

# Policy Transfer In Malaysia: A Case Study Of National Biotechnology Policy

**Ravi Mahalingam**

Immigration Department of Malaysia  
Division of Visa, Pas and Permit,  
persiaran perdana, Presint 2,  
62550, Putrajaya  
mitopower1984@yahoo.com

## ABSTRACT

In recent years, policy literature has increasingly paid attention to the studies of policy transfer. Today, policy makers from all over the world draw lessons both from their own country's experience and the practice of other nations in seeking best practice for the betterment of their own. In Malaysia, policy transfer is more evidence in the economy and technology policy, for instance, in the development of National Biotechnology Policy. Malaysia has identified biotechnology as one of its new engine of economic growth and thus a comprehensive policy on the subject matter is important to ensure the success of the industry. This paper attempts to address the process of policy transfer in Malaysia, especially in the development of National Biotechnology Policy. Using the voluntary policy transfer network model as a conceptual framework, it attempts to investigate why, how, and when policy transfer occurs, paying particular attention to the role of policy actors in the process. The major findings of this paper can be classified into two. Firstly, policymakers in the developing countries like Malaysia often assume central roles in initiating, shaping and pursuing public policies. Secondly, a well mobilized policy consultants and policy network is important in ensuring a successful public policy development.

**Keywords:** Policy transfer, National Biotechnology Policy, Voluntary Policy Transfer Network Model

## INTRODUCTION

In a world of globalization, it is becoming more common for a country to emulate policies, ideologies or programs from another country. Thus, the concept of copying and emulation is not something unusual in the world today. Policy makers from all over the world draw lessons both from their own country's experience and the practice of other nations in seeking best practice for the betterment of their own (Khairiah, 2008). Theoretically, the better term to refer a policy copying or imitation is policy transfer.

According to Evans (2009), policy transfer is process in which knowledge about

institutions, policies or delivery systems at one sector or level of governance is used in the development of institutions, policies or delivery systems at another sector or level of governance. As a matter of fact, the public expectation from government is growing higher and many public organizations in both developed and developing countries do not always possess the expertise to tackle the problems they encounter. Thus, these organizations look beyond to other government or non-government organizations for solutions. Given this reason, policy transfer has become a rational choice for many countries (Davies et al., 2000 and Pawson, 2002).

In Malaysia, there was a reluctance to acknowledge policy transfer initially, due to federal government and strong central control on the national political structure. However, Malaysian policy makers began to experiment and adopt the concept of policy transfer, especially in the economic and technology policies. For an example, the concept of policy transfer was evident in the development of National Biotechnology Policy. In the late 1990s, Malaysia has identified biotechnology as a new source of economic growth. There are significant potential benefits to the nations committed in the biotechnology sector like higher crop yield, better healthcare as well as better economic returns (Daar et al., 2007). Hence, with the necessary motivations and opportunities, biotechnology became the subject of public policy aspiration in Malaysia. However, a structured policy is vital as it provides a guideline for implementation of key activities in this sector. Therefore, Malaysian policy makers initiated and developed the National Biotechnology Policy in 2005.

Dolowitz and Marsh (1996) presented a framework to understand policy transfer based on six research questions, which are Who transfers the policy?, What is transferred?, Why and When do actors engage in policy transfer?, Where the lesson are drawn from?, What type of transfer can occur?, and What restrict or facilitates policy transfer?. These questions provide the starting point to the theoretical framework employed in this case study. However, to provide a robust explanatory framework, Evans and Davies's Voluntary Policy Transfer Network model are engaged. This model provides a middle range analysis which links a particular form of policy transfer, micro-decision making in organizations, macro-systems and global, transnational and international systems (Evans, 2004).

In summary, Voluntary Policy Transfer Network model are used to understand the overall and detailed process of National Biotechnology Policy development. Moreover, the heuristic stages of the model able to assist in comprehension of a multiplicity of factors that shape the process of policy transfer during the development of National Biotechnology Policy.

