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Research paper

Indicators for Sustainable Development: Understanding the Criteria for a Successful Sustainability Relevant to Environmental Law in Malaysia

Maizatun Mustafa[1]*

[1]*Legal Practice Department, Ahmad Ibrahim Kulliyyah of Laws, International Islamic University Malaysia*
**Corresponding author E-mail:maizatun@iium.edu.my*

Abstract

The concept of `sustainable development' emerges in almost every discussion of environmental issues, be it at national or international levels. Over the years, especially after the famous 1987 Brundtland Commission's Report, this concept has become more widely accepted by the policy-makers all over the world, including Malaysia. However, despite having received much international recognition and acceptance, the concept is still enigmatic and elusive, and there appears to be significant vagueness about exactly what meaning its exact denotation supposed to convey. This article seeks to examine the emergence and development of the concept of sustainable development at the international level, and to peruse its possible or suitable definitions. The objectives of such examination are to identify indicators that have greatly influenced the major discourse in the legal theories derived from this concept. For Malaysia and elsewhere, these sustainability indicators can be applied to appraise the effectiveness of legal mechanism in environmental protection and pollution control. The article concludes that understanding the criteria of successful sustainability allows a nation to meet the ongoing challenge of balancing present needs against those of the future. It is through this understanding that challenges and opportunities for sustainable development become clear.

Keywords: *Sustainable Development, Indicators, Legal Mechanism, Environmental Protection, Pollution.*

1. Introduction

Generally, sustainable development provides a new and fresh perspective of an economic compatibility of the environment and development, and identifies how and why future development patterns must be sustainable on both local and global scales. Over the years, especially after the famous 1987 Brundtland Commission's Report, this concept has become more widely accepted by the policy-makers all over the world, including Malaysia. However, despite having received much international recognition and acceptance, the concept is still considered enigmatic and elusive and there appears to be significant vagueness about exactly what meaning its exact denotation supposed to convey. Regardless of such drawbacks, policy-makers have tailored the broad interpretation of sustainable development to suit, and to justify their development agenda.

This article is specifically concerned with identifying the place of sustainable development in Malaysia. This identification will be done by examining the emergence and development of this concept at the international level, and by perusing its possible or suitable definitions which have been attempted by various authors. The objectives of such examination are to identify identical key ideas or indicators that have greatly influenced the major discourse in the legal theories derived from this concept. It is through this understanding that the challenges and opportunities for sustainable development become clear particularly in helping the country to meet the ongoing challenge of balancing present needs against those of the future. Understanding the indicators of sustainability is also essential towards appraising the legal framework which is pertinent in environmental protection and pollution control become effective to help ensure the attainment of intended objectives. The article intends to show that it is through this understanding that challenges and opportunities for sustainable development become clear.

2. Literature Review

The concept of sustainable development attempts to appraise development in relation to its effects or potential effects on the local or global environmental medium at risk. The importance of this concept in providing a new and fresh perspective of an economic compatibility of the environment and development has been extensively deliberated such as by Baker [1]; Barrow [2]; Atkinson, Dietz & Neumayer [3]; and Elliot [4]. At the international level, sustainable development is seen as an imperative in all development policies which have been frequently emphasised in almost all of the environment-related multilateral treaties [5, 6].

The modern perception of environmental concern can be dated back to the 1960s where a coherent understanding surrounding the environment was first formed. During that time, environmental movements, movements that were largely reflecting western concerns, found little support in the developing nations [7]. At the same time, according to Managi & Kuriyama [8], development and environmental conservation were portrayed as incompatible in that resources were thought to be finite; and pollution and environmental deterioration were considered the inevitable consequences of industrial development. Many developing nations,

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including Malaysia had only just gained independence. These newly independent nations were sceptical regarding the motives behind proposals which seemed to limit their development objectives [9, 10, 11]. Nonetheless, since then, there have been significant changes in the way in which the environment is viewed. Observation have been made by Nath, Hens & Devuyst [12, 13] with regard to changing perceptions of how man's interaction with the environment developed throughout history, and the trends leading up to the introduction of the concept sustainable development by the Brundtland Commission. Elliott [4], through similar observation argued that it was not until the mid-1970s that the fears of the developing countries were overcome and changing ideas of the environment ensured a greater participation of nations from the developing world in the environmental debate. One of the major international environmental event that took place during that period was the United Nations Conference on the Human Environment at Stockholm in 1972. The interaction of environment and development was formally recognised here, notably in several of the Conference's 26 principles. Indeed, the Stockholm Conference had several important outcomes as examined by Aded [14], particularly in promoting environment in national developmental policies for nations including Malaysia as already deliberated by Sani [15] and McDaniel [16].

