Implementing the Socio-Economic Considerations Clause for Regulating Genetically Modified Organisms(GMOs) in Malaysia: Challenges and Options

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Introduction:

Malaysia's *Biosafety Act 2007* proposes to address socio-economic considerations of Genetically Modified Organisms(SECGMOs) under Section 35 which mirrors Article 26(1) of the Cartagena Protocol on Biosafety(CPB).[1] There exists a disagreement among parties to the CPB concerning the scope of SECGMOs under Article 26(1). Past negotiations of the CPB indicate that developing countries such as Malaysia and the African block had proposed for SECGMOs for fear that the introduction of GMOs would pose as a threat socially, economically and culturally to developing countries.[2] SECGMOs complements social development, an aspect of sustainable development. Without a parameter for the scope of SECGMOS within the CPB, Malaysia will use its own discursion to implement Section 35 of its *Biosafety Act 2007*. This paper seeks to identify the means in enabling Malaysia to implement Section 35 of the *Biosafety Act 2007*. It is proposed that Malaysia should explicitly determine the scope for SECGMOs under any subsequent regulation or guideline to

[1] See, eg, Section 35 of the *Biosafety Act 2007* mentions that '[t]he Board (National Biosafety Board) or Minister (Minister of Natural Resources and Environment) shall not be prevented from taking a decision, as appropriate, under Part III or Part IV, where there is lack of scientific certainty due to insufficient relevant scientific information and knowledge regarding the extent of the potential adverse effects of living modified organisms or products of such organisms on human, plant and animal health, the environment and biological diversity and may also take into account socio-economic considerations'.

Article 26 (1) of the CPB reads as the following:

1. The Parties, in reaching a decision on import under this Protocol or under its domestic measures implementing this Protocol, may take into account, consistent with their international obligations, socio-economic considerations arising from the impact of living modified organisms on the conservation and sustainable use of biological diversity, especially with regard to the value of biological diversity to indigenous and local communities.

[2] See, eg, Convention on Biological Diversity Secretariat, The Cartagena Protocol on Biosafety: A Record of the Negotiations (2003) 81 <http://www.cbd.int/doc/publications/bs-brochure-03-en.pdf> at 6 February 2008; United Nations Environmental Programme, *Submissions on Socio-Economic Considerations and Liability and Compensation*, [3], UNEP/CBD/BSWG/3/3Add.2 (1997).

serve as guidance with the enforcement of the *Biosafety Act 2007*. Norway's *Gene Technology Act 1993* serves as a model for SECGMOs which Malaysia could adapt to localized conditions as part of Section 35 in its *Biosafety Act 2007*.The methodology adopted in this study combines relevant references such as legislations, international documents, interviews among Malaysian agencies and secondary resources.

The Scope of Socio-Economic Considerations of GMOs (SECGMOs)

Before analysing the form of issues which Malaysia should take into account as part of SECGMOs, a brief literature review concerning the scope of SECGMOs with regard to Article 26(1) of the CPB shall be provided. Scholars have interpreted SECGMOs to include the increase yield and production which are derived from planting GMO crops; and the increase or decrease of pesticide and herbicide usage.[3] The implications of introducing GMO crops and its products based on ethics, culture, religion and spiritual values pertaining to indigenous people, their traditional knowledge and land rights are also relevant issues constituting SECGMOs.[4] The right of farmers to save and exchange seeds; with agribiotechnology firms wanting to patent GMO crops, charge royalties to redeem their investment on Research and Development(R&D) are also relevant for SECGMOs.[5] The negative effect on

[3] See, eg, Crompton, Tom and Wakeford, Tom, 'Socioeconomics and the Protocol on Biosafety' (1998) 16 *Nature Biotechnology* 697; Otsuka, Yoshiki, 'Socioeconomic Considerations Relevant to the Sustainable Development, Use and Control of Genetically Modified Foods' (2003) 14(5-8) *Trends in Food Science and Technology* 294; Fransen, Lindsey, *et al.*, Intergrating Socio-Economic Considerations into Biosafety Decisions (2005) World Resources Institute <http://pdf.wri.org/fransen_lavina_biosafetywhitepaper.pdf> at 22 January 2008; N. Lalitha, 'Biosafety and Emerging Socio Economic Issues' (2007) 9(3) *Asian Biotechnology and Development Review* 19.

[4] See, eg, Stabinsky, Doreen, 'Bringing Social Analysis Into a Multilateral Environmental Agreement: Social Impact Assessment and the Biosafety Protocol' (2000) 9 *The Journal of Environment and Development* 260; Otuska, above n 3; Fransen *et al.*, above n 3; Daño, Elenita C., 'Potential Socio-Economic, Cultural and Ethical Impacts of GMOs: Prospects for Socio-Economic Impact Assessment' in Terje Traavik and Lim Li Ching (eds), *Biosafety First-Holistic Approaches to Risk and Uncertainty in Genetic Engineering and Genetically Modified Organisms* (2007) 323; Howse, Robert and Meltzer, Joshua, 'The Significance of the Protocol for WTO Dispute Settlement' in Christoph Bail, Robert Falkner and Helen Marquard (eds), *The Cartagena Protocol on Biosafety: Reconciling Trade in Biotechnology with Environment and Development?* (2002) 361; MacKenzie, Ruth *et al*, 'An Explanatory Guide to the Cartagena Protocol on Biosafety.' (IUCN Environmental Policy and Law Paper No. 46, IUCN Environmental Law Center, 2003a); Kleinman, Daniel Lee and Kinchy, Abby J., 'Against the Neoliberal Streamroller? The Biosafety Protocol and the Social Regulation of Agricultural Biotechnologies' (2007) 24 *Agriculture and Human Values* 195.

[5] Crompton and Wakeford, above n 3; Fransen *et al.*, above n 3; Lalitha, above n 3; Otsuka, above n 3, Daño, above n 4; MacKenzie, Ruth, *Globalisation and the International Governance of Modern Biotechnology: The International Regulation of Modern Biotechnology* (2003b) 32 <http://www.gapresearch.org/governance/RMregulationfinal.pdf> at 22 April 2005; Xue, Dayuan and

employment and indebtedness with extreme cases leading to suicide among farmers are consequences of introducing GMO crops constituting SECGMOs.[6]

Other important issues relating to SECGMOs include genetic contamination by GMO crops and forced migration as a result of new areas being cleared to plant GMO crops.[7] Non-recognition of gender especially among indigenous women and women farmers who functions to conserve plant genetic resources is another crucial issue for SECGMOs.[8]

Countries banning GMO crops and its products for exports within their borders because of high sanitary standards; and the impact of providing subsidies to farmers producing GMO crops among developed countries further addresses the need for SECGMOs.[9] The concern of GMOs on human health requiring the labelling of GMO food and addressing consumer choice are also an integral part of SECGMOs.[10] The claim that GMO crops would lead to food security and the receival of GMO grains as food aid raises the concern of SECGMOs.[11] The substitution of crops produced by developing countries with GMO replacement crops produced outside the agro-climatic zone and competition among countries to adopt GMO crops technology are all integral of SECGMOs.[12]

Noticeably, all forms of issues have been claimed by various scholars to constitute SECGMOs but Article 26(1) of the CPB would surely have its limitations. The terms 'indigenous' and 'local communities' in Article 26(1) of the CPB functions to restrict the form of SECGMOs. MacKenzie *et al*[13] has narrowly interpreted Article 26(1) of the CPB as merely referring to SECGMOs which may have an impact on indigenous and local communities who depends on biological diversity for their communities survival and traditional livelihood. The phrase 'especially with regard' under Article 26(1) of the CPB emphasizes and limits the application of SECGMOs to

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Tisdell, Clem, 'Safety and Socio-Economic Issues Raised by Modern Biotechnology' (2000) 27 *International Journal of Social Economics* 699;

[6] Stabinsky, above n 4; Otsuka, above n 3; Fransen *et al.*, above n 3; Lalitha, above n 3; Daño, above n 4.