## **LITERATURE REVIEW**

Policy transfer is not a new phenomenon in public policy. In fact, the idea of understanding cross-national research is an attempt to improve national policy is

centuries old and has its roots in the work of classical Greek philosophy (Mokhtar, 2008). However, the systematic study of policy transfer is comparatively a recent origin. It was first emerged among American political scientist in 1960s, through the work of several authors such as Walker (1969) and Rogers and Shoemaker (1971). Their work was focused on policy diffusion studies, which have a narrower focus than the study of policy transfer (Leichter, 1983). Dolowitz and Marsh (2002) define policy transfer as a knowledge about how policies, administrative arrangements, institutions and ideas in one political setting is used in the development of policies, administrative arrangements, institutions and ideas in another political setting.

Evans (1999) asserts that the increasing complexity and uncertainty in the modern governance has increased the possibility for policymakers at all levels of governance to engage in the policy transfer activity. Public organisations in both the developed and developing countries do not always possess the expertise to tackle problems they confront and thus look beyond to other government or non-government organisations for solutions which are normally a structured procedure that analyses a process to find improvement opportunities (Mokhtar & Haron, 2007). Michalski and Cheyne (2008) acknowledges that among the objects involved in the policy transfer includes policy goals, structural and content, policy instruments or administrative techniques, institutions, ideology, ideas, attitudes and concepts and negative lessons. Besides, the public expectation from the government is growing higher than before and this expectation has been mediated through politicians to civil servants:

“ This government expects more of policymakers. More new ideas, more willingness to question inherited way of doing things, better use of evidence and research in policy making and better focus on policies than will deliver long term goals” (Evans, 2004, p. 3).

Given this emphasis on the importance of evidence based policy making, policy transfer has become a rational choice for most developed as well as the developing countries (Davies et al., 2000 and Pawson, 2002). Since policy transfer occurs within a multi-organisational setting, it requires a method which provides an empirical framework for analysing the inter-organisational politics.

Therefore, in 1999, Jonathan Davies and Mark Evans developed a policy transfer network approach to understand and to analyse the process of policy transfer. The policy transfer network approach is a multi-level and inter-disciplinary approach that built upon an integrated account of the policy network and the epistemic community approach. Policy transfer analysis tends to focus on the role of decision making elites within close-knit policy communities (a form of policy network) in process of policy making. In this context, policy communities may be comprised of key bureaucrats, politicians, privileged groups or consultants (Hulme, 2006 & Evans, 2009). In addition, the epistemic community approach emphasises the same agent of transfer which plays an important role in policy development.

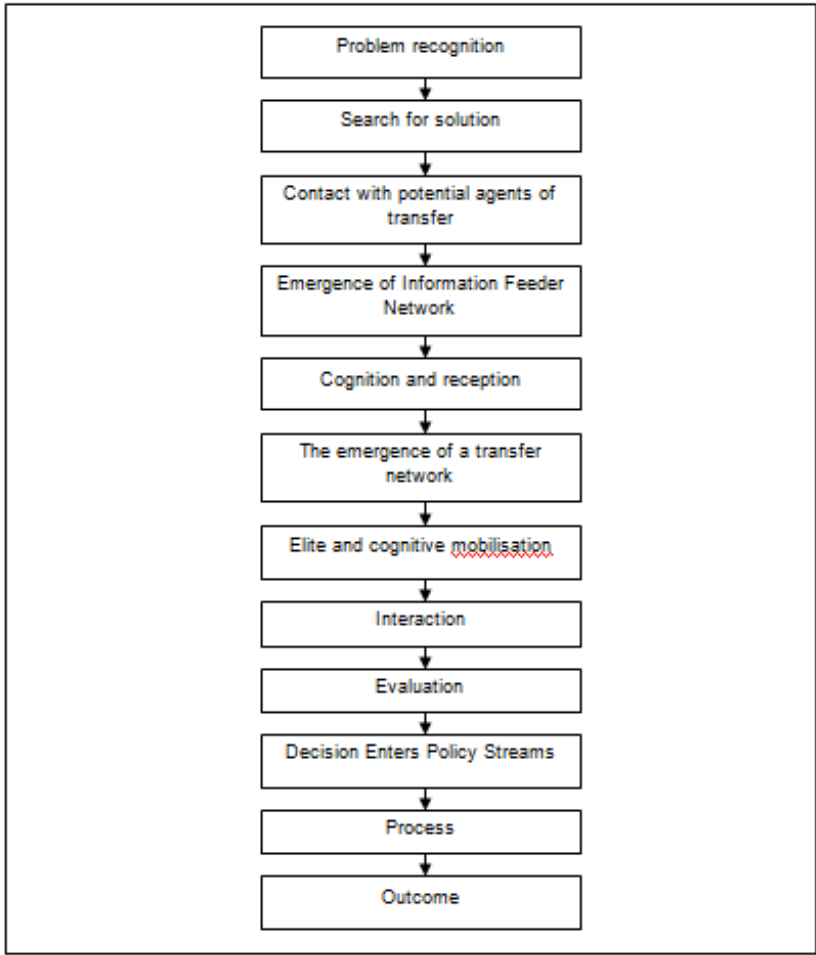
Generally, policy transfer networks are ad hoc phenomena. They exist only during the process of transfer takes place. Besides, the approach provides a middle-

