in the international mobility of skilled people[1]. The developing world finds it increasingly difficult to stem the flow of many of its best brains to the rich countries. A number of these countries have introduced initiatives aimed at attracting back their talented citizens who are residing overseas as well as efforts at improving domestic S&T infrastructure in order to retain talent[2] .

This article reviews the efforts undertaken by a rapidly industrializing country such as Malaysia in attracting talent from abroad in order to develop and strengthen her scientific and technological capabilities. It is in five parts. The first part provides a brief introduction to the subject on brain drain as well as a brief account on the analytical framework detailing the importance of human capital to the economy. The research methodology of a study undertaken to ascertain the effectiveness of programmes to attract Malaysian scientists from abroad is given next. The third part describes the past programmes adopted by the Malaysian government to attract talent from abroad. The results of a review exercise to examine the effectiveness of the programmes launched

earlier by the government to attract talent are presented next. A brief description of the current programme to harness talent is given while the concluding part provides a summary of the key issues.

About Brain Drain and what Governments Can Do

The term brain drain for the purposes of this article refers to the migration of skilled people to other countries often in response to better wages and career prospects as well as employment opportunities. A brain drain does not just refer to a loss of skilled people from developing countries to developed countries, but can also refer to a loss of talent between developing countries or between developed nations. Governments invest in human capital through training and education and expect a return on their investments when the individual becomes economically active. Within this perspective, migration of highly skilled people represents a loss to the sending countries because they lose out on the returns on the capital they invested in the individuals. Lowell (2007) has reported on the increasing skilled emigration rates for many developing countries. In the light of this, countries have implemented various strategies to counteract the brain drain. These strategies can be divided into two approaches.[3] The first approach sees the brain drain as a loss and these strategies are designed to counter this loss. They include adoption of restrictive policies, incentive policies and compensatory policies. However, such policies, according to several authors, have not proven to be effective in stemming the flow of talented people.

The second approach involves two strategies, namely, the return option and the diaspora option. The return option involves attempts by countries to encourage their highly skilled expatriates to return home. The relative success of Taiwan, Korea and Ireland in fostering return migration has been attributed to opening of their economies as well as policies that foster domestic investments in innovation and R&D.[4] For the return option to succeed, home countries have to be in a position to offer the expatriates they want to attract back, salaries and infrastructure comparable to that in the countries in which they work. Many developing countries are not in a position to offer such remuneration or comparable

research infrastructure. To circumvent this deficiency, a new approach to the brain drain problem has emerged in recent years, namely, the diaspora option.

The diaspora option represents a different approach to the brain drain. It views the brain drain not as a loss, but a potential gain to the sending country.[5] It recognises that a majority of the expatriates are not likely to return. However, these expatriates may still be very concerned with the development of their country of origin because of cultural, family or other ties. The objective, then, is to **create the links** through which they could effectively and productively be connected to the development of their country of origin. Thailand's Reverse Brain Drain Project accords emphasis to enticing Thai professionals residing overseas to participate in mission-oriented projects and promote development of core teams led by the respective Thai professionals.[6] In fact, a key goal of the programme is to make the immigrant nationals become part of the nation-building process without uprooting them from their bases elsewhere.

The foregoing discussion has revealed that traditional brain drain co-exists also with cycles of emigration and return of national talent. For developing countries the emigration of talent need not always be viewed as a loss. The initiatives of countries such as Thailand, Taiwan, India and Korea have shown that with purposive and imaginative programmes, developing countries can entice back their expatriates or harness their talents in specific national projects. The next section examines the analytical framework on the importance of talent before discussing the talent recruitment initiatives adopted in Malaysia.