[7] MacKenzie, above n 5; Fransen *et al*., above n 3; Lalitha, above n3 ; Daño, above n 4; Stabinsky; above n 4.

[8] Fransen *et al.*, above n 3; Lalitha, above n 3; Daño, above n 4.

[9] Otsuka, above n 3; Fransen *et al.*, above n 3; Kleinman and Kinchy, above n 4.

[10] Xue and Tisdell, above n 5; MacKenzie, above n 5; MacKenzie, above n 4; Otsuka, above n 3; Fransen *et al.*, above n 3; Daño, above n 4.

[11] Stabinsky, above n 4; Otsuka, above n 3; MacKenzie, above n 5; Daño, above n 4.

[12] Stabinsky, above n 4; MacKenzie, above n 5; Fransen *et al.*, above n 3.

[13] MacKenzie *et al.*, above n 4,164.

particular groups of people.[14] In contrast to MacKenzie *et al*, a narrower view taken is that SECGMOs can be banned 'on grounds related to the impact of biodiversity on indigenous people'.[15] The analysis of Howse and Meltzer[16] further limits the application of SECGMOs as merely applicable to indigenous people rather than local communities. Based on both analysis, the impression obtained is SECGMOs are limited to indigenous and local communities; or merely indigenous people.

A critical appraisal of the Convention on Biological Diversity(CBD), the parent agreement to the CPB indicates that both agreements do not contain a specific definition of 'indigenous people' and 'local communities'. A cross reference to the International Labour Organization's(ILO) Convention 169 Concerning Indigenous and Tribal Peoples in Independent Countries serves as reference in the event of a dispute concerning the definition of 'indigenous people'.[17] With regard to 'local communities', the Secretariat of the Permanent Forum on Indigenous Issues of the United Nations has interpreted this concept to include small farming communities.[18] 'Traditional knowledge', contained in the Preamble of the CBD which is broader in scope than 'indigenous knowledge' also implies that other groups are referred besides indigenous people.[19] In Africa's submission during the CPB negotiations, it certainly highlighted that farmers would be covered.[20] It is therefore recommended that the CBD Secretariat should initiate an effort among member countries to agree on definitions for 'indigenous' and 'local communities' within the context of the CBD and CPB. For the purpose of analyzing SECGMOs in the context of Article 26(1) of the CPB, 'local communities' will be understood to encompass farmers. Hence, all

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[14] See footnote 1 for the full interpretation of Article 26(1) of the CPB.
[15] Howse and Meltzer, above n 4.
[16] Ibid.
[17] See eg, *Convention Concerning Indigenous and Tribal Peoples in Independent Countries,* opened for signature 27 June 1989, 28 ILM 1384 (entered into force 5 September 1991). Refer to Article 1(a) and (b) on the definition of indigenous and tribal people which is relevant.
[18] Secretariat of the Permanent Forum on Indigenous Issues, *Who Are Local Communities?,*[2], UNEP/CBD/WS-CB-LAC/1/INF/5 (2006).
[19] The preamble of the CBD referring to traditional knowledge reads as the following:

Recognizing the close and traditional dependence of many indigenous and local communities embodying traditional lifestyles on biological resources, and the desirability of sharing equitable benefits arising from the use of traditional knowledge, innovations and practices relevant to the conservation of biological diversity and the sustainable use of its components,
[20] See, eg, *Compilation of Government Submissions of Draft Text on Selected Items,* UNEP, Open-Ended Ad Hoc Working Group on Biosafety, 3rd mtg, UNEP/CBD/BSWG/3/3 (1997). The African submission for socio-economic considerations highlighted that farmers concerns would also be relevant as the following: Possible threats to biological diversity, traditional crops of other products and, in particular, farmers' varieties and sustainable agriculture.

related issues pertaining to indigenous people and farmers as highlighted earlier in the literature review will be relevant.

Nevertheless, it is also acknowledged that the term 'international obligations' under Article 26(1) of the CPB[21] referring to the World Trade Organization's(WTOs) Sanitary and Phytosanitary(SPS) Agreement may limit the evaluation of GMOs based on a scientific risk assessment.[22] In the WTO case law concerning *European Communities- Measures Affecting the Approval and Marketing of Biotech Products*, the WTO Panel found that the European Communities(EC) member states safeguard measures were inconsistent with Article 5.1 and Article 2.2 of the SPS Agreement as their prohibition of GMO products was not grounded on a scientific risk assessment.[23] The fact though that Article 26 of the CPB came into being to acknowledge SECGMOs itself attests to the fact that an international environmental law agreement endorses the inclusion of SECGMOs for GMO evaluation. Therefore, this calls for a continuous deliberation concerning the scope of SECGMOs in the international arena by learning from the experience of other countries such as Norway. The next section will highlight relevant clauses in the Norwegian *Gene Technology Act 1993* related to the implementation of SECGMOs which would serve as a model to Malaysia to implement its similar clause under the *Biosafety Act 2007*.

SECGMOs in the Norwegian *Gene Technology Act 1993* and the Malaysian *Biosafety Act 2007*

Norway has been supportive of SECGMOs as reflected by its submission to the CBD Secretariat that the Norwegian *Gene Technology Act 1993* contains such a

[21] Refer to footnote 1 for reference on the reading of Article 26(1) of the CPB.
[22] Aarti Gupta, 'Advanced Informed Agreement: A Shared Basis for Governing Trade in Genetically Modified Organisms?' (2001-2002) 9 *Indiana Journal of Global Legal Studies* 265.
[23] Article 2.2 of the SPS Agreement reads as the following:

Members shall ensure that any sanitary or phytosanitary measure is applied only to the extent necessary to protect human, animal or plant life or health, is based on scientific principles and is not maintained without sufficient scientific evidence, except as provided for in paragraph 7 of Article 5.

Article 5.1 of the SPS Agreement reads as follows:

Members shall ensure that their sanitary or phytosanitary measures are based on an assessment, as appropriate to the circumstances, of the risks to human, animal or plant life or health, taking into account risk assessment techniques developed by the relevant international organizations.

clause.[24] Under Section 1 of Norway's *Gene Technology Act 1993*, the purpose of the legislation explicitly mentions that the production and use of GMOs must take place in an 'ethical and socially justifiable way' and has to be 'in accordance with the principle of sustainable development'.[25] Moreover, Section 10 of the *Gene Technology Act 1993* further reiterates the need in fulfilling 'sustainable development' in deciding to grant an application and whether the deliberate release would be a 'benefit to society'.[26]

In clarifying the criteria for fulfilling sustainable development, the Norwegian Biotechnology Advisory Board(NBAB) has asked a series of questions dividing sustainable development to cover the three components of environmental impact, economic development and social development. Under the environmental impact component, sustainable development would build on the global effects of human activities such as the impact of GMOs on biodiversity, the ecosystem and ecological limits.[27] The ambit of economic growth would have to consider whether energy and other natural resources would be affected as well as the global and transboundary environmental impacts.[28] Furthermore, economic growth must also bear in mind whether the distribution between rich and poor countries will be affected in terms of benefits and burdens in the production and use of GMOs.[29] In this regard, Norway's *Gene Technology Act 1993* addresses the equity issue of just distribution within the social development context of sustainable development.