By the late 1970s, important changes in thinking regarding both the environment and development began to appear. Such changes, according to Mikesell [17]; Noman [18]; and Jahi were causing the two previously separate issues to be seen as interdependent concerns. The challenge for the 1980s was to formulate policies for action which would integrate the environment and development in practice. Sustainable development clearly a familiar term to many developed nations and the global recognition of this concept emerged in 1984 when the United Nations commissioned an independent group of 22 people from member states, drawn from both the developed and developing nations, to identify long-term environmental strategies for the international community. In 1987, the World Commission on Environment and Development (WCED), also known as the Brundtland Commission, reported to the UN, was established as an independent body. Its functions, among other things, were `to re-examine the critical issues of environment and development and to formulate innovative, concrete and realistic proposals to deal with them' and `to strengthen international corporation on environment and development' (WCED 1987). The major outcome of this report was to crystallise and disseminate the concept of sustainable development.

The Brundtland Report overall recommendation, according to the UN [19] was that human activities could and should be redirected towards a pathway of `sustainable development', with environment seen not as an obstacle to growth but rather as an aspect which needed to be reflected in policies if growth was to be sustained. This WCED report [20] further proposed specific measures for implementation including `to prepare under United Nations auspices a universal declaration on environmental protection and sustainable development and a subsequent convention'. With United Nations resolution 44/228 in 1989, the United Nations General Assembly decided to convene the United Nations Conference on Environment and Development (UNCED) in Rio de Janeiro in 1992, better-known as the Rio Declaration on Environment and Development. This Declaration precisely consists of a preamble and 27 principles reflecting the general principles of Agenda 21. The Rio Declaration, which is considered by Dommen [21] as a frame of reference for sustainable development focusses on humans and their rights to healthy and productive lives in harmony with nature. The original intention of the United Nations Conference on Environment was to produce an `Earth Charter' [22], a strong document containing the principles and guidelines for world-wide environmental protection. The actual Rio Declaration is the result of long debates over procedure and substantial negotiations, which according to Nath et.al. [12]; and Dodds & Middleton [23] reflects a very delicate balance of principles considered important by both industrialised and developing countries. The Rio Declaration's 27 articles of environment and development are summarised in Table 1 below:

Table 1: Summary of the Rio Declaration on Environment and Development

1.Human is the centre of sustainable development. 2.State has the right to exploit their resources, and be responsible to ensure no damage is caused to the environment of other states. 3.Right to development must meet developmental and environmental needs of present and future generations. 4.To achieve sustainable development, environmental protection shall constitute an integral part of the development process. 5.All states and people to eradicate poverty as a requirement for sustainable development. 6.Special situation and needs for developing countries shall be given special priority. 7.States shall cooperate to conserve, protect and restore health and integrity of the ecosystem. 8. To achieve sustainable development, State should reduce unsustainable patters of production. 9.States should cooperate to strengthen capacity-building for sustainable development. 10. Environmental issues best handled by citizen through access to information and participation. States to facilitate and provide access to public awareness and participation. 11. States shall enact environmental legislation and reflect the environment and development context. 12. States should cooperate to promote a supportive and open international economic system. 13. State to develop law on liability and compensation for the victims of pollution.	14. States should discourage other states from activities that cause environmental degradation. 15. Precautionary approach shall be applied by state according to their capabilities. 16.National authorities to promote internalization of environmental costs and economic instruments. The polluter should bear the cost of pollution. 17.Environmental impact assessment undertaken for activities that have impact on the environment. 18.States to notify of natural disasters that produce harmful environmental effects on other states. 19.States to notify affected states on activities that have adverse transboundary environmental effect. 20.Women have a vital role in environmental management and development. 21.The creativity, ideals and courage of the youth should be mobilized to forge a global partnership. 22.Indigenous people and other local communities have a vital role in environment. 23.Environment and natural resources of people under oppression shall be protected. 24.Warfare destruct sustainable development. 25.Peace, development and environmental protection are interdependent and indivisible. 26.States to resolve environmental disputes peacefully in accordance with the UN Charter. 27.States and people shall cooperate and in a spirit of partnership to fulfil the Declaration's principles.

Source: The Rio Declaration

Apart from these 27 principles, the Rio Declaration also provided a document known as Agenda 21 which is envisaged as a programme of action for the implementation of the principles enunciated in the Declaration. Agenda 21, the most comprehensive international document which is agreed upon in Rio, generally addresses international problems concerning the environment and development, and recommends measures to be taken to integrate environment and development concerns. It also reflects the way in which the international community defined sustainable development in 1992 including statements on the basis for action, objectives and means of implementation [24]. This Agenda contains a preamble and 40 chapters divided into 4 sections and addresses the following: general issues of social and economic development;

conservation and management of resources for development; the role of different major groups; and means of implementation. Although it is not a binding treaty, authors such as Grubb et.al. [25]; and Brown & Quiblier [26] consider Agenda 21 as a framework of important moral values on which national environmental plans can be founded and reflects a global consensus and political commitment at the highest level. One of the themes in Agenda 21 as highlighted by Schmidt, Nave & Guerra [27] which is pertinent when discussing indicators for sustainability is the `bottom-up' approach. This approach places emphasis on people, communities and NGOs; the need for `open governance'; and the importance of adequate information. Other emphasis of the bottom up approach which has been elaborated by William [28]: and ICLEI [29] include the need for adequate cross-cutting institutions; and the complementary between regulatory approaches and market mechanisms for addressing development and environmental needs.