range level of analysis which links a particular form of policy development, micro-decision making in organisations, macro-systems and global, transnational, and international systems (Evans & Davies, 1999). The approach also offers policy researchers the tools to identify the agent of transfer, to specify the role played by the agent in the transfer, and the nature of the transfer that the agent is seeking to make. The policy transfer network approach argues that policy transfer occurs voluntarily which results in policy action. Furthermore, policy researchers like Richard Common (2004) and Khairiah Mokhtar (2008) points out that the application of policy transfer network approach can provide a valuable heuristic framework for analysing process of policy transfer. In short, the approach is able to provide an understanding of policy development within multi-organisation settings.

Policy transfer network approach involves the engagement of an ideal type of policy cycle to case study investigation. Evans and Davies (1999) believe that it is useful to break down the process of transfer into 12 putative stages as revealed in the figure 1 for analytical reasons. Called voluntary policy transfer network model, it provides a multi-stage analysis of policy transfer. Stage one to three involves the identification of a public policy problem and the search for ideas. Stage four to nine and twelve represent potential periods of policy-oriented learning. Stage ten and eleven signify the periods in which the policy enters formal policy processes (Evans, 2004). Basically, these stages refer to how a policy issue becomes a public policy. It is important to note that these stages only have heuristic value. Moreover the ability of an issue to pass through these stages is dependent on environmental factors such as economic conditions and the type of agent of transfer involved. In fact, the process of voluntary transfer can break-off at any point after 'search' and still result in a form of transfer (Evans, 1999). Hence, the model is wholly illustrative and provides a strong starting point for empirical research.

In sum, Evans and Davies (1999) have simplified a complex process in order to provide a heuristic model that seeks to comprehend the multiplicity of factors which shape the process of policy transfer. This heuristic model may able to describe the domestic and international circumstances which are likely to bring about policy transfer, whilst analysing the scope and dimension of policy transfer. However, voluntary policy transfer network model is not without its critics. According to James and Lodge (2003), policy transfer analysis using the voluntary policy transfer network model has no distinctive admin of enquiry compared to normal forms of policy process models in general and rational models in particular. Besides, Dowding (2001) argues that policy analysis using the model is time consuming and prone to trivial findings.

**Figure 1: The Emergence and Development of a Voluntary Policy Transfer Network Model**



Source: Evans and Davies (1999)

**METHODOLOGY**

Triangulation approach was employed for data collections, which includes interviews, documentary evidence and observations. The essence of the triangulation approach is the development of procedures that focus on the mutual interdependence among theory, method, and findings. This approach focuses on theory, method, interventions, persons, settings/environments and outcomes and the transactional relationship among these variables. Triangulation approach to data collections also aids in the formation of a chain of evidence, which in turn provides explanations of events and issues.

