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An Empirical Study on Environmental Sustainability in Melaka City

Noor Mohammad

Abstract

Melaka is one of the most historic cities in Malaysia. It has been listed as a UNESCO Heritage Site since July 7, 2008. Once upon a time, it was also known as a trading center of Malaysia particularly in the Southeast Asian countries. But presently, her heritage has been facing numerous problems such as air pollution, water pollution, noise pollution, river pollution, unplanned urbanization, etc., based on several grounds including noncompliance with the existing sustainability laws, and therefore, some impacts such as ecological disruption, water-borne diseases, resource depletion, emission of greenhouse gases, etc. are observed in this city. This study, however, examines the environmental sustainability issues such as water pollution, climate change, food security, natural resource and heritage, biodiversity, etc. in Melaka City based on the primary and secondary sources consisting of 50 respondents in the different criteria such as lecturers, foreigners, workers, employees, common people, students, security personnel, etc. and finds that on an average the people in this city find around 60–70% sound environment and its sustainability prevailing in this city.

Keywords: environmental sustainability, Melaka City

1. Background

Melaka is one of the oldest states in Malaysia. The earliest written records of the country made reference to the Melaka Peninsula, since its founding, circa 1400, by a fleeing Sumatra Prince, Parameswara. The first of many foreign invasions of Melaka took place in 1511, when the Portuguese arrived.

The Portuguese were determined to control the East-West trade, so Melaka still retained its importance as a trade center until 1641 when the Portuguese surrendered Melaka to the Dutch. This was during the mid-1400s. The golden age of the Melaka Sultanate unfortunately lasted only for less than a century. Gradually, environmental problems have been occurring for a long time in the world. Melaka is not an exception to them due to severe negative impacts of human activities on this land [1] including flora and fauna [2]. Regarding water pollution, it is also acute in this city.

It is polluted in many ways that affects biodiversities on this land. Regarding noise pollution, it is also acute in many parts of the cities and towns in Malaysia and some effects and causes have also been identified. With regard to chemicals, it

develops our agriculture but bears impacts on agriculture and facing numerous problems effects on the biodiversity [3]. The level of ground water is high, which creates environmental problems such as landslip, earthquake and deforestation. Filling of lakes, canals and wetlands has created environmental problems to the residential areas in this city.

It has become a problem and consequently, the fish biodiversities are missing in those areas. Wetlands in Malaysia have been facing large-scale destruction. A heavy deforestation is also identified with effects polyphones that have been used in the markets for shopping unprecedented which results in soil pollution.

Regarding land degradation, there are some factors such as unplanned irrigation systems, excessive use of chemical fertilizers, use of pesticides, earthquake, natural calamities, overpopulation, fragmentation of land, unhealthy drainage system, etc. that are held responsible for the environment.

Biodiversity degradation is also observed due to the use of biotechnology, genetically modified varieties, genetically engineered seeds, use of pesticides and chemical fertilizers and impacts of green house revolution, etc. With regard to bioprospecting, there is no specific legislation nationally but the State of Sarawak has made some initiatives in this regard. Inefficient solid waste management due to poor civic sense, inadequate facilities and inefficient management systems are also observed. Unplanned urbanization has been taking place in many cities in Malaysia due to lack of proper implementation of concerned rules and regulations and inadequate monitoring that bears tremendous stress on the physical environment of the city. Land has become inadequate for the urban people.

Regarding wastes, humans produce wastes that are hazardous and dangerous to both nature and human environment. No matter where it comes from, waste can be dangerous. One of the main causes of the abundance of hazardous waste is that people do not realize how large a problem it is [4].

Regarding different sector of environmental problems, it has been facing with numerous problems such as pollution, land degradation, deforestation, biodiversity degradation, depletion of environmental resources, wetland degradation, urban solid waste management, etc. In order to cope with these problems, the government has already passed some important laws and policies to protect the environment in Malaysia.

2. Literature review

There are some literatures on the different environmental sustainability in Melaka City that may be directly or indirectly relevant to this study. Some of the published literatures have also been discussed in order to identify the gaps of this study. According to the Singapore Journal [5], it discussed the marine pollution in the Straits of Malacca and Singapore. It also discusses the solutions to these problems.