While the term `sustainable development' has been given international recognition through its application in various multilateral treaties as discussed above, and has been applied widely at international level as the main thrust in all development policies, Bell & Morse [30] and Baker [1] concern that to give a definition to this concept would be a difficult task. The WCED (1987) has indicated that the requirement for sustainability cuts across various separate but related social aspects of a community, be it global or smaller social groupings, as all communities aspire to survive a common and mutual objective of humankind. Such complexity, according to Noman [18], and Mikesell [17] has made the understanding of sustainable development complicated. The urgent need to give meaning to the concept has also resulted in various debates on the criteria of sustainability as general guidelines in policy-making. The Brundtland Report mentioned the `development that meets the needs of the present generations without compromising the ability of future generations to meet their own needs' (WCED 1987). The Brundtland Commission's definition of sustainable development contains within its two key concepts. First is the concept of `needs', in particular the essential needs of the world's poor, to which overriding priority should be given. The other is the idea of limitations imposed by the state technology and social organisation on the environment's ability to meet the present and future needs. For this reason, the WCED (1987) considers the followings to be critical objectives for environment and development policies: reviving growth; changing the quality of growth; meeting the essential needs for jobs, food, energy, water, and sanitation; ensuring a sustainable level of population; conserving and enhancing the resource base; reorienting technology and managing risk; and merging environment and economics in decision making.

Other definitions of the term sustainable development attempted by several authors may be able to shed some light on other common features that consistently occur when defining this concept. For example, Pearce (1989) interpreted the term `sustainable development' to mean meeting `our obligations to be fair to the next generation by leaving them an inheritance of wealth no less than we inherited'. Goodland and Ledec (1987) defined the term as a pattern of social and structural economic transformation (i.e. `development') which optimizes the economic and societal benefits available in the present, without jeopardizing the likely potential for similar benefits in the future. A primary goal of sustainable development is to achieve a reasonable and equitably distributed level of economic well-being that can perpetuated continually for human generations. Tolba [31] was of the view that in broad terms the concept of sustainable development encompasses help for the poor because they are left with no option other than to destroy the environment; the idea of self-reliant development, within the natural resources constraints; the idea of cost-effective development using different economic criteria to the traditional approach; that is to say development should not degrade environmental quality, nor should it reduce productivity in the long run; the great issues of health control, appropriate technologies, food self-reliance, clean water and shelter for all; the notion that people-centred initiatives are needed; human beings, in other words, are the resources in the concept. Whereas Grubb et.al. [25] argued that the separation of economic, social and environmental issues is an important obstacle for sustainable development policies. Thus, a restructuring or adjustment of decision making is needed by integrating socio-economic and environmental considerations [25]; and [32].

3. Methodology

This article is based on a doctrinal and non-empirical research. The method adopted in this research is primarily qualitative in nature with major reliance on references and analysis of relevant United Nations conventions and international law treaties as well as other sources. Specifically, this article draws existing data from primary and secondary sources including legal and policy documents, United Nations resolutions and declarations, case studies, as well as published and unpublished books, articles and reports. Generally, secondary resources are meant to provide a foundational understanding of the core subject including the definition and scope of relevant terms and concepts.

4. Indicators for Sustainable Development

As mentioned earlier, sustainable development is seen as an imperative in all development policies by the international community. The Rio de Janeiro's United Nation's Conference in 1992 is a good example of the overwhelming international recognition of sustainable development. Therefore non-acceptance of it may imply a betrayal to a common global objective, an image which any respectable government will try to avoid (Enders & Remig 2015). However, taking into consideration the elusive idea of sustainable development and no general agreement of exactly what sustainable development is, its technical requirements may be obscured. Thus, despite a wide acceptance of Brundtland's definition of sustainable development and its ambiguity proved useful in the merging of like-minded stakeholders, the concept did not contain details on what to sustain, to what extent and on what time scale [33, 34]. Nonetheless, Nath et.al. [12] are of the view that in a political context, this elusiveness is sometimes necessary to ensure the necessary political consensus or to support certain political agenda. This argument is supported by Selman [35]; and Egelston [7] who justify the tremendous acceptance of sustainable development on the basis of its elusiveness which allows a country to interpret and adopt the notion of sustainable development with varying degrees of interpretations and objectives, and to use it to suit or justify their particular development policy while at the same time project good environmental image at the national or international level [36]. It is for the above reasons that authors such as Healy & Robinson [37]; and Vant [38] suggested that both the economic rationale and the ambiguity of sustainable development become very attractive to many nations which have embraced the concept as their main thrust in environmental management. Malaysia, for example, being a developing country, has strongly associated itself with short or medium term objectives of rapid industrialisation, high economic growth and increased material well-being in its development [39]. These development strategies, which exists and continue to development from the period of 1970s until now allows Malaysia to sustain a new growth experienced over the last few years. Malaysia is also adamant that such strategies need to continue if the nation wants to achieve its goal of becoming a developed country [40].