The theoretical insights will also lead us to adopt a qualitative methodology, giving the scope to iterate theoretical arguments with the empirics and generate future

research ideas (Patton, 2002). Secondary data such as documents, reports and manuals will be collected from the libraries, newspapers and the relevant offices. This information is vital to validate the qualitative data from the interviews or from fieldwork and provide important quantitative data (Xu and Uddin, 2008).

## **FINDINGS AND DISCUSSION**

For the purpose of this case study, only seven stages of Voluntary Policy Transfer Network Model were used to understand the development of National Biotechnology Policy. The seven stages involved are - Problem Recognition; Appointment of Policy Agent; The Emergence of Policy Network; Interaction; Evaluation and Policy Outcome.

### **Problem Recognition**

The policy initiation phase in the policy process can be extremely a complex one. It includes perceiving that a policy problem exists, identifying the problem context, determining the policy objectives and generating suitable policy agendas. Fundamentally, if there is no perceived problem, there is no need for the government to act as a response to it. Kingdon (1995) defines a problem as a condition or situation that produces a human deprivation or dissatisfaction. This stage begins when there is such dissatisfaction within an existing policy system at spatiality of government that need for policy or system change emerges (Khairiah, 2008). According to Evans and Davies (1999), policy process begins with the recognition by policymakers of the existence problem which requires, due to contextual factors, pressing attention. The policy problems can be in the form of political interest, economic competition, or social need.

In this case study, there was a consensus among the interviewees that global and domestic economic factors constituted the main push for the Malaysian government to adopt a policy on biotechnology. The intense global competition as well as domestic economic crisis played an important role in pushing the government to look for alternate engine of economic growth and solving the country's economic problems. Besides, the new leadership that assumes office in 2003 was optimistic about the ability of biotechnology to participate constructively in the nation's economic building. This strengthened the decision to introduce initiatives for the formulation of biotechnology policy in Malaysia.

Generally, the initiation of biotechnology policy in Malaysia resembles the inside initiation model of agenda setting proposed by Cobb, Ross and Ross (1976). In such model, policy initiative comes from within the circles of the government policymakers. Public participation in the process is allowed but only minimal as government policymakers are convinced that they are in the best position to make judgments and offer best solutions to the problem in hand. While there is no doubt

that the government policymakers define problems and initiate policy agenda, it is important to acknowledge other political forces such as non-governmental organisations and interest groups that attempt to influence the content and direction of policy making.

The Malaysian government identified three main objectives for adopting biotechnology, which were similar to the objectives set by other countries that opted for biotechnology programs and research activities. This includes promoting economic competition, increasing research and development (R&D) in various economic sectors such as agriculture, health, and industry, as well as accelerating growth through increased opportunities for private sector involvement (MOSTI, 2006, p. 5). In fact, on the basis of the narratives gleaned from all the respondents interviewed for this study, there was general agreement that Malaysia largely followed policy objectives from successful exemplars such as United States and Singapore.

However, according to the Malaysian Biotechnology Information Centre (MABIC), there were two specific reasons why Malaysia recognised biotechnology as the next engine of the nation's economic growth. Firstly, biotechnology is regarded as a technology of the century which has the values and potential that one country cannot ignore. The revenue generated by the biotechnology sector in developed country like United States is estimated to be over USD 50 billion per year and providing employment to over 160,000 people (Ernst & Young, 2006). Hence, Malaysia with an ambition to be a developed nation by year 2020 could not afford to lose the race. The revenue generation from the biotechnology industry can further help improve the country's GDP, in order to meet the nation's vision 2020. Secondly, since Malaysia is fundamentally an agricultural country, biotechnology should be regarded as a tool to further improving the national agriculture industry. Biotechnology can be used in improving the variety and productivity of crops, diseases and pesticides control, as well as in reducing the labour cost. Besides, Malaysia is less self-sufficient, unlike countries like India and China, spending millions of ringgit in importing food products. For instance, 65 to 70 percent of rice for Malaysian consumption is imported from neighbouring countries like Thailand and Indonesia. In 1999, Malaysia imported on average about 600,000 metric ton of rice from these countries.<sup>4</sup> Malaysia's livestock and poultry industry also heavily depends on imported feed like corn, soy bean, protein sources, vitamin sources, and trace minerals (Loh, 2002). Thus, biotechnology has become an essential technology to reduce the import, labour cost, and at the same create new employment and business opportunities.