Charles Sheppard and Jack Pearce Seas (2000) 'edited' at the Millennium: an Environmental Evaluation and has discussed on the Malacca Straits that have long been an important trade route linking in the Indian Ocean to the South China Sea and Pacific Ocean [6].

The author also discussed about the importance of the straits regarding renewable and non-renewable resources based on Malacca. Marine piracy and armed robbery against ships were also discussed in the Asia Information Sharing Center in Singapore focusing on a paper entitled Piracy and Armed Robbery in the Malacca Strait.

Some important websites such as www.Google.com, Google Scholars, Emerald etc.; also discussed about the environmental pollution and sustainability issues in Melaka City.

The *UNDP-RIPP Natural Resource Management Country Studies Malaysian Report* prepared by Jannie Lasimbang has discussed the significance of the natural resource management and administration for protecting the environment [7].

The author finds that there are many environmental problems as stated earlier in this paper. We need to address these issues immediately as per the opinion of Chong stated in the paper titled [8].

The World Youth Foundation has discussed in an International Conference on the Environment and Disaster Management about the environmental protection and sustainable development in Malaysia dealing with common development, planning for environmental development, policy matters, institutional frameworks, ecology and equity along with the impacts of the international environmental treaties on the natural resource management and concerned development.

Azusa Ikeda has discussed about the natural ventilation for sustainability in a book titled "Introducing Natural Ventilation in Selected Malaysian Hotels for Environmental Sustainability" relating to the importance of Malay language [9].

Norfadhilah Mohd Ali discussed about the sustainability issues on the environmental conservation and development in "Sustainability of petroleum and environmental control in the Malaysian petroleum law deals with the existing Malaysian petroleum legislations and other relevant laws" on promoting sustainability of petroleum and environmental conservation [10].

The Malaysian Green Forum 2010 made a speech by Prime Minister, Dato; Sri Mohad Najib Bin Tun Haji Abdul Razak regarding the environmental issues in a holistic manner particularly, advancing for environmental and landscape issues in the country. He said that the biggest challenges that they are facing is the environmental awareness, renewable energy and cost-effective green technology.

Regarding existing environmental sustainability mechanisms, it is equally important at the national and international level in protecting the environment in Melaka city including Malaysia. As to effectiveness of laws, it is found that the laws are not so effective in their enforcement. The laws should be endowed with appropriate powers and responsibilities and should be acting as a form of international administrative agency.

This institution will play a fiduciary role in protecting the environment as supported by Alan E. Boyle, which is discussed in the saving the World [11]?

Regarding implementation and enforcement of international environmental law through international institutions, it is said that little attention is paid to the effectiveness of the new body of law.

Environmental laws are not self-executing and they cannot function in the absence of effective implementation. It is evident that the conservation laws are not carefully adapted to the distinctive political, social, economic, cultural and ecological conditions in each developing nation, which are likely to prove useless or worse.

Regarding inadequately designed legal mandates, it is also argued that most of the international environmental laws in developing states have been poorly conceived. They are overly general, deliberately ambiguous, often self-contradictory, excessively lenient and lacking in real teeth.

Moreover, inadequate political commitments and popular support are also observed in compliance with the laws and policies. Monitoring is also still lacking in this process. Unfortunately, environmental laws are only hortatory words unless they are implemented effectively, yet non-implementation, non-enforcement and non-compliance are so common that they must be viewed as the norm rather than exception in the great majority of nations.

3. Environmental sustainability

In order to explain the above topic, we need to explain the concept of environmental sustainability. It is based on around 76 variables. It includes the civil and political rights, legislations and policies, which are more likely to effectively address environmental challenges. It also includes the survey reports on environmental governance. The world environmental forum defines the environmental sustainability index as a derivative of five major components such as (i) current condition of the environmental system; (ii) pressure on the system; (iii) assessment of human vulnerability; (iv) social and institutional capacity; and (v) the level of participation in global environment stewardship.

Environmental sustainability is, in fact, closely related to the concept of democracy that is based on commonly accepted principles, such as freedom, equity, justice, transparency, accountability, good governance, rule of law, etc., to be ensured in all actions for achieving sustainable development. It is interlinked with the rights and duties of the flora and fauna that have to be ensured as well. It is a set of written and unwritten norms that is linked with the ecological balance in the governance of the institutions as well as the organizations around the globe to be ensured as well for all [12].

