

ENVIRONMENTAL PROTECTION EXPENDITURE: ARE THE BUSINESS CONCERN?



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INTRODUCTION



LITERATURE REVIEW



RESEARCH QUESTIONS



METHODOLOGY

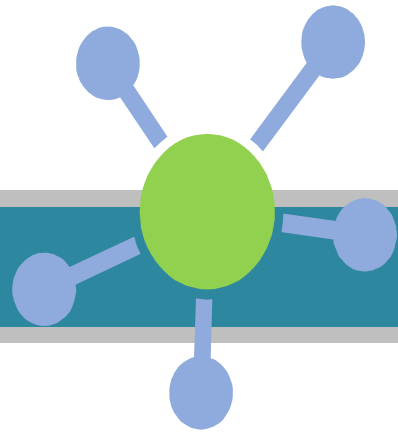


RESULT



CONCLUSION & RECOMMENDATION





INTRODUCTION

CONCEPT AND DEFINITION

ENVIRONMENTAL PROTECTION EXPENDITURE

All capital expenses and operating & repair expenditures incurred by businesses in order to comply with environmental regulations, conventions or voluntary agreements.

01

CAPITAL EXPENDITURE

Relevant outlays for machinery & equipment and their installation and repair that have been capitalized, as well as for the construction of non-residential facilities (contractors or own employees).

02

OPERATING EXPENDITURE

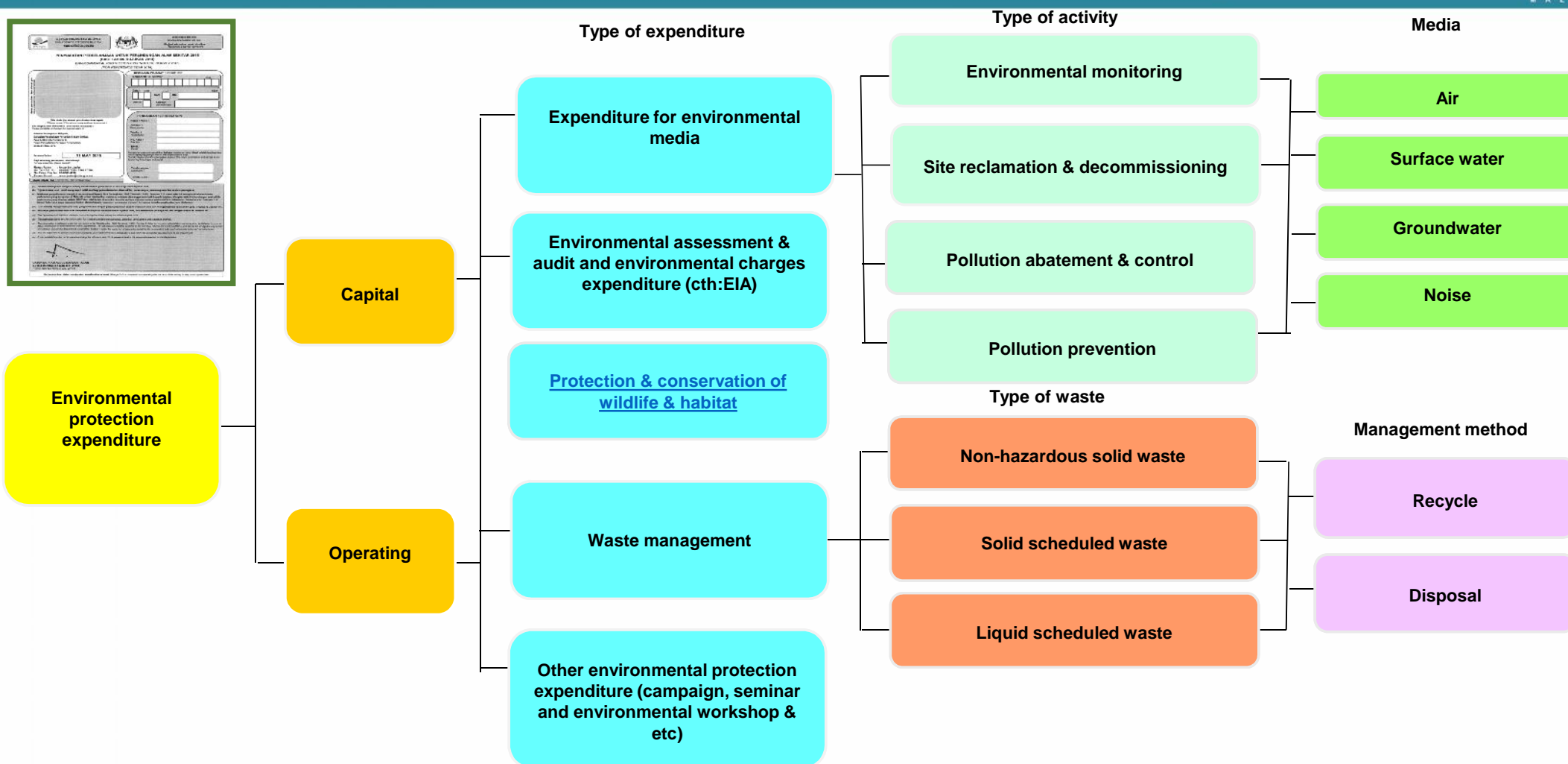
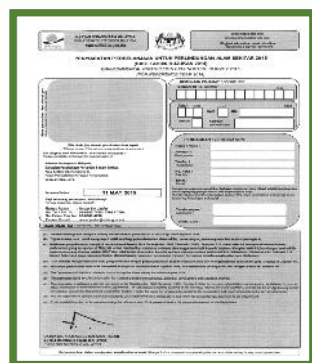
Expenses related to environmental protection incurred for labour; materials and supplies; maintenance and repair; and purchased services (include fuel and electricity expenses for machinery and equipment whose sole purpose is to protect the environment).