On the other hand, Malaysia's strong tendency towards economic development become a matter of concern by Chee [41]; and Aiken [9] particularly pertaining to the issue with regards to Malaysia's ability to deal with the environment, which is threatened to be destroyed in the short and long term through rapid industrialisation. In this regard, Engel [42]; and Maizatun [40, 43] argue that, the choice of a strategy for sustainable development must also include, among other things, an ethical approach and must address

directly the issue of inter-generational equity. Such approach, which stresses on moral values as a foundation for national environmental plans, has already been addressed by Agenda 21 which highlights the `bottom-up' approach of putting emphasis on, among other things, people, open governance and adequate information, and regulatory approaches and market mechanisms. It is also on this basis that the task of the government in ensuring environmental protection, and the effectiveness of the present legal mechanisms in controlling pollution should be appraised not only against the overall framework of the national socio-economic objective, its practices in environmental management and enforcement, and the actual state of the environment, but also against its ethical values [44] and Quiblier. Such appraisal according to Kates, Parris & Leiserowitz [45]; and Latiff [46] is to be done by applying indicators taken from the various definitions of sustainable development and international environmental documents, and to roughly gauge the existing degree of sustainability (see [12, 35]).

The need for reliable and pertinent indicators to guide the sustainable development process was initially recognised by the Rio Conference and reaffirmed by Agenda 21. In 2002, the World Summit on Sustainable Development in Johannesburg reiterated the need for a better understanding between environment and development. It also highlighted the importance of such understanding and their interaction with social needs and the need to formulate and apply indicators that could cover the three linkages. For most countries, the establishment of sustainable development indicators is considered a key opportunity to move environmental issues higher up the policy agenda alongside economic and social issues, and what to prioritize what they need to do to meet the goals and will allow them to monitor their progress. While there is no specific method to be applied in formulating and applying an indicator, it is however suggested that understanding of the conceptual frameworks for sustainable development would be the fundamental step in helping towards focusing and clarifying what to measure, what to expect from measurement and what kind of indicators to use. Two divisions of sustainable development indicator which are often used to measure the effectiveness of legal mechanism in protecting the environment are that of structural and social [35]. Under the category of `structural', its indicators include institutional and policy integration; environmental quality standards; and internalisation of environmental concerns. Whereas indicators for the `social' category include public participation and consciousness; accountability, transparency and right to information; and easy access to justice [44]. The contention that indicators contained under both the structural and social categories are applicable to environmental governance such as pollution control, including the way in which individuals and society may contribute to the resolution of environmental problems respectively has been supported by authors such as by Razzaque [47]; and Vant [38]. What is intended here is to show a bureaucratic inclination of the government in its development priority, by looking at its commitment to environmental protection. These indicators, according to the UN [48] can be used to appraise the framework for environmental management and preferences on the basis that any attempt to achieve sustainable development by developing the criteria under the structural category alone, without taking into consideration social/ethical elements would be insufficient or futile.

5. Results and Discussion

The discussion on the application of sustainability indicators that can be used to appraise the sustainability of environmental policies, law and institution in managing the environment and controlling pollution intends to show that sustainable development in the future requires action for change within the legal process. But this undertaking may raise the important issue of how to reconcile or make a linkage between sustainable development and environmental law? The best example can be seen in the Environmental Quality Act 1974 (EQA) which is the most important legislation on environmental protection and pollution control in Malaysia. Even though the introduction of this Act predates the concept, and initial objectives and strategies of the Act may not be based directly on the concept of sustainable development, however the dynamic nature of this Act means that it is continuously being amended to include changes within the policy. The formulation of Malaysia's environmental policy upon which the EQA's objectives and strategies are based, were made pursuant to the United Nations Conference on the Human Environment at Stockholm in 1972. It is from this Conference that the new idea of `environment and development' which is subsequently called `sustainable development' made its emergence. It is also the outcome of this Conference that has prompted Malaysia to consider environment in her national development policies. It is on this basis that one can find some basis of linkage as well as comparison between Malaysia's environmental objectives and strategies with that of sustainable development.

From the definitions of sustainable development already highlighted, it can be construed that the concept of sustainable development does not simply concern with taking care of one's environment, but it opens up much more complex and interrelated social and ethical dimensions of the problem. Sustainable development therefore touches on a very wide issue of scientific understanding, economic and legal processes as well as political, ethical and philosophical aspects of life. From the summary of the 27 principles of the Rio Declaration already discussed, it can be noted that many of these principles addressed development concerns such as `the right to development' and highlight the special needs and circumstances of the developing countries, and stressed the need for development, and access to financial and technological resources.

