

# **MARKET BASED INSTRUMENTS PRACTICES FOR POLLUTION CONTROL IN MALAYSIA: RIVER OF LIFE PROJECT**

## **1.0 BACKGROUND**

### **1.1 Environmental problems in Malaysia**

Malaysia is one of the some developing countries facing the most challenging environmental problems since the start of industrialization era. However, given with the awareness to preserve the natural resources and pollution control, Malaysia's environmental conditions had improved gradually and achieve great height of environmental good governance today.

But today, even with relatively positive environmental record, Malaysia still faces problems of deforestation, pollution of inland and marine waters, soil and coastal erosion, overfishing and coral reef destruction, along with air pollution, water pollution and the problem of waste disposal (WWF Malaysia). Malaysia like other countries faced water pollution problem which originated from point sources and non-point sources channelled into water bodies. Point sources identified are sewerage/sewage wastewater, manufacturing effluents, agro-based industries discharge as well as animal farms wastewater. While non-point source identified are from agricultural activities and surface run-offs.

To tackle and solve environmental problems in Malaysia, the government has reinforced Acts and Regulations pertaining to environmental protection and environmental offenders. The mother of environmental legislation in Malaysia is Environmental Quality Act, 1974 (EQA 1974) followed by several other Environmental Policies, Acts, Regulations, Orders and Guidelines that compliment with the legislation practices in Malaysia. Payment of cess, environmental funds, penalties, fines and charges are implemented to the environmental polluters and offenders with the principle of "polluter pays principle" are being practiced by the government to curb environmental issues in Malaysia.

### **1.2 EQA 1974 and Market Based Instruments Practices in Malaysia**

a) EQA 1974 which were gazetted on 14 March 1974 and enacted by the Seri Paduka Baginda Yang di-Pertuan Agong with the advice and consent of the Dewan Negara and Dewan Rakyat in Parliament. This Act stated the role of environmental council, authorities and environmental institution (Department of Environment Malaysia), licensing, prohibition and control of pollution, control of scheduled wastes, payment of cess and environmental fund and other matters related to environment in Malaysia. The charges of fine imposed by the DOE for environmental offenders are as shown in the table below:

<b>Criteria</b>	<b>Fine</b>	<b>Imprisonment</b>	<b>Remark</b>
Operation of Prescribed premises without licenses	Not exceeding RM50,000	Not exceeding 2 years	- Or both fine and imprisonment - Further fine of RM1,000 every day if the offence is continued after a notice was issued by Director General (DG) of DOE
Restrictions on pollution of the atmosphere	Not exceeding RM1,000	Not exceeding 5 years	- Or both fine and imprisonment - Further find not exceeding RM500 a day every day if the offence is continued after a notice was issue by DG of DOE
Restrictions on noise pollution	Not exceeding RM1,000	Not exceeding 5 years	- Or both fine and imprisonment - Further fine not exceeding RM500 a day every day if offence is continued after a notice was issued by DG of DOE
Restrictions on pollution on the soil	Not exceeding RM1,000	Not exceeding 5 years	- Or both fine and imprisonment - Further fine of RM1,000 a day every day if the offence is continued after a notice was issued by DG of DOE
Restrictions on pollution of inland waters	Not exceeding RM1,000	Not exceeding 5 years	- Or both fine and imprisonment - Further fine of RM1,000 a day every day if the offence is continued after a notice was issued by DG of DOE
Prohibition of discharge of oil into Malaysian waters	Not exceeding RM5,000	Not exceeding 5 years	- Or both fine and imprisonment
Prohibition of discharge of wastes into Malaysian waters	Not exceeding RM5,000	Not exceeding 5 years	- Or both fine and imprisonment
Prohibition on open burning	Not exceeding RM5,000	Not exceeding 5 years	- Or both fine and imprisonment
Control use of substance and product and to state environmental labelling	Not exceeding RM5,000	Not exceeding 5 years	- Or both fine and imprisonment
Owner or occupier to install, operate repair and maintain	Not exceeding RM25,000	Not exceeding 2 years	- Or both fine and imprisonment - Further fine of RM1,000 a day every day if the offence