03

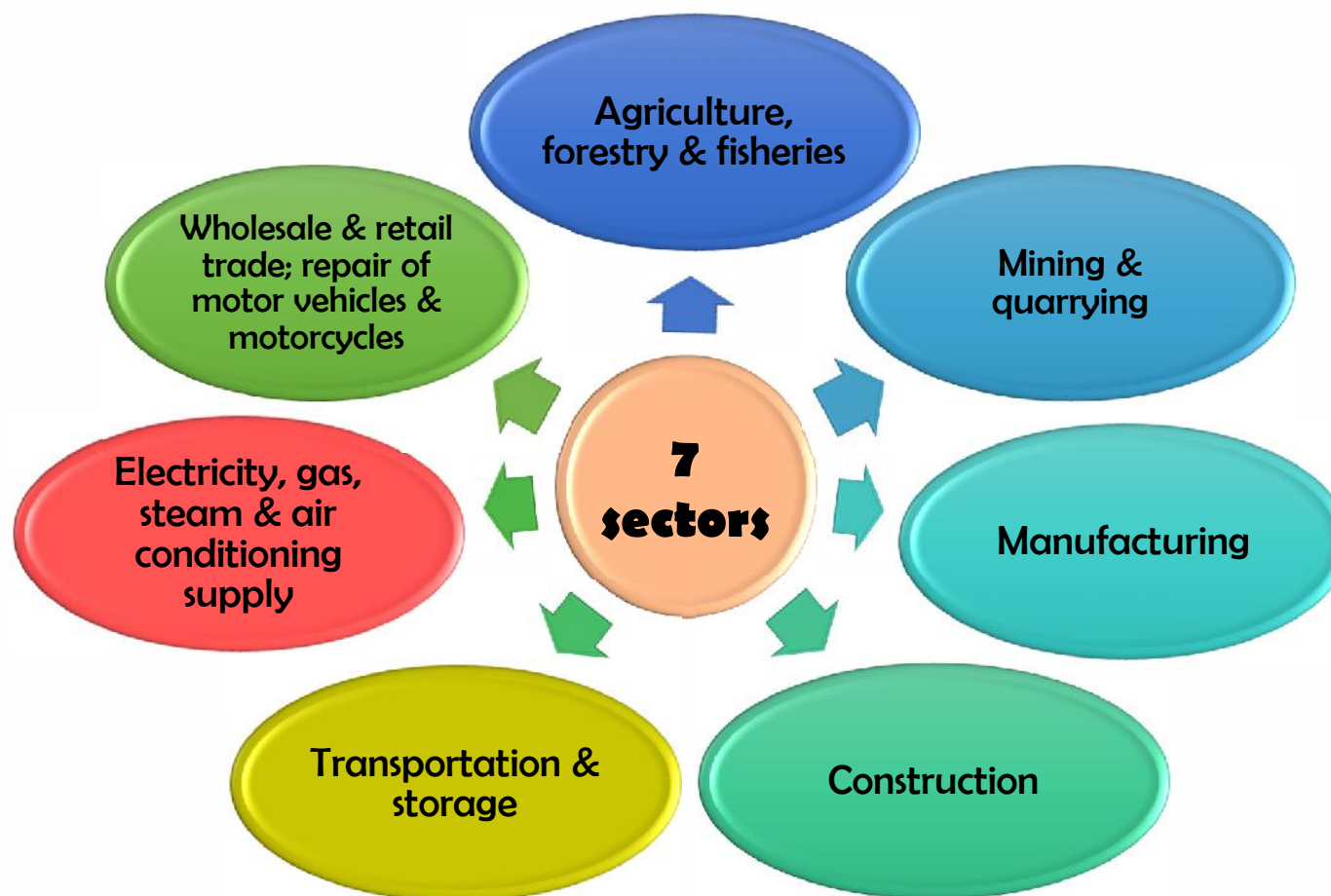
Source: *Environmental Expenditure Statistics - Industry Data Collection Handbook* by EUROSTAT