It is argued that Article 26(1) of the CPB is synonymous with the social development aspect of sustainable development in the preamble of the CPB although not explicitly implied.[30] An independent clause addressing SECGMOs in the CPB may not have existed in the first place if it is recognized explicitly by all parties that

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[24] See, eg, *Socio-Economic Considerations: Note by the Executive Secretary* 4th mtg, [4], UNEP/CBD/BS/COP-MOP/4/INF/1 (2008).
[25] *Gene Technology Act 1993* (Norway) s 1.
[26] *Gene Technology Act 1993* (Norway) s 10.
[27] See, eg, The Norwegian Biotechnology Advisory Board, *Sustainability, Benefits to the Community and Ethics in the Assessment of Genetically Modified Organisms: Implementation of the Concepts Set Out in Sections 1 and 10 of the Norwegian Gene Technology Act* <http://www.bion.no/publikasjoner/sustainability.pdf> at 5 May 2008. Under the aspect of ecological limits, energy usage, the efficiency and distribution between renewable and non-renewable natural resources, global and transboundary discharge of pollutants and emission of greenhouse gases are factors to be considered in the release of GMOs into the environment.
[28] Ibid.
[29] Ibid.
[30] The preamble of the CPB which incorporates sustainable development reads as follows: *Recognizing* that trade and environment agreements should be mutually supportive with a view of achieving sustainable development.

sustainable development in the context of GMOs would naturally address social, ethical and cultural concerns under the social development ambit. Instead, developing countries have had to reiterate their position by asserting that an exclusive clause of Article 26 in the CPB come into being to gain an open recognition that the impact of GMOs would not purely be environmental but to affect the social development aspect. Thus, it has been established there is a connectivity between the social development component of sustainable development and SECGMOs. Moreover, the Norwegian *Gene Technology Act 1993* approaches sustainable development in meeting the basic human needs[31] in line with 'Our Common Future'[32] report. Distribution of benefits and burdens between generations is another criteria to be fulfilled in the production and use of GMOs.[33] Overall, it is observed that Norway has adopted an evenly distributed criteria of sustainable development to cover the main three areas mentioned.

In contrast, Malaysia had omitted to include sustainable development in its final version of the *Biosafety Act 2007*. In the earlier version of the *Biosafety Bill*, the precautionary principle, sustainable development, ethical and cultural norms were included in the preamble but omitted in the final version of the *Biosafety Act 2007*.[34] In place of ethical and cultural norms in the earlier formulation of the *Biosafety Bill,* SECGMOs appears in Section 35 of the *Biosafety Bill 2006* and the final *Biosafety Act 2007*.[35] SECGMOs though remains ambiguous under the *Biosafety Act 2007* aside from the fact that it was conceived to refer to religious dietary issues.[36] The Ministry of Natural Resources and Environment(MONRE), Malaysia the drafter of the *Biosafety Act 2007* indicated that a deliberation in 2006 to define the meaning of biosafety had considered to include sustainable development.[37] Sustainable development was omitted in the end as it was feared that sustainable development

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[31] Ibid.

[32] World Commission on Environment and Development, *Our Common Future* (1987), 84.

[33] The Norwegian Biotechnology Advisory Board, *Sustainability, Benefits to the Community and Ethics in the Assessment of Genetically Modified Organisms,* above n 27.

[34] Amin, Latifah *et al*, 'An Analysis of the Malaysian Biosafety Regulation on the Release of Genetically Modified Organisms into the Environment' (Paper presented at the Proceeding of the International Conference on Environmental Management: Ten Years After Rio, Bangi, Malaysia, 22-24 October 2002) 8; Jusoh, Sufian, 'Developing Biotechnology Legal Systems in Developing Countries: The Case for Malaysia (Part I)' (2006) 3 *Journal of International Biotechnology Law* 160, 168.

[35] See footnote n 1 for an elaboration on s 35 of the *Biosafety Bill 2006* and *Biosafety Act 2007.*

[36] Rahman, Zulkifli A, Looi, Elizabeth and Samy, Florrence A, 'Biosafety Bill to Make Labelling of Food Ingredients Mandatory', The Star Online (Kuala Lumpur), 27 June 2007.

[37] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia (Personal interview, 12 January 2009).

could be detrimental to the biotechnology industry.[38] It can be deduced that the biotechnology industry players in Malaysia assumed sustainable development to connote environmental protection regulation restricting the progress of achieving a robust biotechnology industry.

As highlighted by the Norwegian legislation on GMOs, sustainable development does not merely encompass environmental concerns but fulfils economic growth and social development. In this regard, it is recommended that MONRE should initiate an attempt in delving into the real meaning of sustainable development within the GMO context. MONRE will also have the task of educating the community at large to the exact meaning of sustainable development to change the conception that environmental protection is the sole criteria.

Another clause within the Norwegian *Gene Technology Act 1993* promoting SECGMOs concerns 'ethical and socially justifiable way'.[39] The Norwegian approach in defining ethics can be broken down into two categories, namely ethics associated with humans and eco-ethical considerations. Under the ethical considerations associated with humans, the production and use of GMOs must comply with the ethical principles of the population at large.[40] Moreover, the ethical aspect associated with humans must also consider whether the production and use of GMOs would conflict with human solidarity, equality and safeguarding the weaker groups in society.[41] In addition, indigenous peoples' vulnerability of being exposed to adverse consequences of introducing GMOs into the environment will have to be considered as this vulnerable group has the right to control its own culture.[42] While culture has not been explicitly mentioned, it is assumed that this would also fall under ethical concerns with the inclusion of indigenous peoples' issues. Another ethical issue related with humans is whether the marketing and sale of products produced through genetic engineering would conflict with any norm or values of a society.[43] It is unclear though whether any religious concerns such as a religious dietary issue may also be ethically and socially justifiable.

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[38] Ibid.
[39] *Gene Technology Act 1993* (Norway) s 1.
[40] The Norwegian Biotechnology Advisory Board, *Sustainability, Benefits to the Community and Ethics in the Assessment of Genetically Modified Organisms,* above n 27.
[41] Ibid.
[42] Ibid.
[43] Ibid.

Under the ambit of eco-ethical considerations, Norway would consider the intrinsic value of an animal species and its unnecessary suffering as a result of producing GMO animals.[44] Moreover, it is also considered whether the production of a product would result with any transgression of barriers between species that would be materially different from those occurring in the wild.[45] It is analyzed that Norway has taken a balanced approach of anthropocentric matters and ecological justice[46] in considering the impact of GMOs as being ethically and socially justifiable.

In addition, the phrase 'benefit to society' as contained in the Norwegian *Gene Technology Act 1993* is another form of considering SECGMOs.[47] Under this phrase, considerations whether there is a need or demand for a GMO product or whether such a product can solve a problem in society will have to be evaluated.[48] A GMO product may also be evaluated whether it is considerably better than any other corresponding products on the market or whether there are other alternatives better than the GMO product itself.[49] The creation of employment whether in rural areas or in other countries is another pertinent matter to evaluate as part of a benefit to society.[50] Furthermore, GMOs shall have to be evaluated whether it creates problems for existing production which should have been preserved or whether production are affected in other countries.[51]

While Norway has created a list of criteria with regard to evaluating 'sustainable development', 'ethical and socially justifiable way' as well as a 'benefit to society', a critical appraisal of such a method indicates that this fails to identify specific issues constituting SECGMOs. Countries which have incorporated SECGMOs into their national legislation governing GMOs may benefit better from a list of issues constituting SECGMOs based on a strict interpretation of Article 26(1) in the CPB.