It is in fact intellectual governance of the environment for sustainable development. This index includes environmentally sound system that is reducing environmental stresses, reducing human vulnerability, social and institutional capacity and the global stewardship.

It includes several indicators of environmental sustainability that may be classified into several categories. Each indicator includes several variables. Sustainability encompasses nature, economy, society and well-being of individuals. It can be achieved through adopting some measures such as harmonization of standards, joint development of environmental management systems and collaborative capacity building projects.

It is in fact a tool for which environmental problems are solved in a scientific way by scientists in different fields of studies. It shows how environmental problems are identified and addressed also. It tries to ensure adequate environmental information, transparency and accountability, adequate capacity for credible enforcement and other policies that may promote better environmental performance of the activities done by the concerned institutions at home and abroad [13].

The environmental governance structures in Asia and the South Asian countries are frequently being changed. It involves three distinctive levels where the operational entities are primarily international governing bodies, donor agencies, international NGOs and government.

At the national level, many new environmental laws, policies, programs and institutional changes are being made.

At the regional and international levels, a significant number of the environmental initiatives are undertaken by the international intergovernmental bodies, international nongovernmental organizations and also many other environmental organizations including the international environmental laws and institutions to develop and conserve the environment at different levels in the globe.

But it faces incoherence, lack of co-operation and coordination, inefficiency and lack of implementation for ensuring environmental governance. It needs the coordination and collaboration in between the levels of operations. Some environmental organizations including the European Union, the IUCN, PADELIA, WWF, UNITAR, UNEP, etc. have been playing a significant role in this regard. However, the European Union wants to encourage the civil society, bottom-down method and the principles of good governance for assessing environmental governance. In the

ASEAN countries, it is found that the nongovernmental organizations and the civil society organizations are rendering the services in the area of environmental monitoring, management, poverty alleviation, greening programs, environmental education, etc. In the South Asian and South East ASEANS countries, it is found in the same kind. Particularly, the charters of the different organizations including the UNO and the international environmental laws have been playing a significant role in the protection and conservation of the environment in these regions.

4. The role of environmental sustainability mechanisms

Let us discuss about the role of the existing environmental sustainability mechanisms passed by the government of Malaysia relating to the protection of the environment in Melaka City of Malaysia.

4.1 The role of environmental law and policy

The Environmental law and policy of Malaysia bears a significant role in protecting the environment of this city. At present, environmental problems are largely found in this country including Melaka City supported by Suzanna Mohamed Isa, such as air pollution, water pollution, exploitation of natural resources, etc. [14]. In order to sustain the quality environment and coping with the environmental problems, the Government of Malaysia has passed some important environmental laws and policies such as the Environment Quality Regulations 1989, the Environmental Quality Order 1989, the Protection of Wildlife Act, the National Forestry Act 1984, the Fisheries Act 1985, the National Parks Act 1980, some common laws and principles along with international environmental obligations, etc. [15].

4.2 The role of constitutional guidelines

Regarding the role of the constitution of Malaysia in protecting the environment, there is no direct constitutional provision on the environmental issues in Malaysia [16]. The Malaysian Constitution discussed very precisely the powers and functions of the Federal Government as well as the State Government as per the provisions of Part VI of the Constitutions. Moreover, there are three legislative lists in the constitution that are given to the Federal and State Governments for making their legislations and Ninth Schedule and a concurrent list where either the Federal or the State Government can make laws. In the meantime, some states including Melaka passed some laws relating to the protection and conservation of the environment as per the guidelines of the constitution. It is mentioned here that these lists bear effects indirectly on the environment.

4.3 The role of government

The government has been playing significantly their role as per the guidelines of the constitution. The government may carry out their duties in many ways for the Federal and State Government with regard to making their legislations the State Role have been implementing many issues related to the environmental development. The Malaysian Government has been encouraging environmental nongovernmental organizations throughout the country to make the country green for attaining environmental sustainability in the country.