In addition, there was a consensus amongst all respondents in their description of the economic development that had characterised the country in last century. They believed that Malaysia has developed enormously with the implementation of the NEP in 1970 and the NDP in 1990. The rapid economic growth in the last fifty years has helped the country to transform itself from an agricultural based economy to a manufacturing-industrial based economy. However, as there is a

growing competition from neighbouring countries offering cheaper labour costs, Malaysia needs to move on to high technology activities. Despite having one of the largest biodiversity resources in the world, Malaysia are still lagging behind in R&D, thus stifling the growth of home grown technology. Like other natural resources available in the country, these assets require exploration and production activities in order to create value. Undoubtedly, biotechnology can be seen as the most appropriate technology to realise the mission.

## **Search for Solution**

The change in government leadership in 2003 played an important role in accelerating the government's biotechnology initiatives. On 31st October 2003, Dr. Mahathir Mohamad passed the premiership baton to Abdullah Ahmad Badawi, who later became the fifth Prime Minister of Malaysia. Yusof Radzuan Saad, Principal Assistant Secretary, Finance and Corporate Section, BIOTEK, MOSTI, believes that this was a signal that the new administration had to be action oriented and there was an increasing view that the existing science and technology policies in Malaysia were ineffective to accommodate the demands of new challenge. Therefore, the new administration assumed a further proactive role in shaping the national biotechnology agenda since it is important to have a systematic and practical roadmap in developing and ensuring the success of biotechnology industry.

In Malaysia, just like most of the developing countries, policies on science and technology are determined through the general framework of national economic planning. Despite the emerging importance of biotechnology, Malaysia lacked a strategic plan for a coordinated R&D initiative. It is not to be surprised that most of the biotechnology research conducted in the research institutions are not based on priority guidelines, but rather on individual initiatives and interests. Therefore, there is a need for a policy on biotechnology to address issues related to the technology, without being lumped together with the general science and technology policy. Without a clear policy on biotechnology, there is a danger for lack of coordinated research among the public research institutions as well as with the international research institutions. According to MABIC, the much needed biotechnology policy would provide a platform for the recognition of potential benefits from research innovations and at the same time minimise the perceived risks associated with certain aspects of the technology.

The need for developing a national policy on biotechnology was further asserted when prime minister, Abdullah Ahmad Badawi and Dr. Jamaludin Jarjis, who is the former Minister of Science, Technology and Innovation (2004-2008) attended the BIO 2004 conference in San Francisco, United State. Following the conference, the Malaysian government was much convinced that the national policy on biotechnology was able to provide an integrated approach to address the opportunities and challenges presented by the new economic platform and to



ensure that the development of biotechnology is undertaken in a structured, ethical and commercial framework which would generate the appropriate economic, commercial, health and social benefits for Malaysia. Subsequently, the Ministry of Science, Technology and Innovation (MOSTI) was entrusted to lead the drafting of an effective policy for the national biotechnology industry.

### **Contact with Potential Agents of Transfer**

During the search process, an organisation may come across a potential policy agent or policy consultant with specialist skills to develop the necessary political and knowledge resources to satisfy successful policy development (Khairiah, 2008). In order to gain expertise on the processes of change that were required, the Malaysian government always stressed the importance of recruiting the assistance of international experts in order to prepare proposal for biotechnology policy. The international experts would be in a position to provide consultation and expertise on how to establish an appropriate platform for the national biotechnology industry, taking into consideration of the global demand and focus, national strength and needs, as well as the ways to propel the national biotechnology sector into a successful one.