While it is evident that Norway has some form of detailed criteria for evaluating sustainable development and SECGMOs, the *Gene Technology Act 1993*

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[44] Ibid.
[45] Ibid.
[46] See, eg, Low, Nicholas and Gleeson, Brendan, *Justice, Society and Nature: An Exploration of Political Ecology* 1998. Low and Gleeson have conceived ecological justice as the human moral relationship with the non-human world.
[47] *Gene Technology Act 1993* (Norway) s 10.
[48] The Norwegian Biotechnology Advisory Board, *Sustainability, Benefits to the Community and Ethics in the Assessment of Genetically Modified Organisms,* above n 27.
[49] Ibid.
[50] Ibid.
[51] Ibid.

also sets out a requirement that an impact assessment be conducted not only from the environmental and health perspectives but 'other consequences of the release'.[52] This phrase within Section 11 of the *Gene Technology Act 1993* is relevant for evaluating GMOs from the SECGMOs perspective. Under Norway's revised regulation for the impact assessment which came into force in January 2006, a comprehensive list of issues and questions regarding ethics, sustainability and social justification serves as the necessary guidance for the impact assessment.[53]

While taking SECGMOs into account is a novel proposition, a critical assessment raises the issue concerning which party should be responsible for providing relevant information concerning SECGMOs. The case of Australia's Florigene GMO carnation submission for approval in Norway though indicated that the company has addressed questions related to SECGMOs.[54] Florigene provided information concerning the effects on Ecuadorian and Colombian people with regard to production, employment and knowledge transfer.[55] Furthermore, Florigene also addressed the issue of labelling the GMO carnation.[56] Nevertheless, there could be a difficulty of providing information especially in cases of evaluating the impact of GMOs as '[i]nformation about for example whether a specific gene modified plant benefit farmers in other countries, decrease or increase harvests, or change the use of herbicides, fertilizers etc, is hard to evaluate and data most certainly are difficult to obtain and interpret'.[57]

As compared to Norway, Malaysia lacks a list of criteria to define SECGMOs under Section 35 of its *Biosafety Act 2007*.[58] Aside from addressing religious dietary issues to justify Section 35, MONRE has indicated that SECGMOs could also cover any economic and trade issues affecting the production and use of GMO crops.[59] Exactly the sort of issues covered under economy and trade have not been elaborated

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[52] *Gene Technology Act 1993* (Norway) s 11.

[53] Husby, Jan, 'Some Reflections and Considerations Regarding the Norwegian Gene Technology Act and Sustainable Development in an International Context' (Paper presented at the The Role of Precaution in GMO Policy, Vienna, Austria, 18-19 April 2006).

[54] See, eg, Linnestad, Casper, 'Current Status for Norwegian GMO Policy and the System for GMO Assessment in Norway' (Paper presented at the Norsk Biotekforum, Oslo, 12 June 2008). <http://www.biotekforum.no/getfile.php/Dokumenter/.../Presentation%20Biotech%20Advisory%20Board%20Casper%...> At 22 May 2009.

[55] Ibid.

[56] Ibid.

[57] Husby, above n 53.

[58] See footnote 1 for an elaboration of Section 35 of Malaysia's *Biosafety Act 2007*.

[59] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.

and remains elusive. Two prominent NGOs and a representative representing the biotechnology industry in Malaysia are all of the same view that there is a need for MONRE to define the scope of SECGMOs eventually as Section 35 of the *Biosafety Act 2007* remains unclear.[60] In this regard, it must be emphasized that MONRE is making underway efforts in formulating a regulation or guideline to address issues constituting SECGMOs in due time.[61] MONRE would have the option of identifying and listing the form of issues constituting SECGMOs by enlisting academics to study the said matter or to emulate the Norwegian example.

Likewise in the case of Norway, there is an important issue concerning which party should be responsible for providing the relevant data and information pertaining to SECGMOs. If SECGMOs are to be considered, Malaysia's National Biosafety Board(NBB) appointed by the Minister of MONRE will have to be the party providing the relevant data and information.[62] This is because business organizations involved in biotechnology in Malaysia have indicated during the formulation of the *Biosafety Act 2007* their incapacity to conduct any socio-economic impact analysis because of budgetary constraints.[63] Besides, it has not been stated in Malaysia's *Biosafety Act 2007* that a Social Impact Assessment(SIA) or other methodologies capable of evaluating SECGMOs should be applied[64] unlike Norway's *Gene Technology Act 1993*. A representative from the Malaysia Biotechnology Organization(MBIO) though has indicated that a separate SIA be conducted independently of a scientific risk assessment in the event that SECGMOs has to be taken into account. MONRE has confirmed that SECGMOs would merely be considered in the Malaysian context after a scientific risk assessment has been finalized.[65] The Consumer Association of Penang(CAP) though is in favour that a SIA be made mandatory under the *Biosafety Act 2007*.[66]

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[60] Interview with Mageswari Sangaralingam, Research Officer, Consumer Association of Penang (Personal interview, 21 January 2009); Interview with K. Harikrishna, President, Malaysia Biotechnology Organization (Personal interview, 13 February 2009); Interview with Lim Li Ching, Researcher, Third World Network (Personal interview, 16 February 2009).
[61] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.
[62] Ibid.
[63] Ibid.
[64] Ibid.
[65] Ibid.
[66] Interview with Mageswari Sangaralingam, Research Officer, Consumer Association of Penang, above n 60.

Incorporation of social scientists under related committees to evaluate SECGMOs are another matter of importance to consider. In Norway's case, the NBAB composed of twenty one members are appointed by the Norwegian Government based on their area of competence in biotechnology.[67] Out of the twenty one members, eight represents different public organizations.[68] The NBAB of Norway has included experts associated with NGOs, experts in the area of ethics, law and critical social scientists important for the evaluation of SECGMOs.[69]

In Malaysia's case, the composition of the NBB consists of seven ministries appointed by the Minister of MONRE and 'four other persons who have the knowledge and experience or both in any disciplines or matters relevant to this Act'.[70] It is possible that these four other parties could be people appointed from NGOs, consumer associations or representing the biotechnology industry in Malaysia. Moreover, Section 7(1) of the *Biosafety Act 2007* also stipulates that the NBB may set up a committee or sub-committee as it deems fit to look into the matter concerning GMOs.[71] Under this provision, MONRE has stated that it would be possible for the NBB to set up an *ad hoc* rather than permanent committee to study issues related to SECGMOs if there is a need to look into related issues.[72] The idea of having a permanent committee being formed to look into SECGMOs though is not possible as the industry is reluctant to have many committees or sub-committees which could threaten their prospects of venturing into biotechnology.[73] Both CAP and MBIO though are of the same opinion that a permanent committee would need to be formed to study issues constituting SECGMOs.[74]

Aside from social scientists being appointed by the NBB to look into matters related to SECGMOs, Section 6(5) of the *Biosafety Act 2007* also mentions that the Genetic Modification Advisory Committee(GMAC) shall not consists only of experts

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[67] The Norwegian Biotechnology Advisory Board, *About the Board* (2008)<http://www.bion.no/index_eng.shtml> at 29 May 2009.
[68] Ibid.
[69] Kallerud, Egil, 'Science, Technology and Governance in Norway, Case Study No 1: Biotechnology in Norway' (Discussion Paper 15, NIFU, 2004) 6 <www.stage-research.net/STAGE/ documents/15_Biotechnology_in_Norway_final.pdf> at 15 May 2009.
[70] *Biosafety Act 2007* (Malaysia) s 4(2).
[71] *Biosafety Act 2007* (Malaysia) s 7(1).
[72] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.
[73] Ibid.
[74] Interview with Mageswari Sangaralingam, Research Officer, Consumer Association of Penang, above n 60; Interview with K. Harikrishna, President, Malaysia Biotechnology Organization, above n 60.

from various science disciplines but from other relevant fields.[75] In this context, there is another possibility for social scientists to be appointed under GMAC to look into the area of SECGMOs.