4.4 The role of judiciary

It is stated that there is no specific and direct environmental court in Malaysia to protect the environment. But the general court is quite active dealing with the environmental issues based on the constitutional obligations and interpretation along with the English Common Law Principles under the judiciary of Malaysia covering Melaka City. The High Court and the Supreme Court of Malaysia may deal with these issues. Some judicial decisions were found between 1992 and 2002 dealing with the environmental issues in Malaysia. In the constitution, there is no specific article dealing with the clean environment. It is not defined in the constitution. The Indian Constitution clearly mentioned about the right to clean environment, which we may include in our constitution. A decision in Malaysian Court may be pointed out here regarding the environment as:

“...The expression ‘life’ appearing in the Article 5(1) of the constitution of Malaysia does not refer to mere existence. It incorporates all those facets that are an integral part of life itself and those matters which go to form the quality of life. Of these are the rights to seek and be engaged in lawful and gainful employment and to receive those benefits that our society has to offer its members. It includes the right to live in a reasonably healthy and pollution free environment.”

In this regard, the Bakun Dam case may also be added here as follows:

“...They will suffer deprivation of their livelihood and cultural heritage by reason of the Project ... This complaint certainly comes within the scope of the expression ‘life’ in Article 5(1) of the federal Constitution. For where there is deprivation of livelihood or one’s way of life, that is to say, one’s culture, there is deprivation of life itself... However, in the present case, as earlier observed, the State of Sarawak will extinguish the respondent’s rights in accordance with the provisions of existing written law obtaining in the State ... Since, in this instance, life is being deprived in accordance with an existing and valid law, the requirements of Article 5(1) are met. It may be certainly said that the following case laws bear importance directly or indirectly on the environment.”

4.5 Some case laws

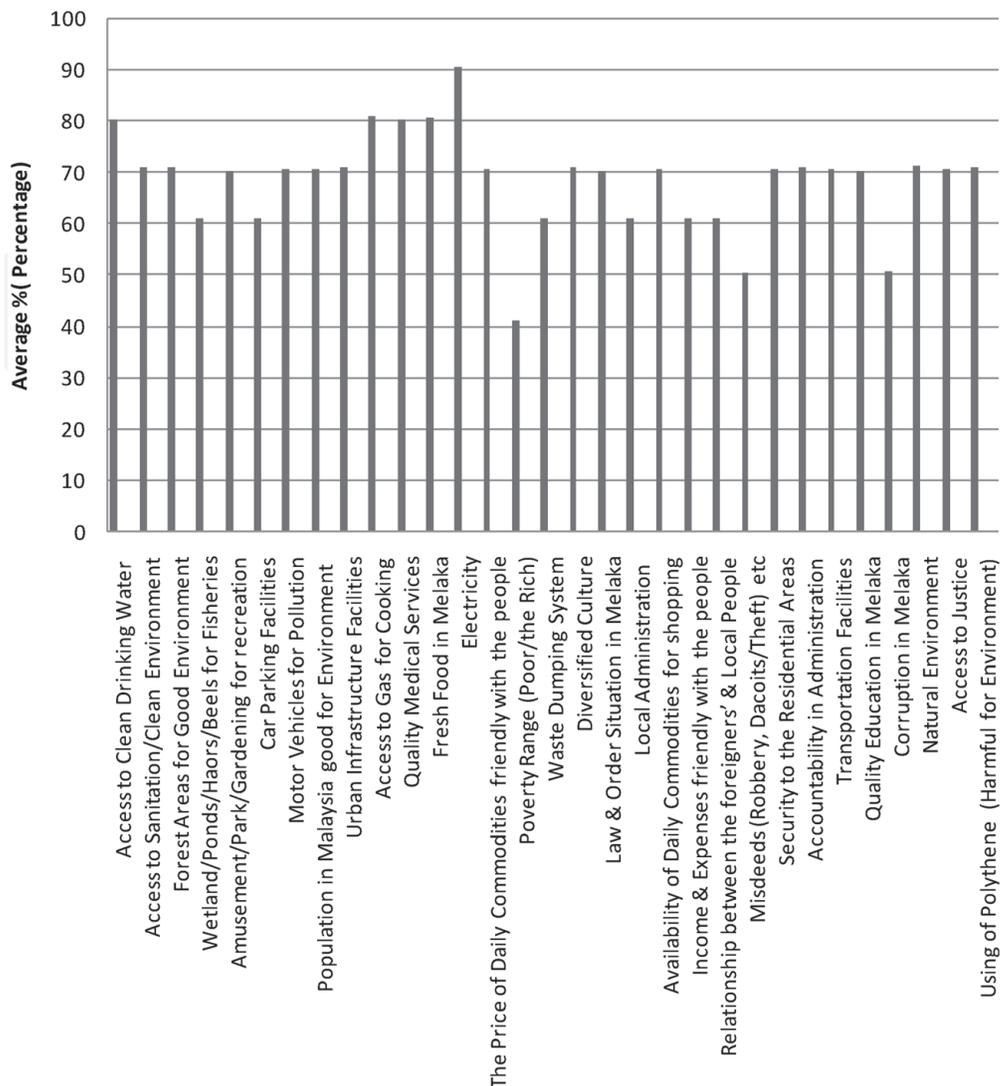
Some judicial decisions have also been made directly or indirectly on the environmental issues in Malaysia. Some of the cases are given here to understand their role on the environmental issues such as the Rural Legislation and Entitlement Kendra Dehradun and others Vs State of U.P. and Others (1985) 2 SCC 431, Devaki Nandan Pandey V. Union of India and Others (1985) 3 SCC 614, Tan Tek Seng V. Suruhanjaya Perkhidmatan Pendidikan (1996)1 MLJ 288, Kettua Pengarah Jabatan Alam Sekitar & Anor vs. Kajing Tubek & Ors (1997) 3 MLJ 23, Government of Malaysia vs. Lim Kit Siang, United Engineers (M) Berhad vs. Lim Kit Siang (1988) 2 MLJ 12, The Malaysian Vermicelli Manufacturers (Melaka), Sdn Bhd vs. PP (2001) 7 CLJ, etc.