Analytical Framework: Why human capital is crucial

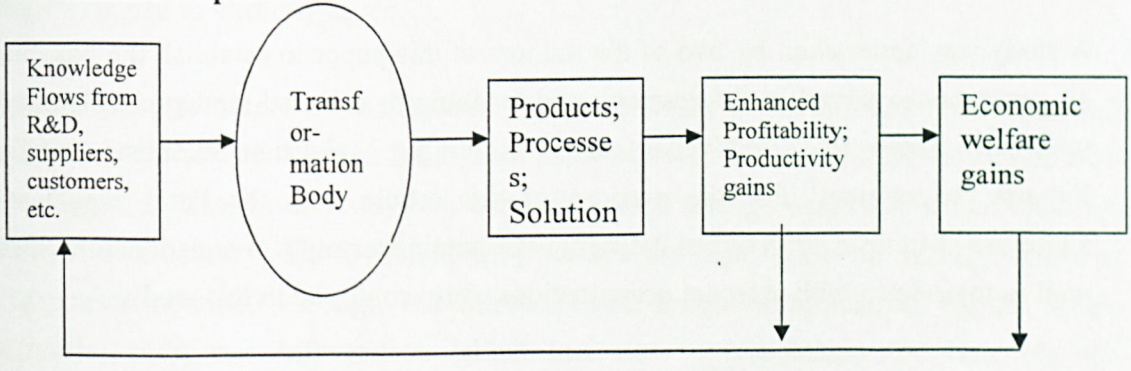
Science, and the innovations it gives rise to, have been the driving forces of modern life for well over a century. The importance of S&T including research and development (R&D) to economic growth is well established. Today's increasingly knowledge-intensive economy means that investments and competency in S&T are an imperative. Success in S&T is not automatic. Neither is it achieved without costs. Instead, success in S&T is often a product of several factors. These include, among others, the following:

- Human resource development (including education);
- Partnerships and consensus;
- Emphasis on applications;
- Sound infrastructure;
- Top level commitment;
- Attention to technology diffusion;
- Selectivity in effort;
- Promotion of entrepreneurship
- Culture of innovation

How well the above factors are developed and interact with one another will determine the strength of the S&T system of the organisation or country. Writers of the innovation literature have described the interactions and flows of knowledge among industry, government, academia and non-profit organizations in the development of S&T as constituting the national innovation system (NIS).

The characterisation of the NIS in terms of knowledge flows helps us to better understand the processes by which innovations are created and the importance of human capital in these processes. **Fig 1-1** provides a schematic representation on the importance of human capital and its management in the transformation of knowledge flows into innovations and subsequent wealth creation activities.

Fig 1-1: Schematic representation of Knowledge Transformation and Importance of Human Capital



Knowledge Transformation = f (management, money, manpower, method)

Innovation, which is the motor of today's economy, can be considered as a transformation process in which knowledge flows from various activities, including R&D, suppliers and customers are translated into a new or modified product or process. The transformation process is not automatic. Instead, how well these knowledge flows are organised and exploited and, ultimately, contribute value for the customer will determine the performance of the innovative or research activity. Ensuring that these activities are undertaken underscores the importance of the management of the transformation organization as well as the competence of the people undertaking this transformation exercise. Without competent people, the transformation process may be severely undermined. Accordingly, the organization needs to forge linkages with external partners (either within the country or foreign bodies) in order to secure the skills needed to effect the transformation.

Whatever the mode of knowledge transformation undertaken – internal, jointly or contracted out - raising the competency level of the organisation assumes urgency since the level of internal absorptive capacity will determine its capability to identify, assimilate and exploit knowledge from its external environment. In short, it is people, and not machines, who are the main carriers of competence. Raising the competence of people in an organisation can be undertaken through several strategies which will not be discussed here. Instead, the focus of this article will be how to enhance the competency level of our research organisations and universities in selected technologies through harnessing the talents of Malaysians residing abroad as well as foreigners.

Research Methodology

A study was undertaken by two of the authors of this paper to establish the baseline data on personnel involved in the research and teaching of selected strategic technologies as well as to assess the effectiveness of the Returning Malaysian Scientists and Foreign Experts programme.[7] For the purpose of this article only the latter aspect will be addressed. Multiple approaches including the administering of a questionnaire survey as well as interviews with selected organizations were employed in this study.

Eight organisations were selected for further interviews. They included five universities, three public research institutions and one government department. Data for this study came from a variety of sources including administering a questionnaire, interviews and

archival sources. Feedback from this survey constituted the basis for more subsequent in-depth interviews in the selected organisations.