Following the success of BIO2004 conference, the Malaysian government entrusted MOSTI to lead the drafting of the policy. In order to accomplish the given task in the best possible manner, MOSTI engaged the Malaysian Industry-Government Group for High Technology (MIGHT) as the principle consultant. MIGHT is an independent and non-profit governmental organisation that is responsible to enable consensus building and coordination for industry-government partnership in high technology such as biotechnology. It is a prominent organisation and has strong international links.

MIGHT was launched as a company limited by guarantee in 1993 and provides strategic technology inputs for industry and government, nurtures technology based enterprises and entrepreneurship as well as prepares knowledge workers relevant to strategic and high technology industry needs. Since MIGHT falls under the purview of MOSTI, it represents the ministry in interfacing with relevant industries to promote technology uptake in business. Eleven years of business experience in 2004 have enabled the company to offer services which include strategic industrial consultation, intelligence gathering and research, technology nurturing, and innovation management (MOSTI, 2004).

Since the expertise of MIGHT is well known and reliable, the government had no qualms with the organisations reputation for preparing the proposal of the said policy. Hence, MIGHT was engaged as the official consultants for the formulation of NBP proposal. Therefore, it can be concluded that the selection of consultant in this study was a straight forward process. There are two possible explanations to describe the basis of selection by MOSTI. Firstly, there are very few organisations in Malaysia that was able to provide a comprehensive consultation on high end

technologies like biotechnology, thus limiting the options for selection. Secondly, MIGHT is well known for its reliability and expertise in dealing with similar high end technologies like aerospace and automotive. This point was actually supported by all respondents interviewed for this study.

## **The Emergence of Information Feeder Network**

This stage in the process of policy making identifies the emergence of an information feeder network which is developed by the appointed policy consultant (Khairiah, 2008). In this case, it was MIGHT. The curiosity of the Ministry of Science, Technology and Innovation (MOSTI) as a client was increased through preliminary processes of contact. Thereafter, it is crucial for MIGHT to increase the volume and the detail of information for MOSTI by demonstrating the quality of their access to communication and knowledge network in order to facilitate the formulation of National Biotechnology Policy proposal.

MIGHT conducted extensive studies in preparing the National Biotechnology Policy proposal from the time it was appointed as an official consultant. MIGHT looked at the experience of several countries around the world that already developed biotechnology initiatives and policies. At this time, other neighbouring countries such as Thailand and Indonesia were also seriously considering biotechnology as a mean of economy growth. Therefore, it was an indication of a more positive attitude towards biotechnology among the developing countries around the world. MIGHT's central objective of its feasibility studies in biotechnology was to formulate policy proposal that will provide a national platform and priority to facilitate the development of national biotechnology industry in a more structured manner. The feasibility study began by taking into consideration the important issues of policy making such as the nation's strengths, weaknesses, opportunities, and threats in the biotechnology endeavour. In specific, MIGHT began with a feasibility study, whereby the existing biotechnology activities in the industry were being accounted for together with what Malaysia as a nation has in terms of ownership of the sector. This includes, but not restricted to, number of companies that are already operating in the sector, expertise and talents that the industry possesses and the intellectual properties that are available in the country.

For this exercise, MIGHT has appointed Ernst & Young Malaysia and Burrill & Company as co-consultants. Ernst & Young Malaysia is a local based international company, which is well known for its role in analysing and promoting biotechnology. Ernst & Young was responsible for the benchmarking exercise. Benchmarking exercise is crucial for Malaysia since it is a tool for improvement that is achieved through comparison with other countries recognised as the best within the area of biotechnology.

On the other hand, Burrill & Company is an international company based in San Francisco, United States and was the main consultant for the BIO 2004 conference. Burrill & Company was responsible to recommend strategies to accelerate the

progress of the Malaysian biotechnology industry. To further facilitate the study, reports prepared by AT Kearney for Bio-Valley master plan in 2003 were used as reference. AT Kearney is an international based consultant engaged by the Ministry of Science, Technology and Environment (MOSTE) during the development of Bio Valley master plan. Besides, MIGHT also sought information from the Malaysian Development Corporations (MDC) for the lesson learnt during the development of Multimedia Super Corridor (MSC).