The responsibility for sustainable development and national pollution control resides basically with the government. Thus, in the process of responding to environmental threats, and in the concept of sustainable development, institutions provide vital mechanism to respond to such needs. In this regard, implementing policy and regulatory measures in a country requires consideration of institutional realities which determine their efficacy. A government may have responded to pressures in various areas by passing policy and laws, but without provision of the supporting infrastructure, the implementation of these policy and laws will remain futile. The inability of public institutions to perform the roles assigned to them is part of a much larger debate on the quality of government. The extensive literature on governance issues can be found in Moore [49], and Healy and Robinson [37]. For a federal country like Malaysia, environmental legislation and management is the responsibility of both the federal and state governments. In view of the complex and interdependency nature of environmental problems, the existence of uncoordinated organisational structure and not sufficiently equipped to provide sufficient institutional backup for sustainable development [50]. Different sectoral institutions have different sets of objectives and modes of operation, and together with overlapping jurisdictions and legislation it may result in conflicts or inconsistencies that hamper effective environmental management across sectors. Andre [51] and Maizatun [50] argue that, if any level of government is not consulted and does not cooperate effectively in setting and implementing regulations, or if it is less committed to enforcing environmental laws, the efficacy of a regulatory approach may be severely restricted.

Another sustainable development indicator is environmental quality standard which determines a set of measures to ensure that the environment is in an acceptable state. Ambient standards for instance, concern with aggregate targets for the quality of any environmental asset. For example, regulators may establish a standard for the ambient air quality. The enforcement of this standard is through the control over particular emissions which contribute to the ambient quality levels [52]. Reaching a particular ambient target is consistent with different levels of emissions from particular effluents. In actual practice, what counts as an acceptable

standard is determined by an individual state which is free to set its own standards. This is in line with the concept of sustainable development as provided in Agenda 21and the Rio declaration that this concept does not imply in any way encroachment upon national sovereignty [53]. It is however understandable that different countries may set different standards due to varying factors, such as different pollution assimilative capacities of the environment in its present state, different social objectives and priorities attached to the environmental protection, and different degrees of industrialization and population density [2]; and [54]. Environmental quality standard adopted by Malaysia indeed reflects the factors stated above as also evident in Malaysia's environmental policy statement of the Malaysia Plan and the subsequent Plans [43]. Considering the said factors, a country like Malaysia may use them to justify the application of the existing environmental quality standards for various pollution emitted. However, it is nevertheless desirable to strive towards more stringent standards in order to strengthen environmental protection [40].

Another indicator referred to is `internalisation of environmental concerns'. Central to the achievement of sustainable development is the reconciliation of economic and environmental objectives. Here, the equity question that arises and needs to be considered is who should bear the cost for pollution control. In reality, one of the major causes of natural resource management or pollution problems may lie in weaknesses associated with markets. A number of activities may lead to private benefit of economic agents but at the same time impose costs on society. This situation is mainly due to various factors such as the private sector's failure to internalize these costs. This is also the reason why markets are seen as the main culprit in environmental pollution [55]. There is now a generally acknowledged need to consider markets role in achieving sustainable development. For examples, principles 15 and 16 of the Rio Declaration reflect the precautionary principle and a statement of the need to internalize environmental costs as well as the polluter pays principle [56], while Agenda 21 seeks to integrate environment and development in decision making by applying market incentives and economic instruments within legal and regulatory frameworks. (See [12, 25]). Thus, the notion of economic strategy such as environmental auditing is argued to be a good business practice in the private sector [43]. Markets' environmental participation can also be encouraged or legally enforced through principles such as polluter pays which is to induce the polluter to bear the expenses of preventing and controlling pollution to ensure that the environment is in an acceptable state. This principle was adopted by the OECD in 1972 as a fundamental principle for allocating costs of pollution prevention and control measures introduced by the public authorities in member countries. This council defined polluter pays principle to mean that the polluter should bear the expenses of carrying out the costs of pollution prevention and control measures decided by public authorities to ensure that the environment is in an acceptable state. The intent is to force polluters to internalise all the environmental costs of their activities so that these are fully reflected in the costs of the goods and services they provide [57], and [21]. For this reason, it has been argued that markets or businesses that are more environmentally-friendly are more efficient, because they create fewer externalities such as pollution, and enjoy increased respect from the consumers which prefer products that are environmentally friendly.

Another important indicator involving social concern is public participation consciousness. The term `public participation' is defined by UNEP [58] as `involving, informing, and consulting the public in planning, management, and other decision-making activities which can be considered part of the political process'. The justification for `public participation' in a decision-making process has also been invoked in a case of the integration of environment and development (WCED 1987). Since societies are affected by and dependant on the environment, Lizuka [59] argues that public's involvements in all the processes affecting the environment are vital. It is therefore agreed that among important criteria of a sustainable society should be that of public environmental consciousness. Such consciousness will consequently enable the public to actively and effectively participate in the political or legal process that affect the environment [60]. Successful sustainable development requires that environmental consciousness to be derived directly from the public and should not arise due to government's instigation. For this purpose, the public should organise themselves, strengthen their capacities for environmental care, and apply them in ways that also satisfy their social and economic needs [61]. The public's greater environmental awareness and active participation will indeed entail acquiring various requirements. They include a better understanding of the environment, translating knowledge into responsible action, and using this knowledge to enable and empower others.