A separate questionnaire was distributed to researchers/academicians in selected organisations to obtain their feedback on factors that may influence their decision to work in Malaysia or abroad. The questionnaire examined both work and non-work related factors that may cause satisfaction and dissatisfaction. The questionnaire was divided into several sections. The first section concerned demographics and job information. The second section contained two sets of parallel scales that concerned with work related factors. In one set, respondents were asked to rate the importance of 16 factors such as career advancement, personal growth, pay, job security etc on a scale of 1 to 5 (5 being the most important). In the other set, the respondents were asked to rate the extent of their dissatisfaction or satisfaction on each factor on a scale ranging from negative 4 to positive 4. A score of 0 indicated a neutral state. The third section contained two sets of parallel scales that concerned with non-work related factors. In one set, respondents were asked to rate the importance of 9 factors such as their children's education, the local climate, the local culture etc. on a scale of 1 to 5. In the other set, the respondents were asked to rate the extent of their dissatisfaction or satisfaction on each factor on a scale ranging from negative 4 to positive 4. The fourth section contained general questions such as whether the respondent has friends overseas that they keep in touch with, what were the advantages and disadvantages of living abroad cited by their overseas friends, and if they could migrate to any other country which was the country of their choice. This section also contains a series of questions that attempt to gauge the respondents' attitude towards living overseas. The responses were presented on a Likert scale, that is, from strongly disagree to strongly agree.

Interviews (face to face or e-mail) were conducted with heads or deputies of selected organisations as well as selected Malaysian scientists who have returned and those who have emigrated. Also, interviews were conducted with foreign academicians/researchers who are in this country. These interviews provided the opportunity to validate some of the responses obtained through the questionnaire forms administered earlier. More importantly, additional information which had not been possible to elicit via the questionnaire on various aspects pertaining to the human capital situation of the organisations under study, was obtained through these face to face encounters.

Discussions were also held with the Science Adviser in the Prime Minister's Department, officials from the Ministry of Science, Technology and the Environment, the Ministry of Human Resources as well as the Public Services Department. These discussions focused on policy measures adopted to support human capital development as well as attracting talent to this country. Interviews were also conducted with selected industry organisations, namely, the Malaysian International Chamber of Commerce.

Before discussing the empirical findings of the study, a brief overview on the importance of talent to Malaysia's continued success as well as the schemes introduced to attract scientists to the country is discussed next.

Attracting S&T Talent to Malaysia

Talent in science and technology including engineering (S&T) is crucial to Malaysia's future because it is the fundamental platform for creating wealth for the nation. Skilled workforce is vital in order to ensure that Malaysia graduates to a higher level of product development and manufacturing sophistication thereby warding off the threat of low-cost producers. It remains a paradox that the country's substantial high-tech exports are supported by a weak base of scientific personnel in the workforce. Indeed, the number of researchers per 10,000 labour force is less than a third of that found in most advanced countries.[8] Given the declining trends in foreign direct investments in recent months, and the challenge from countries such as China and Vietnam, it becomes crucial that Malaysia enhances her S&T capabilities to sustain and expand her exports. Availability of skilled manpower is vital if the nation hopes to succeed in an economy that is becoming increasingly knowledge-intensive.

The market for talent is globalising rapidly, flowing to where it finds most challenge and reward. A fairly substantial number of highly skilled Malaysians – broadly estimated at 250,000 - are working abroad especially in the developed economies.[9] In the context of internationalisation of R&D and the increasing mobility of highly skilled people, attracting and retaining talent has emerged as a major policy issue not only in the industrialised countries but also for the developing world.

The Government recognizes that it needs to adopt more aggressive measures if it hopes to attract talented Malaysians and foreigners to the country. Towards this end, two programmes were introduced, namely, the Returning Scientists programme and the Returning Malaysian Experts programme. These programmes are briefly described in turn.