## Interaction

In this stage, policy consultants will often be expected to organise forums for exchange of ideas between the client and knowledge elites as well as relevant policy stakeholders (Evans, 1999). This may take a form of representatives of relevant stakeholders who have similar professional beliefs and standards of judgment as well as share common policy concerns (Khairiah, 2008). A context of interaction may therefore take place through the organisation of seminars, fact-finding missions, conferences, and the exchange of specialist policy advice documents (Evans, 2004). It is through these forms of diffusion activity that policy consultant can act as a channel for the development of consensual knowledge (Evans & Davies, 1999).

Various contexts of interaction can be identified in this case study through which MIGHT, MOSTI and representatives from academia, non-governmental organisations and industrial players discussed issues of central importance in the formulation of National Biotechnology Policy. At least nine important meetings were held starting from the appointment of MIGHT as the official consultant until the official launch of the National Biotechnology Policy. Table 1 illustrates the important meetings between MIGHT and the relevant stakeholders.

**Table 1: Chronology of Meetings between MIGHT, MOSTI, and Policy Stakeholders**

No	Date	Place	Meeting
1	23 October 2004	MOSTI	Briefing to Secretary General of MOSTI
2	28-29 October 2004	IOI Marriott Putrajaya	First Strategic Planning Session
3	2-3 December 2004	Colmar Tropicale Bukit Jering	Second Strategic Planning Session
4	9 December 2004	JW Marriott Kuala Lumpur	Third Strategic Planning Session
5	30 December 2004	Palm Garden Putrajaya	National Biotechnology Policy Workshop
6	14 January 2005	IOI Marriott Putrajaya	Industry Networking Session
7	21 February 2005	MOSTI	Discussion with Heads of MOSTI Agencies
8	24 February 2005	MOSTI	Discussion with Academia and Industry
9	26 February 2005	MOSTI	Discussion with other Ministries and State Governments

Source: Malaysian Industry-Government Group for High Technology (2009)

It was through the series of interaction that MIGHT proved itself as the key policy consultant due to the strength of their knowledge and expertise in the policy process. Based on the outcome of the meetings, MIGHT began the drafting of National Biotechnology Policy proposal. The policy proposal was drafted based on the findings by Ernst & Young Malaysia and Burrill & Company as well as the feedbacks obtained from the meetings. According to Zakwan, MIGHT used an input-output model, where all the proposed initiatives are calculated based on a 40 percent government and 60 percent private sector investment assumptions which formed the basis when calculating the value of the industry. He further acknowledges that the policy was designed in such an extensive manner not just to kick-start the national biotechnology industry but also for the industry to mature. Later, the policy drafts were presented to MOSTI as well as other various government agencies like the Ministry of Agriculture and Agro-Based Industries (MOA), the Economic Planning Unit (EPU), Malaysian Agricultural Research and Development Institute (MARDI), Malaysian Biotechnology Information Centre (MABIC) and Malaysian Palm Oil Board (MPOB) for their assessment and comments.

## **Evaluation**

Once the client is satisfied with the degree of intelligence gathering that the consultants have engaged in, the process of evaluation will commence (Khairiah, 2008). The evaluation process is critical in determining that the elements such as policy objectives, structure, contents, and concepts are designed appropriately according to the needs of Malaysian setting. In this context, MOSTI as the client in the process was satisfied with the overall proposal outcome. The final draft of National Biotechnology Policy was prepared by MIGHT after few rounds of evaluation by MOSTI and various government agencies and non-governmental organisations like Ministry of Agriculture and Agro-Based Industries (MOA), Economic Planning Unit (EPU), Malaysian Agricultural Research and Development Institute (MARDI), Malaysian Biotechnology Information Centre (MABIC) and Malaysian Palm Oil Board (MPOB).

MOSTI had evaluated the policy draft until the third version was prepared. In the semi-final stage, policy draft was sent to various government agencies and non-governmental organisations to get their feedback and comments. At the same time, the Secretaries-General of the ministries and industrial players were called for a meeting with MIGHT to get detailed description about the policy. In the final stage, MIGHT presented the improvised and final policy draft to MOSTI. As a result, the National Biotechnology Policy, unlike other policies that commonly consist of forward looking statements, became a very solid document with clear directives, incentives and strategies complete with the implementation plans in specific areas of the industry identified, namely agriculture, healthcare and industrial biotechnology.