5. Empirical results and discussion

The discussion and results of the study are based on the above methodology and are presented below.

Environmental issues	Minimum	Maximum	Average (%)	Std. deviation	Median
Access to clean drinking water	50.00	100.00	80.10	10.41	80.00
Access to sanitation/clean environment	30.00	100.00	70.96	10.45	80.00
Forest areas for good environment	40.00	100.00	70.62	10.33	70.00
Wetland/ponds/haors/beels for fisheries	30.00	100.00	60.88	10.25	70.00
Amusement/park/gardening for recreation	40.00	100.00	70.26	10.36	70.00
Car parking facilities	20.00	100.00	60.96	10.51	70.00
Motor vehicles for pollution	50.00	100.00	70.32	10.20	70.00
Population in Melaka good for environment	30.00	100.00	70.58	20.11	80.00
Urban infrastructure facilities	40.00	100.00	70.86	10.24	80.00
Access to gas for cooking	60.00	100.00	80.88	10.25	90.00
Quality medical services	50.00	100.00	80.06	10.03	80.00
Fresh food in Melaka	40.00	100.00	80.34	10.18	80.50
Electricity	40.00	100.00	90.26	10.30	100.00
The price of daily commodities friendly with the people	30.00	100.00	70.38	10.56	80.00
Poverty range friendly to Melaka (the poor/the rich)	30.00	100.00	40.90	10.77	40.00
Waste dumping system	30.00	100.00	60.90	10.46	70.00
Diversified culture	50.00	100.00	70.76	10.46	80.00
Law & Order situation in Melaka	20.00	100.00	70.04	10.48	70.00
Local administration in Melaka	40.00	100.00	60.98	10.43	70.00
Availability of daily commodities for shopping	50.00	100.00	70.46	10.28	70.00
Income & expenses friendly with the people	50.00	100.00	60.84	10.20	70.00
Relationship between foreigners & local people	30.00	100.00	60.92	10.75	70.00
Misdeeds (robbery, dacoits/theft), etc.	20.00	100.00	50.02	20.25	40.50
Security to the residential areas	30.00	100.00	70.46	10.50	70.50
Accountability in administration	50.00	100.00	70.70	10.14	80.00
Transportation facilities	30.00	100.00	70.50	10.61	70.00
Quality education in Melaka	30.00	100.00	70.16	10.78	70.00
Corruption in Melaka	20.00	100.00	50.48	20.51	40.50
Natural environment	40.00	100.00	70.98	10.31	80.00
Access to justice	50.00	100.00	70.48	10.11	70.00
Using of polythene (harmful for environment)	40.00	100.00	70.68	10.39	80.00