Scheme to Attract Back Malaysian Scientists Residing Overseas and Foreign Scientists

The Government approved the scheme to attract back Malaysian scientists residing abroad and also foreign scientists to work in Malaysia on August 24, 1994. The Public Services Department issued a service circular (No. 3 of 1995) setting out the guidelines to entice Malaysian scientists residing abroad and also foreign scientists to work in Malaysia.[10] The key objective of the scheme was to attract human talent that are not available locally as well as to attract expertise to undertake research and development activities in areas that have been identified as priority under the Intensification of Research in Priority Areas Programme (or IRPA).

In 1998, this scheme was suspended following the economic downturn arising from the Asian financial crisis. At the time of suspension, some 93 scientists were hired under this scheme. Of this number, 23 were Malaysians and 70 were foreign scientists.[11] On November 15, 2000, the Government decided to reactivate this scheme. Despite this reactivation, the scheme continued to be bogged down with implementation problems. The Ministry of Science, Technology and the Environment (MOSTI)[12] was directed by the Chief Secretary to the Government to address these implementation bottlenecks.

Key Elements and Deficiencies of the Circular on Guidelines to Recruit Malaysian Scientists Residing Overseas and Foreign Scientists

The mechanism to implement the Government's policy decision to attract Malaysian scientists abroad as well as foreign scientists is through the circular on Guidelines to Recruit Back Malaysian Scientists Residing Overseas and Foreign Scientists. The circular details the objectives of the recruitment programme, general guidelines, procedures for

recruitment, contract conditions, work permit procedures, financial allocations and feedback to relevant authorities. Despite its avowed objective of facilitating in this recruitment programme, this circular has a number of deficiencies as described below:[13]

lack of focus - present programme focused on securing experts that meet institutional needs rather than technologies the country hope to excel in the near future. Additionally, focus of programme should be on developing connections with talented scientists (regardless whether they are Malaysians or foreigners) with the ultimate objective of harnessing talent for wealth creation;

restrictions in the recruitment of scientists - scientists should be selected based on expertise regardless of their nationality. The circular has indicated that priority should be accorded to scientists from China, India, Pakistan, Russia and countries of the then Commonwealth of Independent States (CIS);

lengthy administrative processes in securing the services of these scientists – long delays in obtaining the necessary approvals have led to several scientists reversing their earlier decisions to serve in Malaysia;

poor remuneration package especially when recruiting top talent from the more advanced countries. Also, employment of spouse not provided.

In addition to the above deficiencies, the scheme was poorly received at the institutional level as it was perceived to create administrative tensions between staff and returning scientists especially when the latter are being paid almost 30 % more for almost the same job. Additionally, public research organizations and universities were reluctant to enforce the circular since it would involve additional costs. Most of these organizations have instead opted to employ foreigners on existing contract mechanisms which are sufficiently adequate to attract personnel from countries such as Myanmar, the South Asian and Middle-Eastern countries.

Given the above limitations, it is not surprising that response to this programme has been dismal. Indeed, presently only one organization from the list of IRPA recipient

organizations have engaged scientists under this programme. The Government acknowledges some of the deficiencies as described above and has replaced this programme with the Brain Gain programme which will be discussed later.

Programme to Encourage Malaysian Citizens with Expertise residing Overseas to return to Malaysia

In the 2001 Budget, the Minister of Finance announced various measures designed to enable the creation of a Malaysian world class workforce. One of the measures proposed was to encourage Malaysian citizens with expertise in selected fields important to the nation, who are residing overseas, to return and work in Malaysia. The following incentives are offered under this programme:[14]

- Income remitted within two years from the date of arrival will be exempted from income tax;
- All personal effects brought into Malaysia will be exempted from tax, including two motorcars registered in the country of residence of the applicant for at least six months in the name of the husband/wife/child will be exempted from import duty and sales tax; and
- Spouse and children of the applicant who are not themselves Malaysian Citizens will be given permanent resident status within six months from the date of their arrival in Malaysia.

Since the launch of this programme in January 2001, 179 applications have been approved from a total of 494 that were received by the Ministry of Human Resources (MOHR).[15] Of this total, 106 Malaysians have returned. Although no detailed evaluation on this programme has been undertaken, official sources attribute the poor response to this scheme to the weak job market. This programme, however, does not guarantee employment for the returning Malaysians.