The existence of public participation as a sustainable development criteria can also help ensure that communities gain greater control over their own lives. It can also secure public's adequate resources, apart from allowing them to participate in environmental decisions, acquire sufficient training and education, and identify means of meeting local needs in sustainable ways. What constitute a good environmental citizen in relation to sustainable development has been suggested by Elliot [4] to include expectation on the part of the public to change their everyday habits, be responsible consumers, engage in public debate, keep elected officials accountable, and work with others. To further inculcate and nurture such awareness, it is also necessary that political and legal systems provide a platform to allow the public to have adequate freedom to express their concern over environmental issues.

Apart from public participation, accountability, transparency and right to information are other important social indicators which have been recognised in various international environmental documents including those discussed earlier. They include principles 10, 20 and 22 of the Rio's Declaration on the requirement for access to information, and chapter 8 of Agenda 21 on the interconnected requirements of accountability, transparency and right to access. In relation to sustainable development, the existence and application of these indicators help facilitate the reception of public views and allow their effective participation. Indeed, the effectiveness of public participation depends upon the availability of information by the government, and transparency and accountability of official activities affecting public interests. It has been argued by Faruqi [62] that in Malaysia, after many years into independence, the principal problem of bureaucracy is not the traditional one of securing competence but of ensuring responsibility, accountability and transparency. In relation to access to information, specifically that on the environment, Maizatun [61] is of the view that, while government information on this matter is in the public domain, the data provided often remain incomprehensive to the affected public. This type of political nature, according to Pillai [63] is not confined to Malaysia alone. Any government in general is usually reticent about imparting such and other information, presumably because there is a perception that `information is power', and therefore, it is not in the best interests of the government to be too free with imparting it (See [64]). If the country is to move towards a sustainable future, it is important that information, such as on government plans for the environment and quality of life issues, is made available on a consistent, open and comprehensive manners. The public's free and easy access to information is an essential pre-requisite for making an informed and considered judgement on whether or not a certain activity should be undertaken. If accountability, transparency and right to information is improved, the government's legitimacy can be enhanced. Finally, one more important social indicator for sustainable development is that of easy access to justice. The need for easy access to justice in environmental matters is part of the element of transparency and accountability. This requirement is also recognised and included in Principle 10 of the Rio's Declaration which states that each individual shall have appropriate access to information concerning the environment that is held by public authorities and the opportunity to participate in decision-making process-

es. The government on its part, according to Boyle [5]; and Schrijver [6] must accept and appreciate the significance of the need of easy environmental access within the political agenda and the consequences that follow if there is a want of such access and a lack of political commitment to resolve the issue.

6. Conclusion

This article has presented a number of insights into the development and emergence of the concept of sustainable development at international level, its definitions, and possible indicators of sustainability that can be used to appraise the effectiveness of legal mechanism in environmental protection and pollution control in Malaysia. It also points out that there remain today different understanding and contrasting approaches to development and the environment. Based on this premise, it is contended that the acceptance of this concept, and its progress, especially among the developing countries like Malaysia is indicative of the elusive and flexible nature of this concept allowing it to be readily adopted and interpreted by the policy-makers to suit their intended environmental agenda. It is also contended that continued progress of this concept would depend, among other things, on political will and government intervention especially within the economic system whose overriding drive is to maximize profits. To ensure that the government does indeed take the required and appropriate actions for sustainable development demands required pressure from various sectors including the public. Such pressure depends in turn on individual understanding of the challenges and opportunities of sustainable development.

Continued economic development is a requirement for Malaysia in order to sustain growth. However, a sustainable ways which ensure an equitable level of economic well-being for the people are undoubtedly essential. These sustainable ways must therefore include values such as transparency, access to justice and information, and public participation. These are the indicators as well as criteria for successful sustainable development which should not be overlooked within the process of development. The government's inclination may provide an essential background to the understanding of the mechanisms, specifically policy and law that are responsible in the various management stages, and how far they can deliver such responsibilities. For instance, where a policy-maker is committed upon industrialisation as a strategy for development, it may have different priorities in its definition of sustainability requirements and its overall environmental management. Understanding the criteria of successful sustainability allows a nation to meet the ongoing challenge of protecting the environment and controlling pollution in a sustainable way. During the last two decades, Malaysia has seen a remarkable progress towards understanding of the patterns of development and of the processes underlying these that the challenge. However, accelerating environmental degradation affecting Malaysia indicates a strong sustainability challenge this country continue to face. In this regard, from the perspective of environmental protection and pollution control. There are various factors that contribute towards these challenges including that of global environmental threats of global warming and climate change. The key challenge for Malaysia now is in the understanding of patterns of development and environmental issues domestically, regionally as well as internationally and to effectively integrated and implement sustainable development indicators within the legal framework as means of confirming and achieving the sustainability targets.