equipment that control environmental pollution			is continued after a notice was issued by DG of DOE
Prohibition order to prevent the release of environmentally hazardous substances, pollutants or wastes	Not exceeding RM50,000	Not exceeding 2 years	- Or both fine and imprisonment
Prohibition or control licensed persons from discharging of wastes that threaten the existence of animals, birds, wildlife, fish or other aquatic life	Not exceeding RM50,000	Not exceeding 5 years	- Or both fine and imprisonment - Further fine of RM1,000 a day every day if the offence is continued after a notice was issued by DG of DOE
Report on impact on environment resulting from prescribed activities	Not exceeding RM100,000	Not exceeding 5 years	- Or both fine and imprisonment - Further fine of RM1,000 a day every day if the offence is continued after a notice was issued by DG of DOE
Prohibition against placing, deposit of schedule wastes	Not exceeding RM500,000	Not exceeding 5 years	- Or both fine and imprisonment

For the purpose of conducting, promoting or coordinating research in relation to any aspect of pollution or prevention procedures, an imposition and collection of cess will be conducted on the waste generated. The payment of cess collected will be channelled into the Environmental Fund. The Environmental Fund is established and operated as a Trust Account within the Federal Consolidated Fund. This fund will be contributed by any bodies that engaged in the exploration, extraction, refining, production, bulk movement, distribution or storage of oil, the production, bulk movement, distribution or storage of environmentally hazardous substance and bulk movement or storage of waste at a rate specified by DOE. The Environmental Fund will serve for the purpose of conducting researches, recovery, mitigation, preventing, combating and conservation measures against any damages caused by environmental pollution.

**b)** Market based instruments are regulations that encourage behaviour through market signals rather than through explicit directives regarding pollution control levels or methods (Stavins, 2001). Market based instruments (MBIs) practices are not new to Malaysia. It was mentioned by World Bank 1997b, that Malaysia was one of the first countries to imposed effluent charges, by introducing effluent fees, paired with licensing, to control pollution from the palm oil industry as early as 1978 (Stavin, 2001). In fact, the palm oil and rubber mills

effluent charges system implemented since 1978 are still functioning till today. In 1994, in order to limit environmental problems in the country, Malaysia had introduced different pricing on leaded and unleaded petrol, which is another one of successful MBIs.

In terms of sewerage/sewage treatment facility, user fees were charged by service provider, Indah Water Konsortium Sdn Bhd (IWK) at still affordable and equitability tariff rate so as to ensure that the collection from the different categories of customers are sufficient to finance the development and management of a modern and efficient sewerage system in Malaysia. This is essential in protecting our water resources and ensuring a cleaner and healthier environment for all Malaysians. Any improvement and upgrading of all sewage treatment plants throughout the country require substantial funds which are largely derived from tariff charges. Monthly sewerage services charges for government premises, commercial premises is a sum of the Basic Charge based on the premises Annual Value and Excess Charge based on average water consumption in excess of 100 meter cube (m<sup>3</sup>). However, industrial customers will be charged based on the total number of employees as shown in the table below:

<b>Category</b>	<b>Rate based on number of employees</b>
Premises receiving Individual Septic Tanks services	RM 2.00 per head per month
Premises with Connected Sewerage Services	RM 2.50 per head per month

Source: Indah Water Konsortium Sdn. Bhd., 2013

Meanwhile, for domestic users, the rates are derived as per the table below:

<b>Category</b>	<b>Monthly Charge(RM)</b>
Low cost houses and government quarters in categories F, G, H and I ( receiving either Individual Septic Tank or Connected Sewerage Services )	2.00
Houses in <i>Kampung</i> , New Villages and Estates (receiving either Individual Septic Tank or Connected Sewerage Services )	3.00
Premises and government quarters in categories A, B, C, D and E receiving Individual Septic Tank Services	6.00
Premises and government quarters in categories A, B, C, D, and E receiving Connected Sewerage Services	8.00

Source: Indah Water Konsortium Sdn. Bhd., 2013

Another recent example of MBIs is the fees charged by integrated treatment facilities for scheduled wastes managed by Kualiti Alam Sdn. Bhd. which were given exclusive rights by the government to treat the hazardous wastes listed as scheduled wastes disposed by the waste generators and operate the integrated waste management facility for 15 years. The concession agreement between Kualiti Alam Sdn. Bhd. and the Government was signed on 18 December 1995. The fees collected to use this integrated facility will vary depending on what kind of waste is generated, how difficult it is to dispose of, how much and how often waste will be generated.