In expanding the discussion whether the implementation of SECGMOs have been desirable from the view of the biotechnology industry in Norway, the Norwegian biotechnology industry has a preference to exclude sustainable development, ethics and social justification in the evaluation of their GMO application.[76]

Initially, MBIO in Malaysia had submitted its views to the Malaysia Biotechnology Corporation(MBC) that SECGMOs be excluded from the *Biosafety Act 2007* when the law was still being debated.[77] This was because the scope of SECGMOs was unclear and could possibly be a problem to abide especially among the biotechnology industry.[78] MBIO's position on SECGMOs though had altered slightly as this organization had indicated that depending on the criteria being set by MONRE to implement SECGMOs, this may or may not be a hindrance to the biotechnology industry to abide.[79] Monsanto though had objected to the inclusion of SECGMOs as part of the *Biosafety Bill* as decisions taken pertaining to GMOs should be purely done on a scientific risk assessment while SECGMOs could inhibit biotechnology investment and development in Malaysia.[80] Since SECGMOs had been given recognition within the CPB, MBIO and Monsanto will have to reconcile that this issue will keep on arising in the future. In contrast to MBIO, CAP in Malaysia had written to MONRE before the *Biosafety Act 2007* was passed for the inclusion of SECGMOs in the said law.[81]

In the event that SECGMOs should become mandatory under any subsequent regulation formed by MONRE, there has to be some form of reconciliation between the biotechnology industry in Malaysia and the government authority implementing the *Biosafety Act 2007*. MBIO and TWN are of the opinion that it would be to the

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[75] *Biosafety Act 2007* (Malaysia) s 6(5).
[76] Rosendal, Kristin, 'Competing Knowledge Claims and GMO Assessments: The Case of the Norwegian Biotechnology Advisory Board' (Paper presented at the ISA's 49TH Annual Convention, Bridging Multiple Divides, San Francisco, 26 March 2008) <http://www.allacademics.com/meta/p251025_index.html> at 8 April 2008.
[77] Interview with K. Harikrishna, President, Malaysia Biotechnology Organization, above n 60.
[78] Ibid.
[79] Ibid.
[80] Nha D Hoang, 'Malaysia Biosafety Bill: Some Indicative Observations and Suggestions' (Paper presented at Kuala Lumpur, 1 November 2001).
[81] Interview with Mageswari Sangaralingam, Research Officer, Consumer Association of Penang, above n 60.

biotechnology industry's advantage to implement SECGMOs to be seen as a caring party to the needs of those disfranchised in society as part of Corporate Social Responsibility(CSR).[82] Therefore, CSR may seem to be the answer of reconciling SECGMOs with the biotechnology industry's interest. If this is the case, it will have to be explored further in future research concerning the utilization of CSR for the implementation of SECGMOs.

The Implementation of SECGMOs in the Malaysian and Norwegian Context

In analyzing the extent of compliance by Malaysia with regard to SECGMOs under Section 35 of the *Biosafety Act 2007*, relevant issues highlighted in the literature review concerning the scope of SECGMOs pertaining to indigenous people and farmers shall serve as a form of guideline.

One of the main concerns calling for the inclusion of SECGMOs relates to the ability of farmers to cross breed their own crops, save and exchange seeds among their peers. Malaysia, a party to the International Treaty of Plant Genetic Resources for Food and Agriculture(ITPGRFA) has enacted the *Protection of Plant Varieties Act 2004* (*PPVA 2004*). The purpose of the *PPVA 2004* is to provide plant breeders protection with regard to the new plant variety produced.[83] Furthermore, the *PPVA 2004* provides recognition and protection in relation to the contribution made by farmers, local communities and indigenous people in their efforts for creating plant varieties. While Article 26 of the CPB does not define indigenous and local communities, Malaysia's *PPVA 2004* provides the necessary meaning for both groups.[84] Indigenous people under the *PPVA 2004* would fall under the definition of an 'aborigine' or 'native' as bearing reference to Clause (2) of Article 160 and Clause (6) of Article 161A of the Malaysian Federal Constitution.[85] The mere adoption of

[82] Interview with K. Harikrishna, President, Malaysia Biotechnology Organization, above n 60; Interview with Lim Li Ching, Researcher, Third World Network, above n 60.

[83] See, eg, *Protection of Plant Varieties Act 2004* (Malaysia). The preamble states that the Act provides 'for the protection of the rights of breeders of new plant varieties, and the recognition and protection of contribution made by farmers, local communities and indigenous people towards the creation of new plant varieties'; Interview with the Plant Variety Protection Registration Section, Pesticide Control Division, Paddy Section, Department of Agriculture, Malaysia (Personal interview, 13 January 2009). The *PPVA 2004* has come into force with the New Plant Variety Protection Regulation being gazetted on 20 October 2008 while there is an Administrative Guideline which has been approved since 10 December 2008.

[84] Under Section 3 of the *PPVA 2004*, 'local community' are 'a group of individuals who have settled together and continuously inherit production processes and culture or a group of individuals settled together in a village or area and under an eco-cultural system'.

[85] See, eg, *Constitution of Malaysia* (Malaysia) s 161a (6) XIIA) and s 160(2).

'indigenous people' from the Malaysian Constitution would refer to the natives of Sabah and Sarawak as the term 'native' was conceived with the natives in East Malaysia in mind rather than Peninsular Malaysia when the Malaysian Constitution was formed. Since the *PPVA 2004* though confers privileges to the local communities, the natives from the Malay Peninsular might fall under this category.

Furthermore, an applicant for a genetically modified plant variety must also provide supporting documents pertaining to the compliance of the law regulating the activity of genetically modified organisms.[86] The Department of Agriculture(DOA), Malaysia has indicated should GMAC decide against an application for approval concerning a GMO crop, this would mean that the GMO crop cannot be registered as a new plant variety.[87] Public order and morality under Section 15 of the *PPVA 2004* shall also be invoked in the event that the GMO crop is viewed to have detrimental effects on the environment.[88]

As for the rights and privileges of small farmers, this has also been addressed under the *PPVA 2004*. Small farmer is defined as a 'farmer whose farming operations do not exceed the size of holding as prescribed by the Minister (Minister of Agriculture and Agro-Based Industry)'.[89] The DOA has clarified that the size of holding for small farmers shall not be more than half an acre as to qualify small farmers in Malaysia for certain privileges.[90] Some exceptions to the right of small farmers as contained in the *PPVA 2004* include the right to use the method of propagation utilizing harvested material of the registered plant variety on their holdings.[91] Small farmers can also exchange among their peers reasonable amounts of propagating material and to sell farm saved seeds if they are unable to utilize those seeds in situations of natural disasters, emergencies or in situations beyond the control of small farmers.[92]

In this regard, the right of small farmers to save and exchange seeds even with the introduction of GMO crops have been addressed under the *PPVA 2004*. The DOA has confirmed that small farmers will still be permitted to exchange and save seeds