Opinions of respondent's regarding issues on environment in Melaka City at a Glance



From the above chart, the study finds that the above services as identified in Melaka City are very friendly to the environment in this city. A discussion on the empirical results has been discussed as follows:

1. Access to clean drinking water: About 80% of the people are satisfied with pure drinking water in Melaka City.
2. Access to clean environment: In Melaka City, 71% of respondents think that they are living and enjoying clean environment.
3. Forest areas for good environment: About 71% of the people think that they have forest areas for maintaining good environment.
4. Wetland/ponds/haors/beels for fisheries: Among all respondents, around 61% think that the wetlands produce good environment.
5. Amusement/park/gardening for recreation: In the survey, 70.26% of the respondents think that they have amusement facilities, like parks, in the Melaka area.
6. Car parking facilities: In Malaysia, particularly in Melaka City, 61% of the people think that they have car parking facilities.

7. Parking facilities: About 61% of the people responded that parking facilities in Malacca are quite limited, especially during the weekend, when there are many tourists in Malacca.
8. Motor vehicles for pollution: In the survey, 70.32% of people felt that in Malacca there is environmental pollution.
9. Population in Melaka good for environment: About 71% of people think that they are healthy due to the nature of the environment in Melaka City.
10. Urban infrastructure facilities: Good urban infrastructure in Melaka City was supported by 71% of all respondents.
11. Access to gas for cooking: 81% of the total respondents felt there is adequate access to gas for cooking for their daily life.
12. Quality medical services: About 86% of Melaka City residents reported quality medical services.
13. Fresh food in Melaka: In Melaka City, 80% of respondents reported having fresh food.
14. Electricity: The availability of electricity in Melaka City is 90%.
15. The price of daily commodities friendly with the people: Some 70% of people in Melaka City think that the price of daily commodities is friendly.
16. Poverty range friendly to Melaka (the poor/the rich): Only 41% of the people surveyed thought that the poverty range (the poor/the rich) is friendly.
17. Waste dumping system: In the survey, 61% people reported having waste dumping system in Melaka City.
18. Diversified culture: In Melaka City, around 71% of respondents indicated that they have a diversified culture.
19. Law and order situation in Melaka: About 70% of people in Melaka City think that they feel better regarding the law and order situation in this city.
20. Local administration in Melaka: Some 61% of people in the sample respondents are satisfied with the local administration.
21. Availability of daily commodities for shopping: Around 71% of people reported that they have daily need commodities available for shopping in this city.
22. Income and expenses friendly with the people: The income and expenses are friendly in the city as reported by 61% of the survey respondents in Melaka City.
23. Relationship between foreigners and local people: A majority of people (61% of total) in Melaka City find the existence of good relationship between foreigners and local people.
25. Misdeeds (robbery, dacoits/theft), etc.: About half the respondents acknowledged some misdeeds.

26. Security to the residential areas: About 71% of the people in this area think that they are secure in the residential areas.
27. Accountability in administration: Majority (71%) of people responded that the administration maintains accountability in their actions.
28. Transportation facilities: Satisfaction with transportation facilities by people in the Melaka City was reported by 70.5% of the total.
29. Quality education in Melaka: People in this area think that they have 70% quality education.
30. Corruption in Melaka: About half the respondent of the survey felt that there are corrupt activities in this area.
31. Natural environment: Natural environments were appreciated by 71% of respondents in Melaka City.
32. Access to justice: About 70% of the people in the sample think that they have access to justice.
33. Using of polythene (harmful for environment): A majority of people in Melaka City (71% of total) think that using of polythene is harmful to their environment.

6. Recommendations and conclusion

Environmental sustainability is one of the burning issues in Melaka City. In order to sustain the environment of Melaka City, this study finds that there are some important tools such as strict application of the rule of law, improvement of the respective institutional capacity, maintaining coordination with the respective departments, and enforcement of the existing sustainability laws and policies, focusing on the implementation of the findings of the existing research including this work.

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