WATER QUALITY STUDY OF PAYA INDAH WETLANDS

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FACULTY OF SCIENCE
UNIVERSITY OF MALAYA
KUALA LUMPUR

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ABSTRACT

A study had been carried out on Paya Indah Wetlands' water quality from December 2006 to February 2007. This was to determine the status of water quality. From the analysis on Water Quality Index (WQI) at 15 sampling stations, it was observed that WQI of Paya Indah at most stations were within polluted range. From the comparative study made on WQI at major lakes and canals between year 1996 and 2006/2007, it was observed that Canal C2 and Canal C4 show slight improvement (48.7 – 50.0 and 41.5 – 59.2 respectively). However, major lakes of Paya Indah shows decrease of WQI values, i.e. Main Lake (65.5 – 52.9), Visitor Lake (55.1 – 44.2), Lotus Lake (70.6 – 49.9) and Petaling Tin Lake (72.0 – 53.2). It was also found that between December 2006 and February 2007, Paya Indah had been polluted by low pH, low DO and high Chemical Oxygen Demand. Through the analyses on each parameter by both stations and weekly basis, most stations shows percentage of standard deviations against average were more than 20%. High iron (Fe), manganese (Mn) and *E. coli* were also observed. It is observed that naturally acidic condition of adjacent Kuala Langat Peat Swamp Forest and previous tin mining activities were major water pollution factors on Paya Indah. Acidic condition of peat swamp is due to decomposition of organic matters in acidic condition that produce tannin and lignin, of which could be distinguished by dark brownish to reddish colour of water body. Previous tin mining had produce pyrite or iron sulphide (FeS_2) that derived from tin ore residues and sediment pile at the edge of the lakes or ponds. From the field survey, very minimal water flow at each major lake (Visitor Lake, Lotus Lake, Main Lake, Petaling Tin Lake and Chalet Lake) observed. Thus improvement of water circulation among these lakes is suggested for improving Paya Indah water quality. Regulation of Paya Indah drainage system (inflow and outflow) is also proposed to be improved.

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Wassalam…

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LIST OF ABBREVIATIONS

ANZECC	:	Australian and New Zealand Environment and Conservation Council
ARMCANZ	:	Agricultural and Resources Management Council of Australia and New Zealand
BOD	:	Biochemical Oxygen Demand
CETEC	:	Central of Environmental Technology
COD	:	Chemical Oxygen Demand
DID	:	Department of Drainage and Irrigation
DNA	:	Dr. Nik & Associates
DNASB	:	Dr. Nik & Associates Sdn. Bhd.
DO	:	Dissolved Oxygen
DOE	:	Department of Environment
DWNP	:	Department of Wildlife and National Park
EU	:	European Union
INWQS	:	Interim National Water Quality Standards
KLIA	:	Kuala Lumpur International Airport
MPN	:	Most Probable Numbers
MPOB	:	Malaysian Palm Oil Board
N/A	:	Not available
ND	:	Not detected
NSECL	:	North-South Expressway-Central Link
O&G	:	Oil and Grease

SI	:	Sub-Index
TSS	:	Total Suspended Solids
UNDP	:	United Nations Development Programme
WQI	:	Water Quality Index

LIST OF SYMBOLS

Al	:	Aluminium
As	:	Arsenic
B	:	Boron
Cd	:	Cadmium
Cl_2	:	Chlorine
Cn	:	Cyanide
Cr	:	Chromium
Cu	:	Copper
Fe	:	Iron
Ha	:	Hectares
Hg	:	Mercury
Mn	:	Manganese
N	:	Nitrogen
NH_4	:	Ammonia
NH_3-N	:	Ammoniacal Nitrogen
Ni	:	Nickel
P	:	Phosphorus
Pb	:	Lead
S^{2-}	:	Sulphide
Sn	:	Tin
Zn	:	Zinc