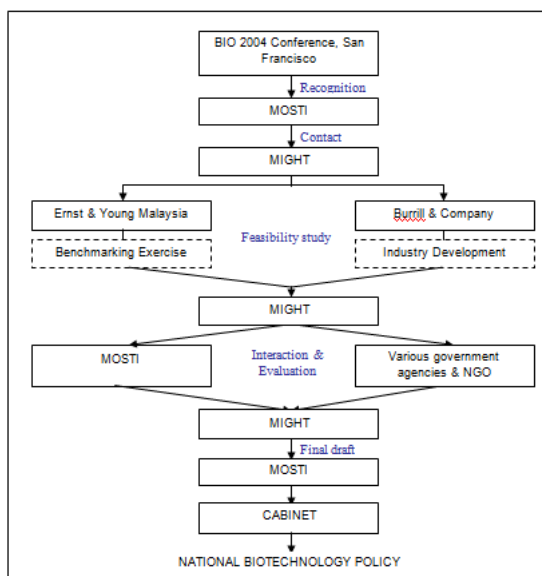
## Outcome

After the National Biotechnology Policy draft has been evaluated by MOSTI and the various government agencies and non-governmental organisations, Jamaludin Jarjis, the Minister of MOSTI presented the policy draft to the Malaysian Cabinet. According MOSTI, the cabinet approved the policy draft in the first presentation itself without any amendment since the proposal has been reviewed several times earlier by the various government agencies and was deemed complete.

The National Biotechnology Policy was unveiled on the 28th April 2005 by the former Prime Minister, Abdullah Ahmad Badawi, during the opening ceremony of the BioMalaysia 2005 at the Putrajaya International Convention Centre. The Malaysian government envisions that the policy could build a conducive environment for R&D and industry development whilst leveraging on the country's existing areas of strength. Besides, the policy was expected to give impulse to the biotechnology industry in Malaysia and address vital aspects of biotechnology development such as the priority areas, including legal, safety, financial and other issues.

In order to implement the policy, the Malaysian Biotechnology Corporation (MBC) was created as an agency to lead the development of the industry, including the coordination of the regulatory policy among different governmental and non-governmental agencies. MBC was overseen by the Implementation Council and advised by the International Advisory Panel, both under the leadership of the Prime Minister of Malaysia. Figure 2 summaries and illustrates the whole process of National Biotechnology Policy development.

**Figure 2: Chronology of National Biotechnology Policy Development Process**



## CONCLUSION

This study generates insights that might help develop better understanding of public policy making in Malaysia, in particular the National Biotechnology Policy. Two observations that can be made from the NBP formulation process in Malaysia are highlighted here. Firstly, policymakers in developing countries like Malaysia often assume central roles in initiating, shaping and pursuing public policies. They are frequently the most important actors in propelling issues and problems into agenda for government action. Secondly, a well mobilised policy consultants and policy network may make a critical difference in ensuring a successful adoption and implementation of the policy proposal in a multiracial country like Malaysia.

## ENDNOTES

The interview were conducted with the following personnel: Mahaletchumy Arjunan, Executive Director, Malaysian Biotechnology Information Centre (MABIC), 02/04/2009; Assoc. Prof. Thiruchelvam, Senior Lecturer, Department of Science & Technology, Faculty of Science, Universiti Malaya, 02/04/2009; Prof. Asma Ismail, Deputy Vice Chancellor, Research & Innovation, Universiti Sains Malaysia, 08/04/2009; Yusof Radzuan Saad, Principal Assistant Secretary, Finance and Corporate Section, BIOTEK, MOSTI, 19/08/2009; Zakwan Md. Zabidi, General Manager, Macro & Future Studies, MIGHT, 20/08/2009; an BIOTEK senior personnel, 19/08/2009.

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