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[86] *Protection of Plant Varieties Act 2004* (Malaysia) s 12 (1) (g).
[87] Interview with the Plant Variety Protection Registration Section, Pesticide Control Division, Paddy Section, Department of Agriculture, above n 83.
[88] *Protection of Plant Varieties Act 2004* (Malaysia) s 15.
[89] *Protection of Plant Varieties Act 2004* (Malaysia) s 2.
[90] Interview with the Plant Variety Protection Registration Section, Pesticide Control Division, Paddy Section, Department of Agriculture, Malaysia, above n 83.
[91] *Protection of Plant Varieties Act 2004* (Malaysia) s 31(d)-(f).
[92] *Protection of Plant Varieties Act 2004* (Malaysia) s 31(d)-(f).

under the *PPVA 2004* provided that this involves small quantities which conforms to the amount stipulated by the related authority in Malaysia and does not threaten the plant breeders rights.[93] Moreover, Malaysia intends to become a party to the 1991 International Convention for the Protection of New Varieties of Plants(UPOV) in the future of which it has been indicated by the responsible government agency that small farmers privileges shall not be threatened with Malaysia becoming a party to UPOV 1991.[94]

In contrast, Norway has rejected a proposal in 2005 calling for this country to become a member to the UPOV 1991 Convention on the following grounds.[95] Firstly, the UPOV 1991 Convention would extend the protection of plant variety to not only cover production purposes and commercial marketing as in the UPOV 1978 version but to encompass exported, imported and stocking of the protected material.[96] Breeders are also free to utilize a protected variety to develop a new variety under UPOV 1978 but this cannot be done under the UPOV 1991 Convention.[97] Farmers are also free to use their harvested material derived from protected varieties under UPOV 1978 but this right shall be restricted under the UPOV 1991 Convention by national governments to decide within reasonable limits whether farmers can utilize their harvested materials.[98] Notably, Norway has taken a cautious approach in being a party to the UPOV 1991 Convention unlike Malaysia.[99] In this context, there could be a dispute concerning farmers rights since Malaysia is not merely a party to the ITPGRFA but intends to become a party to the UPOV 1991 Convention which may limit farmers privileges.

The implementation of the *PPVA 2004* though has given the signal that Malaysia is much more favourable of a *sui generis* system than a patent system.[100] This is also in line with Article 27.3(b) of the WTO Trade Related Intellectual

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[93] Interview with the Plant Variety Protection Registration Section, Pesticide Control Division, Paddy Section, Department of Agriculture, Malaysia, above n 83.
[94] Ibid.
[95] Andersen, Regine and Winge, Tone, *Success Stories from the Realization of Farmer's Rights Related to Plant Genetic Resources for Food and Agriculture* (2008) The Fridtjof Nansen Institute 17 <http://www.fni.no/doc&pdf/FNI-R0408.pdf> at 23 May 2009.
[96] Ibid.
[97] Ibid.
[98] Ibid.
[99] Interview with the Plant Variety Protection Registration Section, Pesticide Control Division, Paddy Section, Department of Agriculture, Malaysia, above n 83.
[100] Interview with the Head of Patent Examination Unit, Malaysia Intellectual Property Organization(MyIPO), Malaysia (Personal interview, 8 January 2009); Interview with the Plant Variety Protection Registration Section, Pesticide Control Division, Paddy Section, Department of Agriculture, Malaysia, above n 83.

Property Rights(TRIPS) Agreement of which a country can choose either a patent or a *sui generis* system or both.[101]

Nevertheless, Malaysia's *Patents Act 1983* is still of relevance in cases of which a biotechnology company in Malaysia would want to patent its GMO crop or products. The *Patents Act 1983* would permit the patent for a GMO crop and its products provided that they are a new invention rather than being mere discoveries.[102] While the *Patents Act 1983* permits a GMO crop to be patented, MONRE's position is that GMO microbes should not be patented.[103] Under Section 13(1) (b) of Malaysia's *Patents Act 1983*, MONRE has submitted a definition for the vague term 'microorganisms' to MyIPO as no definition exists currently for this term under the said law.[104] It is envisaged that this term once defined will eventually be incorporated either into a guideline or subsequent regulation as this will be relevant in the context of a GMO crop and its products in the future. The same goes for the term 'man-made living organisms' under Section 13(1)(b) of the *Patents Act 1983* as MONRE is of the view that this phrase will have to be defined too.[105] As far as Genetic Use Restriction Technologies(GURTs) is concerned, a GMO crop produced through such means is also patentable under the *Patents Act 1983*.[106] While GURTs could be patented under the *Patents Act 1983*, in principle Malaysia does not support GURTs technology as it has ethical implications for farmers which is in line with the position taken during the CBD Conference of Parties(COP) sixth meeting in 2006 to impose a temporary

[101] See, eg, *Agreement on Trade-Related Aspects of Intellectual Property Rights,* opened for signature 15 April 1994, 1869 UNTS 299 (entered into force 1 January 1995). Article 27.3(b) of TRIPS states that:

'plants and animals and other than micro-organisms, and essentially biological processes for the production of plants or animals other than non-biological and microbiological processes. However, Members shall provide for the protection of plant varieties either by patents or by an effective sui generis system or by any combination thereof. The provisions of this subparagraph shall be reviewed four years after the date of entry into force of the WTO Agreement'.

[102] Interview with the Head of Patent Examination Unit, Malaysia Intellectual Property Organization(MyIPO), above n 100.

[103] *Patents Act 1983* (Malaysia) s 13(1) (b); Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.

[104] *Patents Act 1983* (Malaysia) s 13(1) (b); Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.

[105] *Patents Act 1983* (Malaysia) s 13(1) (b); Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.

[106] Interview with the Head of Patent Examination Unit, Malaysia Intellectual Property Organization(MyIPO), above n 100.

moratorium.[107] However, a biotechnology company which has obtained a patent in Malaysia for its GMO crop or products will also have to comply with other laws in Malaysia for commercialization and marketing purposes.[108] Therefore, obtaining a patent for a GMO crop or its products does not automatically mean availability in the open market.

In reviewing the *Patents Act 1983*, Malaysia should also consider Norway's example of including the requirement to disclose the country of origin of which the biological material supplied has been obtained and to require Prior Informed Consent(PIC) as required by the rule of the country providing such material.[109] Moreover, inputs have been given both to MyIPO and the Ministry of International Trade and Industry(MITI) representing Malaysia in the WTO for Article 27.3(b) of TRIPS to reflect the traditional knowledge held among indigenous and local communities.[110] Malaysia has supported India, Brazil and Thailand to include a definition for the country of origin under the relevant TRIPS clause.[111] If this is the Malaysian position concerning Article 27.3(b) of TRIPS, then Malaysia should amend its *Patents Act 1983* accordingly to reflect the example of Norway.