### **1.3 River of Life Project**

One of the most recent MBIs is the establishment of River of Life (ROL) which is an Entry Point Project (EPP) under the Unit of Greater Kuala Lumpur/Klang Valley in the National Key Economic Area (NKEA) under the Economic Transformation Programme (ETP). ROL aims to transform the Klang River into iconic river besides transforming the river into a vibrant and liveable waterfront with high economic value by year 2020. This transformation is divided into three phases namely Cleaning Phase, Beautification Phase and Development Phase.

The Malaysian Government had allocated a total of RM4.00 billion for the commencement of the 3 phases for this project. Initially, only on-going ROL management – Cleaning Phase was chosen by which Cleaning Phase consumed 65.8% of the total project cost. However, The National Audit Department of Malaysia decided to conduct continuous audit on this project until it is totally completed on its three phases. The objective of this audit is to determine whether the management of ROL-Cleaning Phase was done in a systematic, efficient and economical manner.

The Cleaning Phase is carried out along 110km stretch of Klang River-Basin whereas master planning and beautification works will be carried out along a 10.7km stretch along the Klang and Gombak river corridor. The objective of this phase is to improve the existing water quality from Class III to Class V (which is not suitable for recreational use/harmful for body contact) to Class IIB (suitable for recreational use/not dangerous for body contact); to overcome the problem of river garbage dumping and to create a conducive environment for well-being of the people by the year 2020. Additionally, this phase is expected to provide adequate protection for flood mitigation project as support to achieve the status of Greater Kuala Lumpur City.

The Audit aspects cover the planning, execution and monitoring on the ROL management – Cleaning Phase since the project commencement until February 2013. The Audit was carried out on the government agencies involved in this project. As for the purpose of evaluation on the project management, 9 projects were chosen comprising of these Key Initiatives (KI) i.e. KI1, KI3, KI5, KI6 and KI7.<sup>1</sup>

## **2.0 METHODOLOGY**

The Audit was carried out by checking through the records, documents and files related to the project. Site visits were conducted to evaluate the management and performance of the project in achieving its target. In addition, interviews with officers involved and occupants surrounding the project location were conducted to acquire feedbacks in regards to the implementation and effectiveness of the project.

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<sup>1</sup> Refer to **Table 1**

The 9 selected projects were based on the on-going project progresses, completed project status, high-valued project as well as the main components of the project. **Table 1** shows the main initiatives under the ROL management – Cleaning Phase.

**Table 1: Main Initiatives under ROL Management - Cleaning Phase**

<b>KI</b>	<b>Project Scopes</b>
1	Upgrading existing sewage facilities to reduce Klang River pollution.
2	Expand/enhance existing sewage treatment plant to accommodate future growth.
3	Managing wastewater from wet markets.
4	Installing additional gross pollutant traps.
5	Maximize the use of the reservoir for segregation of pollutants from waste and wastewater.
6	Relocate squatters for the purpose of reducing waste disposal and wastewater into the Klang/Gombak River.
7	Implementing rainwater management master plan for drainage and irrigation systems upgrades.
8	Implement a systematic Hydrology Study and restoration of the river.
9	Promote, enforce and manage the erosion control from urban development. (Targeted groups: project developers and consultants)
10	Promote, enforce and enhance the level of cleanliness and health. (Targeted groups: restaurants, workshops and retailers)
11	Promote, enforce and manage the industries that produce wastewater and waste. (Targeted groups: industries)
12	Promote, enforce and manage waste and general waste. (Targeted groups: public)

### **3.0 IMPACTS AND RESULTS**

The Audit was conducted between January and February 2013 where Cleaning Phase was still on-going, showed that the physical achievement and financial performance were at satisfactory level. However, there were still some weaknesses that must be addressed if the project objectives to be achieved, as per following:

- i. Differences observed in the parameters used for comparisons between current water quality standards and targeted water quality standards to be achieved by when the project is completed;
- ii. Careful and detailed planning for example, feasibility study is not made prior to the implementation of the project and resulted in increase of costs and job scope;
- iii. Problems related to effluent management including sewerage pipeline system and sewerage system near water intakes will surface if working permit approval is not handled properly. This may affect the achievement of project;
- iv. Site management involving the control of environmental pollution, housekeeping practices and management of inventory or project components are disorganized;

- v. Construction work/ upgrading the components of the project and project infrastructure are of poor quality
- vi. On the technical side, Gross Pollutant Traps (GPT) that was installed is not maintained properly, whereby; construction debris and garbage, as well as oil/grease from the construction sites will fill up the GPT thus choking the flow of the system.

Based on the Audit findings, government agencies involved were recommended to take actions on the following:

- i. Government agencies, i.e. stakeholders should plan accordingly and conduct feasibility studies prior to project commencement as well as to tally up with the governed laws so as not to affect the performance of the targeted objectives
- ii. Enforcement activities need to be improved by related government agency as well as public awareness need to be raised regarding the significance of desludging and keeping the rivers clean. If the source of pollution from sewage systems is not curbed, this will affect quality of effluent released into the river thus ROL target to achieve Standard IIB will become effortless.
- iii. Related agencies involved in the execution of ROL should monitor and supervise the work carried out by the contractors and ensure that it is always at good quality. Any poor quality works should be taken correction immediately during project implementation to achieve the project's objectives.
- iv. The need for regular maintenance should be assigned and conducted by the agency involved comprehensively and continuously to ensure that the project components are used effectively and therefore contribute to good water quality as determined by the project objectives.

#### **4.0 CHALLENGES AND BARRIERS**

The National Audit Department of Malaysia promotes balanced and timely, good quality reports to the nation yearly. However, there are some challenges and barriers that auditors need to face as following:

##### **4.1 Institutional Issues**

Malaysia lacks a central agency to manage the overall aspects of water resources management. During auditing for ROL management – Cleaning Phase, Auditors found out that there were many stakeholders (26 government agencies and departments across 4 ministries, 2 States and 3 Municipalities) collaborating in ROL project at the same time, be it, planning phase, on-going execution phase or monitoring phase. Auditors were to liaise with all the stakeholders in order to get the information correctly and accurately to produce a balanced report on this project.

##### **4.2 Legislations**

There are too many agencies having jurisdiction over different aspects of water management, leading to sectoral management of water and conflicting or competing

objectives. The existing laws are also not comprehensive enough and do not deal directly with water issues. The establishment of States Water Regulators and Water Resource Enactment enables the management and supervision of water resources in each state. However, their scope is still limited to matters concerning regulation of the water services industry involving mainly the treatment and distribution of water supply.

### **4.3 The Changing Weather Patterns**

Globally and locally, the climate and weather are changing and this is affecting water resources. ROL management auditing does not adequately take into account changes in weather patterns.

### **4.4 Miscellaneous**

ROL Cleaning Phase were still on-going during the Audit being carried out, which might pose risks to the Auditors during site visits if not fully equipped with Personal Protection Equipment (PPE). The verification of data provided to be used as evidence during report writing are to be supported with advices and comments from the Department of Environment Malaysia and The Department of Chemist Malaysia. By conducting Audit on ROL management – Cleaning Phase, Auditors found out that the scope of auditing is too wide for this field as there are many project components involved for example river cleaning and treatment facilities, wet market sewage treatment facilities and retention ponds system. Auditors were to focus on too many samples on each sub-field (12 KIs) and comprehensive reporting is less likely to be achieved. In addition, the duration of the project takes 8 years by which the initial result can only be observed in year 2018, thus Auditors need to be committed and technical expertise should be trained to produce comprehensible report with good analytical results.

## **5.0 CONCLUSIONS**

The Klang River is perhaps Greater KL/Klang Valley most under-utilized natural asset. Nonetheless, with Malaysian Government's initiatives and efforts on this ROL project, it is hope that the Klang River will become a vibrant waterfront i.e. historical importance, heritage centre with enormous economic and liveability potential to be realized. When the National Audit Department stepped to look into the management of ROL project, even better targeted performance and better governance will be achieved accordingly with its objectives.