Overview of MOSTI's and MOHR's Programmes

The overarching objectives of both MOSTI's and MOHR's programmes are to attract as many talented Malaysians and foreigners to this country in order to overcome the shortage of skilled personnel in various categories of expertise. Although the scheme under MOSTI is aimed at scientists and researchers, the programme administered by MOHR embraces experts from a range of fields. **Table 1** provides a summary on the key differences between the programmes administered by MOSTI and MOHR.

Table 1: Differences between schemes operated by Ministry of Science, Technology And Innovation(MOSTI) and Ministry of Human Resources (MOHR)

Aspect	Scheme under MOSTI	Scheme under MOHR
Target group	Skilled Malaysians residing abroad and foreign scientists	Skilled Malaysians residing abroad
Fields of expertise	Selected R&D fields	Wider range of fields of expertise including science and technology
Incentives given	Attractive remuneration package including education for children;	Income repatriated within two years is exempted from income tax; All personal belongings, including two cars are given import duty exemption; and Spouse of Malaysians and children who are not Malaysians will be given Permanent Resident Status within six months
Employment	Employment for those identified by receiving organization	Government not responsible for finding employment for applicants under this scheme

Despite the attractive incentives offered, the performance to-date of these two schemes has not been that encouraging. A brief summary of the reasons for this dismal situation is given as follows:

- Poor compensation policy to attract talent;
- Weak job market;
- No dedicated organisational unit to spearhead the search for talent on a proactive basis;
- Weak infrastructure to absorb returning scientists;

Salaries offered to returning scientists are based on civil service salary structure which are poor when compared to what these scientists are accustomed to in their current overseas jobs. Additionally, the present weak job market does not augur well for the nation in attracting experts from abroad. The lack of a dedicated organization charged with proactively spearheading the agenda for seeking talent from abroad as well as developing linkages with overseas Malaysians also contributes to this dismal situation.

The Government acknowledges some of the deficiencies as described above and is currently reviewing the Returning Scientists Programme so as to make it more attractive in order to entice the best brains from abroad to serve in Malaysia. A review of this scheme was recently undertaken and its key findings are described next.

Key Findings of Review Study

MOSTI engaged a local consulting group to undertake a brief study to review the Returning Scientists Programme and to submit recommendations to enhance its implementation.[16] The key findings that emerged from this study are as follows:

Manpower and Research infrastructure in PHEIs and PRIs

(i) **Shortages** of personnel (both for teaching and research) in the strategic technologies occur in all the organisations. Efforts are being undertaken through existing mechanisms to address these deficiencies. Since such efforts will involve considerable lead times, it becomes vital that short-term measures be instituted (through existing Returning Scientists or Returning Malaysian Experts

programmes) to ensure that the nation's quest to achieve competency in the selected technologies is not retarded;

(ii) Some organisations will be experiencing a severe **'brain-loss'** with the departure of several senior staff in the near term. The loss of these senior people will have a serious impact on the operational performance of these organizations unless measures are urgently adopted to mitigate this loss through extending the services of some of these staff members;

(iii) **Research infrastructure** is adequate in some organisations but inadequate in others. However, maintenance of the research infrastructure is lacking in most organisations due to budgetary constraints and shortage of trained technicians. This shortcoming needs to be addressed urgently lest expensive equipment have their operating life-spans reduced drastically. Worse still, such a poor maintenance culture may prove to be a disincentive to draw talent from abroad;

Returning Malaysian Scientists and Foreign Scientists Programme

(iv) There is general acceptance on the **need to attract talent from abroad to address shortfalls** in availability of skilled S&T manpower in the country. However, it was emphasised that such efforts are part of our overall agenda of expanding and enhancing our talent pool. They do not diminish the emphasis accorded to initiatives to nurture, develop and retain local talent;

(v) **Awareness** of the circular on employment of Returning Malaysian Scientists and Foreign Scientists administered by MOSTI is acknowledged in all the organizations interviewed. However, organizations **are reluctant to implement** this circular due to a variety of reasons. Some are of the view that the incentives offered under this circular are not sufficiently attractive enough to draw top talent from abroad. Others have expressed that adoption of this circular would result in additional financial constraints. Many organizations believe that unnecessary

administrative disparities and staff disquiet will arise with the adoption of this circular.