INFORMATION COLLECTED



Sector's covered in PPPMAS 2008 - 2010



Additional 11 Sector's covered 2012-2014

Water supply; sewerage, waste management & remediation activities

Accommodation

Food & beverage service activities

Information & communication

Real estate activities

Professional, scientific & technical activities

Administrative & support service activities

Education

Human health & social work activities

Arts, entertainment & recreation

Other service activities





LITERATURE REVIEW

i) Vargas-Vargas, M., Meseguer-Santamaría, M L , Mondéjar - Jiménez, J and Mondéjar - Jiménez, J.A (2010)

“the bigger the company, the more consideration there is for the environment.”

ii) Roger H. Bezdek, Robert M. Wendling and Paula DiPerna (2007)

“Analysts and politicians seem to agree from all perspectives that there is a strong relationship between environmental protection and employment. Many studies have been conducted in the past two decades with the aim of estimating the economic and employment effects of environmental protection.”



iii) Nancy Olsson (2003)

“a correlation analysis showed that the correlation between “number of employees” by industry and the amounts invested in these industries was low but stable enough to use as a weight for estimations”

iv) Grossmann and Krueger (1995)

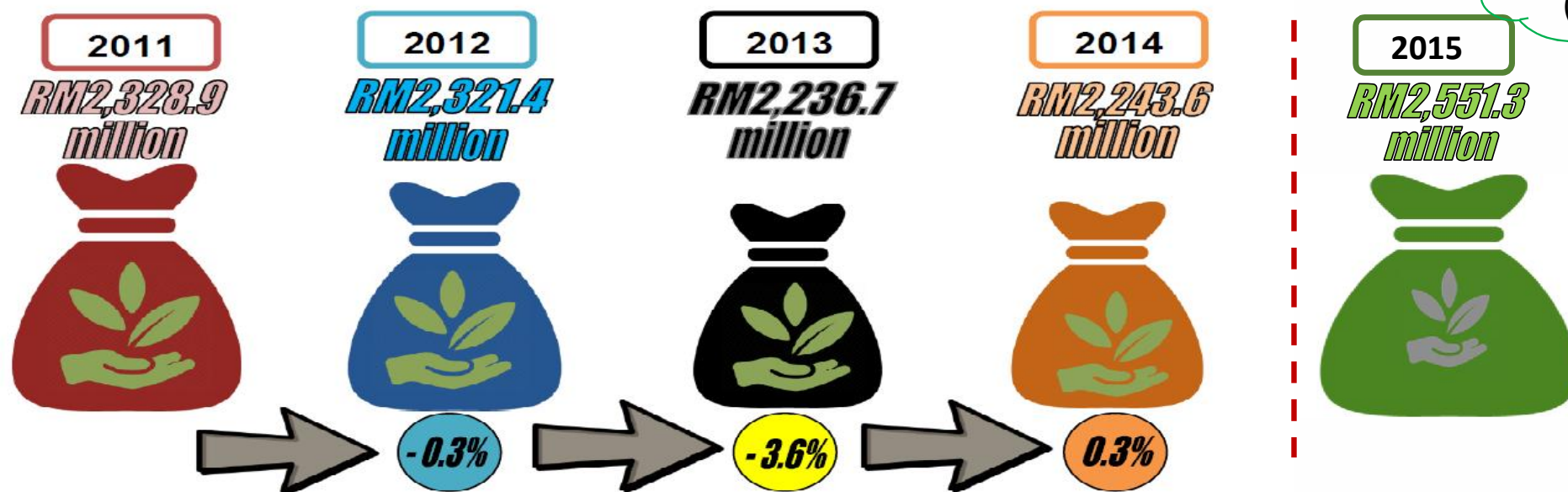
“From a macro-level perspectives, there can be assumed to be a nonlinear relation between industrialization and pollution, meaning that higher levels of industrialization imply higher levels of pollution only up to the point at which incomes are high enough to enable environmental awareness and clean technologies”





RESEARCH QUESTIONS

ENVIRONMENTAL PROTECTION EXPENDITURE, 2011-2015



RESEARCH QUESTIONS

Are the environmental protection expenditure is influenced by the company's revenue?

Are the environmental protection expenditure is influenced by the output of company?

Are the environmental protection expenditure is influenced by the number of employees?

Are the environmental protection expenditure is influenced by the total expenditure?