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References

[1] Baker S (2006), *Sustainable Development*. London: Routledge.
[2] Barrow CJ (2006), *Environmental management for sustainable development*. London: Routledge.
[3] Atkinson G, Dietz S & Neumayer E, eds (2007), *Handbook of sustainable development*. Cheltenham: Edward Elgar.
[4] Elliott JA (2013), *An introduction to sustainable development*. New York : Routledge.
[5] Boyle A & Freestone D, eds (1999), *International law and sustainable development: Past achievements and future challenges.* Oxford: Oxford University Press.
[6] Schrijver, N. & Weiss, F. (eds.) (2004). *International law and sustainable development: principles and practice*. *Leiden*: Martinus Nijhoff Publishers.
[7] Egelston AE (2013), *Sustainable Development A History*. Dordrecht: Springer.
[8] Managi S & Kuriyama K (2017), *Environmental Economics*. London: Routledge
[9] Aiken R, et.al (1982), *Developemnt and environment in Peninsular Malaysia*. Singapore: McGraw-Hill.
[10] Drabble JH (2000), *An economic history of Malaysia, 1800-1990: the transition to modern economic growth* . Hampshire: MacMillan Press.
[11] Poon WC (2005). The development of Malaysian economy. Petaling Jaya: Pearson Education.
[12] Nath B, Hens L & Devuyst D. (1996). *Sustainable Development.* London: VUB University Press.
[13] Ucakturk A, Celik F, Demirkaya H & Ucakturk, T (2013). "Power Perception of Developing Countries in Their Sustainable Growth and Innovation Strategies." *Procedia Social and Behavioral Sciences* 99, 112-121.
[14] Aded AO (1992), International Environmental Law from Stockholm to Rio, an Overview of Past Lessons and Future Challenges. *In Environmental Policy and Law* 2(22), 88-105.
[15] Sani S (1993). *Environment and Development in Malaysia*. Kuala Lumpur: ISIS.
[16] McDaniel DO (1993), Media and the Environment: Malaysian Press Coverage of the 1992 Earth Summit. *Akademika* 42 & 43, 29 – 44.
[17] Mikesell RF (1992), *Economic Development and the Environment*. London: Mansell Publishing.
[18] Noman O. (1996). Economic Development and Environmental Policy. London: Kegan Paul International.
[19] United Nations (1993). Report of the United Nations Conference on Environment and Development, Rio de Janeiro, 3-14 June 1992 , vol. I, Resolutions Adopted by the Conference. Sales No. E.93.I.8 and corrigendum. Resolution I, annex I (Rio Declaration on Environment and Development). Resolution I, annex II.
[20] World Commission on Environment and Development (WCED) (1987). Our Common Future. Oxford: Oxford University Press.
[21] Dommen E (1993), Fair Principles for SD. Hant: Edward Elgar.
[22] United Nations Conference on Environment and Development (UNCED) (1992). The Earth Summit. Nations of the earth report: United Nations conference on environment and development. Geneva: UNCED.
[23] Dodds F & Middleton T (2002), *Earth Summit 2002 : A new deal*. London: Earthscan.
[24] Dodds F (1997), *The way forward : Beyond Agenda 21*. London : Earthscan Publications.
[25] Grubb, Koch M, Munson A, Sullivan F & Thompson K (1993), *The Earth Summit Agreements*. London: Earthscan.
[26] Brown NJ & Quiblier P, eds (1994), *Ethics & Agenda 21: Moral Implications of a Global Consensus.* New York: United Nations Publications.
[27] Schmidt L, Nave J & Guerra J (2006). Who's afraid of Local Agenda 21? Top-down and bottom-up perspectives on local sustainability. International Journal of Environment and Sustainable Development.
[28] Williams L (1996). An emerging framework for Local Agenda 21. *Local Environment* 1(1), 106-112.
[29] International Council for Local Environmental Initiatives ICLEI (2002), Second Local Agenda 21 Survey. New York: United Nations Secretariat for the World Summit on Sustainable Development/International Council for Local Environment Initiatives.
[30] Bell S & Morse S (2003), *Measuring sustainability: Learning by doing*. London: Earthscan Publications.

[31] Tolba M (1987*). Sustainable Development - Constraints and Opportunities.* London: Butterworths.

[32] Cheng VS & Tong JC (2017), *Building Sustainability in East Asia: Policy, Design and People.* Chicester: Wiley.

[33] Bartelmus P (2001), Accounting for sustainability: greening the national accounts', in: Tolba, M.K. (ed.) (2001). *Our Fragile World , Forerunner to the Encyclopaedia of Life Support System* 2, 1721-1735.