(vi) Both PHEIs and PRIs do not encounter problems in recruiting foreign talent especially from countries of the Indian sub-continent, Myanmar and the Middle-Eastern countries through existing mechanisms. The remuneration package offered to personnel from these countries are far attractive than those that they receive in their home countries. However, efforts to entice talent from advanced countries have not met with equal success due to the unattractive salary package. Accordingly, a separate package may be necessary to lure top talent in areas that the nation aspires to excel and where local talent is not available;

(vii) Current circular governing Returning Malaysian Scientists and Foreign Scientists Programme is deficient in a number of areas including:

- ***lack of focus in the programme*** - programme should focus on securing experts in selected areas of technology as identified by MOSTI in which Malaysia plans to excel in the near future rather than meeting institutional needs as is the present practice. Additionally, focus of programme should be on developing connections with talented scientists (regardless whether they are Malaysians or foreigners) with the ultimate objective of harnessing talent for wealth creation;

- ***restrictions in the recruitment of scientists*** - scientists should be selected based on expertise regardless of their nationality. The circular has indicated that priority should be accorded to scientists from China, India, Pakistan, Russia and countries of the Commonwealth of Independent States (CIS);

- ***lengthy administrative processes in securing the services of these scientists***. As a consequence, several scientists who had earlier expressed interest to serve the nation reversed their decisions;
- ***poor remuneration package*** especially when recruiting top talent from the more advanced countries

(viii) **Response** to Returning Malaysian Experts programme administered by MOHR has been disappointing with only 11 returnees with S&T expertise. Poor response has been attributed to weak job market;

(ix) There is presently **no database** on Malaysians residing abroad. Lack of such information hampers adoption of more selective approaches. Both MOSTI and MOHR do not undertake aggressive proactive approaches to reach out to talented Malaysians residing abroad or foreign scientists. It has been suggested that the programmes of MOHR and MOSTI be merged so as to avoid duplication of efforts;

What drives talented people to move?

(x) Researchers are drawn not only by monetary considerations, but, also, by the **intellectual environment** of the organisation or the intellectual challenge of the assignment. Availability of world-class research infrastructure is crucial in drawing talent from abroad. Additionally, local talent will be drawn to research careers if the right research environment (in terms of career prospects and adoption of best research practices) is present. Quantitative analyses of the factors causing satisfaction and dissatisfaction among researchers and academics revealed the importance of work-related factors (such as career advancement, personal growth, responsibility, job security, organization policies) and non-work related factors (such as children's education, cost of living, availability of leisure pursuits). However, the level of satisfaction in all of these factors was only slightly above average. Statistical tests revealed that Malays were significantly

more satisfied than the Chinese; the 30-39 age group was significantly less satisfied compared with those above 50; more Chinese have admitted to applying for jobs overseas compared to Malays; more Malays felt that working and living in Malaysia is on the whole better than working and living overseas compared to the Chinese and the 20-29 age group felt that if they were offered a job with better pay overseas, they would gladly accept, compared to the 40-43 age group. The analyses also revealed that researchers and academics may decide to leave the country if the salary offered is **thrice** that of their current salary levels.

Immigration Policies and Procedures

(xii) **Procedures** for bringing in talented people are **slow and laborious**. Additionally, renewals of work permits are difficult. Malaysia requires the services of expatriates with the necessary skills and experiences not found locally. Thus, to create impediments in the hiring of talented people would not only work against the organization hiring the expatriate but sends out contradictory signals to foreign investors that Malaysia is not interested in seeking the services of expatriates although the Government has declared that it is desirous of attracting talent to this country. Another source of latent talent that can be tapped is permitting skilled spouses of expatriates to seek employment. In short, expatriates must be seen as part of the national talent pool and we should harness their skills and their networks for the nation's benefit. Accordingly, our immigration policies must be reoriented to enhance the recruitment and retention of highly skilled people.