Malaysia is also currently in the process of addressing biopiracy as an aspect of SECGMOs in the CPB. MONRE has drafted the *Access to Biological Resources and Benefit Sharing Bill (ABR)*. The *ABR Bill* is anticipated to provide protection for Malaysia's biological resources from being stolen, developed and patented by foreigners without the country's own people receiving any benefits. The aim of the *ABR Bill* is to 'ensure that the benefits obtained from the use of a biological resource will be shared in an equitable manner with the party developing it'.[112] The *ABR Bill* incorporates the principle of PIC and Mutually Agreed Terms (MAT) of which the consent of all relevant parties providing information concerning a source of genetic resource and its usefulness for exploitation shall have to be obtained.[113] The honesty though will rest on prospective bioprospectors to envisage whether they would need

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[107] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.
[108] Interview with the Head of Patent Examination Unit, Malaysia Intellectual Property Organization(MyIPO), above n 100.
[109] *Patents Act 1967* (Norway) s 8(b).
[110] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.
[111] Ibid.
[112] Ministry of Natural Resources and Environment Malaysia, *Biosafety* (2006) <http://www.nre.gov.my/opencms/opencms/NRE/ENServices/Biodiversity> at 3 March 2008 .
[113] Jusoh, above n 34, 165.

to obtain PIC as they would roughly know whether their gathering activities of biological substances requires such a permission.[114] Thus, the *ABR Bill* is similar to the *PPVA 2004* because both legislations requires PIC but the latter for the purpose of registering a plant variety.[115]

Once consent has been given to carry out a bioprospecting activity, a permit or license shall be issued under the *ABR Bill*.[116] The *ABR Bill* though would provide total exemption to the indigenous people from applying for a permit or license in their gathering activities provided that the amount gathered are in small quantities and used for their own consumption.[117] Researchers wanting to gather forestry items for R&D will have to obtain a permit while a license shall be issued for commercialization.[118] The *ABR Bill* shall both cover derivatives and products derived from bioprospecting activities such as cosmetics and pharmaceuticals.[119]

Compensation though must be given to the party who has given their consent to share their knowledge concerning biological resources. The form of compensation could cover joint development, cash, royalty or the transfer of technology.[120] In addition, it is proposed that a special fund be established for development projects relevant to the indigenous people.[121]

As the Malaysian states have control over the natural resources, the executioner of this proposed law will be the relevant state authorities.[122] In this regard, MONRE intends to utilize the National Biosafety and Biotechnology Council, chaired by the Prime Minister of Malaysia which involves all state authorities to be a useful forum to settle disputes in addressing matters relating to the *ABR Bill*.[123] The Prime Minister will of course have a final say between the power of the federal and state governments with regard to the usage of national resources under this Council. A

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[114] Ibid.
[115] *Protection of Plant Varieties Act 2004* (Malaysia) s 12(e).
[116] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.
[117] Ibid.
[118] Ibid.
[119] Ibid.
[120] Jusoh, above n 34, 165.
[121] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.
[122] Jusoh, above n 34, 165.
[123] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.

Competent Authority Committee will also be formed at the federal level to ensure standard practice of procedures among all states in Malaysia.[124]

It has also been observed that the Department of National Heritage(DNH) has never been included in the discussion of the *ABR Bill* by MONRE.[125] Thus, it is an oversight by MONRE to leave out the DNH from the discussion of the *ABR Bill* to provide cultural inputs as the issue here is just not preservation but the practice of a continuous culture so that it will never die.

Related to the issue of ABS is the role of indigenous women as custodians for traditional knowledge in the conservation of plant genetic resources. Inquiries with MONRE, the Department of Women's Development(DWD) and the Department of Aboriginal Affairs(DAA) in Peninsular Malaysia have indicated there is no form of collaboration among these agencies to address the role of indigenous women in the conservation of plant genetic resources.[126] The DWD though has indicated its willingness to look into the issue and address it adequately if there is a necessity.[127] Similarly, the Human Rights Commission of Malaysia(SUHAKAM) has identified the role of indigenous women in the conservation of plant genetic resources as a new issue to be tackled in promoting rural women's rights in line with the Convention of Elimination and Discrimination Against Women(CEDAW) of which Malaysia is a party.[128] Nevertheless, an initiative made under the Global Environmental Facility(GEF) Small Grants Programme from November 2005-April 2006 in Malaysia under the United Nations Development Programme(UNDP) has attempted to capture women's traditional knowledge concerning the medicinal quality of plants and preservation of its information.[129] The DWD has also showed its willingness to

[124] Ibid.
[125] Ibid.
[126] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37; Interview with Department of Women's Development, Malaysia (Personal interview,10 February 2009); Interview with Research and Broadcasting Division, Department of Aboriginal Affairs, Malaysia (Personal interview, 7 January 2009).
[127] Interview with Department of Women's Development, Malaysia, above n 126.
[128] Interview with Social and Cultural Division, Complaint and Investigation Division, International Law and Treaties Division, Human Rights Commission of Malaysia (Personal interview, 15 January 2009).
[129] United Nations Development Programme, *Gender Mainstreaming- A Key Driver of Development in Environment and Energy: Portfolio Review and Assessment* (2007) <http://www.energyandenvironment.undp.org/undp/indexAction.cfm?module=Library&action=GetFile&DocumentAttachmentID=2342> at 6 April 2009.

support any initiative made by other Malaysian government agencies, NGOs and the private sector in engaging the said issue.[130]

Bearing in mind that the preamble of the CBD explicitly recognizes the role that women play in the conservation of biological diversity of which Malaysia is a party,[131] it would auger well for all Malaysian laws addressing farmers rights and ABS to include such a clause respecting the rural women's rights. Although an amendment has been made to Article 8(2) of the *Constitution of Malaysia* to forbid discrimination based on religion, race, descent, gender and place of birth, it would still be feasible to amend related statutory laws especially with regard to those affecting rural women with the advent of biotechnology. Under Article 2(c) of the *PPVA 2004* which defines a farmer as someone 'who conserves and preserves, severally or jointly, with any person any traditional variety of crops or adds value to the traditional variety through the selection and identification of their useful properties', inserting a clause acknowledging the role of women in the conservation of genetic resources would be feasible as there are women farmers.[132] MONRE should also consider inserting a clause to the *ABR Bill* bearing a reference to rural women and their role in conserving plant genetic resources. It is also emphasized that the Ministry of Women, Family and Community Development should make an initiative of highlighting the rights of rural women farmers and indigenous women to other Malaysian government agencies since this is the central agency engaging on women's rights. As one of the areas of deficiency in Malaysia's report to CEDAW in 2006 has neglected to include adequate information on rural women,[133] it is viewed that the issue of conservation of plant genetic resources among rural women in Malaysia can contribute towards the importance of biotechnology within CEDAW.

During a review of Malaysia's policies and laws concerning women with regard to CEDAW in 2006, a recommendation was made for Malaysia to formulate a

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[130] Interview with Department of Women's Development, Malaysia, above n 126.

[131] See, eg, *Convention on Biological Diversity,* opened for signature 5 June 1992, 1760 UNTS 79 (entered into force 29 December 1993). The preamble of the CBD reads as the following concerning the role of women:

Recognizing also the vital role that women play in the conservation and sustainable use of biological diversity and affirming the need for full participation of women at all levels of policy-making and implementation for biological diversity conservation.

[132] *Protection of New Plant Varieties Act 2004* (Malaysia) s 2 (c).

[133] Committee on Elimination of Discrimination Against Women, *Malaysia Needs New Laws Aimed Specifically at Ending Discrimination on Basis of Sex, Gender, Say Committees Expert Members* (2006) <http://www.un.org/News/Press/docs/2006/wom1562.doc.htm> at 7 August 2008.

law addressing gender equality.[134] Since then, the Ministry of Women, Family and Community Development initiated a special committee to hold discussions among different stakeholders with regard to the acceptability of a *Gender Equality Act.*[135] One of Malaysia's NGO group called the Women Center for Change(WCC) had also been responsible for pushing forward the *Gender Equality Bill* which was completed by July, 2006 as a draft to be reviewed by the said Ministry.[136] Thus, it is left to the Ministry of Women, Family and Community Development to further study the issue of formulating a *Gender Equality Bill* for Malaysia but this must include addressing the role of indigenous women and women farmers in the conservation of plant genetic resources.

Unlike Malaysia, Norway under Section 1 of its *Gender Equality Act 1978* mentions that the promotion of gender equality should permit both men and women to have equal opportunity in culture and employment.[137] While it has not been explicitly acknowledged the role of indigenous women and women farmers in the conservation of plant genetic resources under the *Gender Equality Act 1978*,[138] the promotion of equal opportunity between men and women culturally under the same section of this law could imply a reference to the said matter.