[34] Parris TM & Kates RW (2003). Characterizing and measuring sustainable development. *Annual Review of Environment and Resources* 28, 559-586

[35] Selman P (1996). *Local Sustainability*. New York: St. Martin.

[36] Juma C (2002), The global sustainability challenge: from agreement to action. *International Journal of Environmental Issues* 2(1/2), 1-14.

[37] Healy P & Robinson R (1992*),Democracy, Governance and Economic Policy*. London: Overseas Development Institute.

[38] Vant A (2015). *Environmental governance: institutions, policies and actions. Cheltenham*: Edward Elgar Publishing.

[39] Ministry of Finance. (1996). *Economic Report 1996/1997*. Kuala Lumpur: Ministry of Finance Malaysia.

[40] Maizatun M (2009), E*nvironmental Quality Act 1974: Development and Reform.* MLJ, Lexis Nexis March-April 2009, lv-lxxxviii.

[41] Chee YL (1980), The Environmental Quality Act 1974 – A Critique. JMCL 7.

[42] Engel JR & Engel JG (1990), *Ethics of Environment and Development.* London: Belhaven Press.

[43] Maizatun M (2011), Environmental Quality Act 1974: A Tool Towards the Implementation and Achievement of Malaysia's Environmental Policy. *IIUM Law Journal* 19(1), 1-34.

[44] Bell S & Morse S (2008), Sustainability indicators: Measuring the immeasurable? London: Earthscan.

[45] Kates R, Thomas MP & Leiserowitz AA (2005), What is sustainable development? Goals, indicators, values, and practice. *Environment: Science and Policy for Sustainable Development* 47(3), 8-21.

[46] Latiff A, ed (2004), *Indicators of sustainable development: Assessing changes in environmental conditions*. Bangi: Institut for Evironment and Development (LESTARI).

[47] Razzaque J (2013). *Environmental governance in Europe and Asia : a comparative study of institutional and legislative frameworks.* New York: Routledge.

[48] United Nations (2007). *Indicators of Sustainable Development: Guidelines and methodologies.* New York: United Nations publication.

[49] Moore M (1993). Good Government. Sussex: Institute of Development Studies.

[50] Maizatun M (2016), Environmental law in Malaysia. The Netherland: Kluwer Law International.

[51] Andre MS, ed (2012), *Governance by evaluation for sustainable development: institutional capacities and learning*. Cheltenham: Edward Elgar.

[52] Maizatun M & Mohd Hazmi R (2016), The Position of Environmental Law in Malaysia in Dealing with Domestic and Regional Air Pollution Problems. In *Jurnal Sultan Alauddin Sulaiman Shah* 3(2), 155-165.

[53] Percival RV, Stanton RF, Lin P & Piermattei W (eds.) (2014). *Global environmental law at a crossroads.* Cheltenham: Edward Elgar.

[54] Bosselmann K (2008), *The principle of sustainability : transforming law and governance*. Aldershot: Ashgate.

[55] Maizatun M & Nurah SM (2015), The Development of environmental crime and sanction in Malaysia', in *European Scientific Journal*, 11(25).

[56] Ansari AH, Parveen J & Maizatun M (2006), Meaning and Scope of the precautionary Principle', in Hunud AK & Sharifah Zubaidah J, eds, Land Use Planning and Environmental Sustainability in Malaysia: Policies and Trends. Kuala Lumpur: IIUM.

[57] OECD (1992). Guiding Principles Concerning the International Economic Aspects of Environmental Policies. Adopted by the Council at its 293rd Meeting on 26th May 1972, Paris.

[58] United Nations Environmental Program (UNEP) (1988). State of the Environment Report 1988. Nairobi: UNEP.

[59] Iizuka M (2000), Role of environmental awareness in achieving sustainable development. Prepared for the project "Enhancement of citizen's awareness in formulation of pollution control policies in major Latin American Cities, Environment and Human Settlements Division of ECLAC, with the support from the Government of Japan.

[60] Crotty J & Hall SM (2014), Environmental Awareness and Sustainable Development in the Russian Federation, *Sust. Dev* 22, 311–320.

[61] Maizatun M (2006), Public Access to Environmental Rights and Justice: A Legal Perspective for an Improved Public Service System of the Local Authorities. In, Kabut W. et.al. (compilers). *Service Delivery by Local Authorities: Issues and Challenges.* Selangor: UPENA.

[62] Faruqi SS (1995) Principles and Methods for Enforcing Accountability in the Malaysian Public Sector', in P Pillai et al (eds.) (1995). *Managing Trust: Transparency, Accountability & Ethics in Malaysia.* Kuala Lumpur: Isis & Goethe Institute.

[63] Pillai P, Pharmy A, Neoh K & Thiruchelvam K (1993). Managing Trust: Transparency, Accountability & Ethics in Malaysia. Kuala Lumpur: Isis & Goethe Institute.

[64] Martin P & Kennedy A, eds (2015), *Implementing environmental law*. Cheltenham: Edward Elgar Publishing.