The key managerial and policy issues raised in this review study can be summarised as follows:

Recruitment of top talent in S&T: Policy and Implementation Issues

The present policy to attract talent from abroad to enhance the S&T capabilities of the country is well founded since Malaysia is lacking in expertise in a number of areas and institutional efforts at capability building will take some time to bear fruits. However, the effectiveness of the implementation mechanism, namely, the Returning Malaysian Scientists and Foreign Scientists Programme, to achieve the policy goals of attracting talent to the country is being questioned. The review study is of the view that despite refinements, the Returning Scientists programme may still suffer from being acceptable at the institutional level due to concerns over possible tensions among staff arising from disparities in salary levels for similar job functions. To overcome these deficiencies, it is suggested that a new programme be introduced which will described in the next section. Effective implementation of this revised programme is essential. Accordingly, MOSTI must be endowed with the necessary resources as well as to be empowered to negotiate personalized incentives to seek the services of top talent.

Attracting talent through focused development of S&T capabilities

The review study emphasised the need for Malaysia to be selective in its support for R&D given the nation's limited resource endowments – both financial and manpower. A more strategic approach needs to be adopted in order to identify niche areas within the identified strategic technologies that would deliver the most promising results for Malaysia. Development of world-class capabilities in these identified niche areas through focused efforts will strengthen the nation's S&T system as a whole and its centres of excellence in particular. Acquisition of such capabilities will not only help to retain our best research talents but attract new talents both locally as well as from abroad. Additionally, such international reputation would help promote Malaysia as a preferred location for regional R&D activities for the burgeoning Asia-Pacific market.

Towards a Supportive and Disciplined Research Environment

The review study has stressed the importance of adopting sound research management practices to ensure, among others, that Malaysia's investments in research are properly utilised and maintained. Adoption of such practices, including ensuring well maintained research infrastructure, would help to contribute towards fostering the right research climate thereby attracting and retaining talent. Sound personnel policies are vital in order to retain talent. They become even more important in a heterogeneous society as found in Malaysia in order to counteract perceptions of biasness. Such negative perceptions may cause talent to leave.

Reorientation of Immigration Policies and Procedures

Several developed countries have in recent years liberalised their immigration policies to attract highly skilled people from around the globe. Such measures have contributed immensely to the growth of the domestic economies of the receiving countries. Forward-looking immigration policies and procedures are crucial in order to support Malaysia's efforts in enticing talent from abroad as well as to capitalise on foreign talent that are within the country. Procedures that are slow and cumbersome would make a researcher decide on other options. Accordingly, a review of immigration policies and procedures is necessary to facilitate the flow of talented people from abroad as well as the utilisation of potential sources of human talent available in the country.

Forging Linkages with Overseas Malaysians

Although there is presently no national database on Malaysians residing abroad, it is acknowledged that there is a large community of highly skilled Malaysians abroad. The review study argued that the Government needs to actively engage the hearts and minds of Malaysians abroad so that they feel closely connected with Malaysia and are encouraged to contribute to the country in a variety of ways including exchanging ideas as well as investing in Malaysia.

In summary, Malaysia's current Returning Scientists programme, as it is presently structured, is inadequate to attract talent in the development of competencies in the strategic technologies. Besides its limitation in offering attractive remuneration to the highly skilled, this programme is not structured to promote research partnerships between researchers in this country and those from abroad. The review study has also emphasized on the need to ensure a hospitable research environment including availability of adequate research infrastructure as well as attractive career prospects. A constant theme that emerged from the study is the need for a more dynamic and liberal immigration policy that, not only, facilitates the flow of talent but also to harness whatever talent that is available in the country.

The review study made a number of recommendations including the need to rationalize and strengthen talent initiatives; facilitating talent mobility through supportive immigration policies; strengthening connectivity and community with overseas Malaysians; and enhancing research infrastructure and research environment.

The findings of this study constituted the basis for MOSTI to review the nation's talent recruitment initiative which was subsequently launched as the Brain Gain Programme to which we briefly turn next.