Another concern of introducing GMO crops relates to occupational safety and health standards under the scope of SECGMOs. The spraying of herbicide and pesticide in large quantities without following safety standard measures such as an appropriate distance away from residential areas and other forms of safety measures would cause all forms of health hazards. This has been the case of some Latin American countries which have introduced GMO herbicide and pesticide resistant crops.[139]

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[134] Committee on Elimination of Discrimination Against Women, *Malaysia Needs New Laws Aimed Specifically at Ending Discrimination on Basis of Sex, Gender, Say Committees Expert Members,* above n 132, 7.

[135] Koshy, Shaila, 'Shahrizat: It's Time to Consider If We Need Gender Equality Act', *The Star*(Malaysia), 6 June 2006 <http://www.awam.org.my/en/media/In%20the%20News /itn_060606_STAR_Shahrizat%20-%20lts%20time%20to%20consider%20if%20we%20need %20Gender%20Equality%20Act.pdf> at 12 September 2008.

[136] The Asia Foundation, *Malaysia* (2008)<http://asiafoundation.org/resources /pdfs/Malaysia.pdf >at 13 September 2008.

[137] *Gender Equality Act 1978* (Norway) s 1.

[138] *Gender Equality Act 1978* (Norway) s 1.

[139] See, eg, Joensen, Lilian, *The Crop-Sprayed Villages of Argentina* (2007) Grupo de Reflexion Rural 163 <http://www.lasojamata.org/files/soy_republic/Chapt07CropsprayedVillagesArgentina.pdf> at 20 May 2008; Rulli, Javiera, *The Refugees of the Agroexport Model* (2006) BASE Investigaciones Sociales 200-201 <http://www.lasojamata.org/files/soy_republic/Chapt08RefugeesAgroexportModel.pdf> at 20 May

In Malaysia, MONRE and the Department of Occupational Safety and Health(DOSH) have not collaborated together so far to deal with the occupational hazard that will likely be posed with the introduction of GMO pesticide and herbicide resistant crops in the future.[140] Since Malaysia has not reached the stage of commercializing GMO crops, it has been assumed that it is too premature to tackle such an issue.[141] Nevertheless, Malaysia's NBB may decide in the future to include DOSH on board to give the latter's opinion should the need arises to deal with the hazards associated with farm workers who may be affected with the introduction of GMO herbicide and pesticide resistant crops.[142] DOSH on its part would take steps such as studying the impact and risk of GMO pesticide and herbicide resistant crops on farm workers who are exposed to these hazardous substances.[143] A guideline will also be formulated addressing the safety measures to be taken in the usage and handling of GMO pesticide and herbicide resistant crops.[144] DOSH will also expose the biotechnology industry to the hazards of GMO resistant pesticide and herbicide crops and promote measures to reduce the risks posed by these crops.[145] If necessary, DOSH will even issue an order which would prohibit the planting of GMO pesticide and herbicide crops if its danger has been proven.[146] DOSH would also issue a special regulation should the need arises in the event if it is determine such crops and its substances poses a danger to human health.[147] In addition, Malaysia's *Occupational Safety and Health Act 1994* under Section 35(1) may prohibit the usage of any plant

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2008. In Las Petacas, Argentina it has also been reported that there are no limits to GMO soyabean spraying whereby pesticide and herbicide spraying are just carried out next to the villages. Monte Cristo, a small village in Cardoba, Argentina has also witnessed the presence of toxic gases from soyabean storage silos and pesticides which are hazardous to health. It is also documented that those handling GMO soyabean grains have breathing problems because of the dust and agro toxins in Paraguay. There is also a no zone limit in the planting of GMO soyabeans in Paraguay of which the plantation of GMO soyabeans occurs near homes, schools and cemeteries whereby crop spraying affects the villages.

[140] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37; Interview with Undersecretary, Policy and Research Division, Department of Occupational Safety and Health, Malaysia (Personal interview, 14 January 2009).

[141] Interview with Principal Assistant Secretary, Conservation and Environmental Management Division, Ministry of Natural Resources and Environment, Malaysia, above n 37.

[142] Ibid.

[143] Interview with Undersecretary, Policy and Research Division, Department of Occupational Safety and Health, Malaysia, above n 140.

[144] Ibid.

[145] Ibid.

[146] Ibid.

[147] Ibid.

or substance if it poses a danger to human health.[148] In this regard, it is observed that the relevant Malaysian authorities are not really ready to deal with the hazards of pesticide and herbicide GMO resistant crops as yet. Both MONRE and DOSH will have to start discussions concerning this issue even at an early stage to lay the necessary foundation for the future.

Conclusion

In summary, this paper has highlighted certain clauses within the Norwegian *Gene Technology Act 1993* which could serve as a model for Malaysia in implementing SECGMOs. While Norway's approach to SECGMOs requires a GMO application to be evaluated based on a set of questions pertaining to 'sustainable development', 'a benefit to society' and complying with an 'ethical and socially justifiable way', such as approach has its limitations as this does not identify the form of issues constituting SECGMOs. A literature review conducted reveals that many scholars have interpreted SECGMOs broadly under Article 26(1) of the CPB. It has been argued in this paper though that SECGMOs are restricted to issues which involves indigenous people and farmers. This paper proceeded to analyze whether Malaysian laws are adequate to address the issues of SECGMOs such as the farmers right to save and exchange seeds in the event of introducing GMO crops under the *PPVA 2004*. In addressing the issue of biopiracy relating to indigenous people and farmers, Malaysia is currently formulating the *ABR Bill* incorporating MAT and PIC under the legislation. While Malaysia's *Patents Act 1983* is currently under review, Malaysia has diagressed towards a *sui generis* system rather than pushing for patents to protect the interest of indigenous people and farmers.

Areas of deficiency within SECGMOs which have yet to be addressed by Malaysia include the role of gender especially among indigenous women and women farmers in the conservation of plant genetic resources. While there have been discussions concerning the formulation of a *Gender Equality Bill*, it is important that the role of gender must also encompass the role played by indigenous women and women farmers and inserted as a clause within the prospective draft Bill.

Occupational safety and health standards with regard to planting GMO pesticide and herbicide resistant crops among farmers is yet another issue to be

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[148] *Occupational Safety and Health Act 1994* (Malaysia) s 35(1).

addressed. No form of collaboration currently exists between DOSH and MONRE to start a discussion concerning the occupational safety of farmers in the event that Malaysia should ever decide to introduce the planting of herbicide and pesticide GMO crops in the future.

It has also been highlighted in this paper that Malaysia should someday amend its *Biosafety Act 2007* to include a definition of sustainable development in the context of GMOs which would not merely cover environmental protection but to include economic and social development such as the approach taken by Norway. Moreover, this paper has highlighted that there is a parallel between the social development component of sustainable development and SECGMOs as a conceptual framework. In this regard, SECGMOs can be further enhanced with the inclusion of sustainable development in the *Biosafety Act 2007* under the next review of the law.

In conclusion, Malaysia can ill afford to adopt a complacent attitude in dealing with the issue of SECGMOs. While the official position states that no GMO crops have been introduced into the environment and commercialized that requires an immediate response to deal with the deficient areas of SECGMOs, the law dealing with genetic engineering must always stay ahead of implementation rather than catching up with a technology which is already in place. In this regard, the relevant Malaysian authorities must set the tone in discussing the areas of deficiency within SECGMOs to prepare for the future when GMO crops are released and used in Malaysia.