METHODOLOGY

- Data from Economic Census (RY 2015)

MULTIPLE LINEAR REGRESSION ANALYSIS (MLR)

$$Y' = b_0 + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4$$

Where:

Y' = Environmental Protection Expenditure

X_1 = Company's revenue

X_2 = Output

X_3 = Number of employees

X_4 = Total Expenditure

Transformation data



$$\ln(Y') = b_0 + b_1 \ln(X_1) + b_2 \ln(X_2) + b_3 \ln(X_3) + b_4 \ln(X_4)$$





RESULT

MLR ASSUMPTION



CHECKED

Linear relationship between independent and dependent variable

01

02

The errors between observed and predicted values (i.e., the residuals of the regression) should be normally distributed

There is no multicollinearity in the data

03

04

Homoscedasticity

Outliers/influential cases

05



REGRESSION OUTPUT

Model Summary^b

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.764 ^a	.584	.584	1.64373

a. Predictors: (Constant), LN_Hasil

b. Dependent Variable: LN_Total_EPE

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35427.663	1	35427.663	13112.346	.000 ^b
	Residual	25259.646	9349	2.702		
	Total	60687.309	9350			

a. Dependent Variable: LN_Total_EPE

b. Predictors: (Constant), LN_Hasil

Coefficients^a

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-0.688	0.088		-7.799	.000
	LN_Hasil	0.661	0.006	0.764	114.509	.000

a. Dependent Variable: LN_Total_EPE

Result:

Regression equation:

$$\text{Ln (Total Environmental Protection Expenditure)} = -0.688 + 0.661 \text{ Ln(Company Revenue)}$$



CONCLUSION & RECOMMENDATION

CONCLUSION & RECOMMENDATION

CONCLUSION

- Environmental protection expenditure (EPE) in 2015 only **influenced** by company's revenue.

RECOMMENDATIONS

- Using time series data for further analysis of EPES.
- The size of establishment might be one of the factor that influence the EPE.
- EPES focus on sector which give higher contribution to EPE and relevant to the current economic growth.





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THANK YOU



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Data Anda Masa Depan Kita