Malaysia's Brain Gain Programme

The government introduced the Brain Gain Programme in 2006 to attract Malaysian scientists and technopreneurs residing abroad as well as foreign scientists to undertake collaborative ventures with their counterparts in Malaysia thereby enhancing the nation's research and innovative capacity and capabilities. The focus of the programme is on enhancing the commercialization capabilities of the local research community. A key feature of this programme is that the invited scientists need not be physically relocated in Malaysia. Instead, networkings will be emphasized in this programme where a number of specific R&D clusters have been identified. Local scientists will also be supported to undertake their research abroad in specific clusters so as to promote networkings besides building their competencies under the tutelage of leading scientists/researchers. The revised programme has a component for sponsoring distinguished scientists from abroad to visit Malaysia. Many of the observations and recommendations made by the earlier

review study were incorporated in this revised talent recruiting and bridging programme. For example, a dedicated unit to oversee this programme has been established. An evaluation of this programme has not been undertaken.

Conclusion

Efforts at enticing talent from abroad are not the panacea for all of Malaysia's S&T manpower inadequacies. Instead, such initiatives must be seen as integral to the overall efforts at nurturing and developing talent. New approaches, as argued in this article, are necessary in order to forge more productive linkages between foreign and local talent. However, adoption of such approaches is not without problems. Indeed, the literature on public administration is replete with case studies on organizations defending their modus operandi despite changed circumstances. If Malaysia is to benefit from harnessing scientific and technical talent – both foreigners and Malaysians abroad – then it must be prepared to forego existing policies, programmes and practices that inhibit the adoption of more innovative approaches. Such departures will not be easy to implement without strong political commitment particularly in a multiracial setting such as found in Malaysia. The temptation for most organizations in this situation would be to adopt an approach of least administrative resistance. But, adoption of such an approach, although prudent from the standpoint of implementation, would severely compromise the effectiveness of the change programme. We are confident that the recommendations presented in this article would provide a useful framework for Malaysia to adopt in engaging talent to develop its scientific and technological proficiency.

NOTES

[1] An excellent account is provided by Solimano, A (2002)
[2] The reader may wish to refer to Meyer and Brown (1999) for an account of initiatives adopted by several developing countries in forging collaborations with their scientists and technologists residing in developed countries.
[3] For a detailed account of these approaches see Meyer et al (1997)
[4] OECD Observer (2002)
[5] A detailed description on diaspora is given by Meyer and Brown (1999)
[6] See 'About Reverse Brain Drain' in http://rbd.nstda.or.th/html/body.about_rbd.html

[7] See Thiruchelvam, K, Kamarul A and Koh AK (2003), A Study on the Returning Scientist Scheme in Malaysia. Report prepared for Ministry of Science, Technology and the Environment

[8] According to the findings of the Ministry of Science, Technology and the Environment National Research and Development Survey Year 2000, there were about 15.6 researchers per 10,000 labour force. Most developed countries have more than 60 researchers

[9] This figure is attributed to Hon. Dr Fong Chan On, Minister of Human Resources. See Straits Times, January 10, 2003 *'Skilled Malaysians won't return home'*

[10] Public Services Department, Malaysia Service Circular No. 3 of 1995: '*Guidelines in the Recruitment of Malaysian scientists residing overseas and Foreign scientists'*

[11] These statistics are based on internal Ministry of Science, Technology and the Environment documents.

[12] Presently known as Ministry of Science, Technology and Innovation (MOSTI) following the General Elections of 2004.

[13] Feedback on the deficiencies of this programme was obtained from interviews with personnel from selected public service research organizations and universities.

[14] Further details on this programme can be obtained from the website of the Ministry of Human Resources, Malaysia at: http://www.mohr.gov.my/mygoveg/bi/gpexpert.htm

[15] Personal communication with official from Ministry of Human Resources

[16] The study was undertaken by the three authors of this article on behalf of the University of Malaya Consulting Unit. The final report of this study entitled 'A review of the scheme to attract back Malaysian scientists residing overseas and Foreign scientists: Building scientific and technological capabilities through harnessing talent' was submitted recently for the Government's consideration.

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