

**SUCCESSFUL POLLUTION CONTROL
THROUGH CLEANER PRODUCTION:
MYTH OR REALITY?**

By

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CERTIFICATION

This Thesis is submitted in fulfilment of the requirement of the degree of PhD in the Centre of Environmental Law, Division of Law, Macquarie University. This represents the original work and contribution of the author, except as acknowledged by the general and specific references.

I hereby certify that it has not been submitted for a higher degree to any other university or institution.

I further declare that opinions and ideas expressed in this thesis are my personal opinions and ideas, and do not reflect in anyway the official and unofficial positions, opinions and policies of present and previous employers.

Ely Anthony R Ouano

DEDICATION

This work is dedicated to my wife Rosalie V Ouano and to our four daughters, Evariz, Ellirose, Eunice Abigail and Edelyn Pia.

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ABSTRACT

Although wastes minimisation was a standard component in industrial pollution textbooks as early as 1965¹, acceptance of the concept was limited to the specialised field of sanitary engineering and, later, environmental engineering. It was not until the 1985 when Royston² published the book *Pollution Control Pays* that the concept caught the attention of a broad range of decision-makers including politicians, business managers, bankers, and journalists. The popularity of Royston's book was facilitated by the simplicity of the presentation and the increasing cost of pollution control. By 1990, "pollution prevention" was incorporated into environmental laws and policies and promoted by international organizations. As more research was devoted to pollution prevention, the scope of analysis was broadened beyond the technology aspect to include management practices, interrelationships of industries, consumer preferences, and various economic incentives and disincentives. Pollution prevention is considered the solution to environmental degradation that at the same time improves product quality, market competitiveness and share.

In competing for public and private funding, each organization started to coin and promote variations of the "pollution prevention" concept. "Wastes minimisation", "clean technology", "cleaner production", "environmentally sound technology", "green technology", "zero wastes" and "industrial ecology" are some of the most common variations of the concept that entered into the public domain. Among the "pollution prevention" variants, "cleaner production" is the most common in developing countries due to the promotion by the United Nations Environment Programme, the World Bank and other regional financial

¹ Wesley Eckenfelder Jr. (1966) *Industrial Pollution Control*, McGraw Hill Book Co., New York

² Michael Royston (1979) *Pollution Prevention Pays*, Pergamon Press, London

organizations like the Asian Development Bank, African Development Bank and the Inter-American Development Bank.

The promotion of cleaner production and its variants consists of:

- (i) demonstration projects;
- (ii) information dissemination through seminars, international conferences and technology transfer centres;
- (iii) loans with low interest and long repayment periods; and
- (iv) environmental laws and policies providing incentives.

Demonstration projects have shown that cleaner production is a very attractive investment with financial rates of return ranging from 20 to more than 100 per cent. However, venture capitals are not competing for cleaner production projects. Soft loans provided by development banks and bilateral development assistance agencies have low utilisation. Decision-makers' psychology and resistance to change, the limited number of demonstration projects and technology transfer centres, and inadequate legislation providing incentives and disincentives are some of the suggested reasons for poor implementation of cleaner production.

Yet in the whole of human history, inventions are closely protected by law or brute force. Nevertheless, inventions are pirated, copied, modified and improved by people other than the original inventor. On the other hand, cleaner production and its variants are not utilised effectively in spite of all the financial incentives, promotions through conferences, seminars, ministerial declarations, technology transfer centres, and demonstration projects.

This thesis examines the domestic and international legal constraints to the use of cleaner production and its variants. The domestic legal constraints are the labour laws, industrial incentives to less developed regions, protection of existing industries from

competition, “grandfather” clauses in environmental legislation to existing industries, and national security. The international legal constraints are treaties distorting the market, thereby eroding the benefits of cleaner production – together with the wide range of non-operational concepts attached to cleaner production, thereby creating apathy and confusion in the potential users. This thesis examines the sugar industry in the Philippines as a case study to illustrate the impacts of domestic and international legal constraints on the use of cleaner production.

ABBREVIATIONS

ACCA21	Administrative Centre for China Agenda 21
ADB	Asian Development Bank
APEC	Asia Pacific Economic Cooperation
APO	Asian Productivity Organization
ASEAN	Association of South East Asian Nations
BAT	Best Available Technology
BOD	Biochemical Oxygen Demand
CDM	Clean Development Mechanism
CITES	Convention on International Trade in Endangered Species
COP	Conference of Parties
CP	Cleaner Production
DENR	Department of Environment and Natural Resources (Philippines)
EC	European Commission
EIA	Environmental Impact Assessment
EIRR	Economic Internal Rate of Return
EMB	Environment Management Bureau of the Philippines
ESCAP	Economic and Social Commission for Asia Pacific
ESTTC	Environmentally Sound Technology Transfer Centre
EU	European Union
FIRR	Financial Rate of Return
GATT	General Agreement on Tariff and Trade
GDP	Gross Domestic Product
GEF	Global Environment Facility
GNP	Gross National Product

GTZ	Gesellschaft für Technische Zusammenarbeit (German Aid Agency)
G7	Group Seven Industrialised Nations
IBRD	International Bank for Reconstruction and Development
IETC	International Environmental Technology Centre
IFC	International Finance Corporation
IMF	International Monetary Fund
IPO	International Productivity Organization
ISO	International Standard Organization also International Sugar Organization
JBIC	Japan Bank for International Cooperation
LIBOR	London Interbank Ordinary Rate
Ltd	Limited
MIGA	Multinational Insurance and Guarantee Association
NAFTA	North American Free Trade Agreement
NGO	Non-Governmental Organization
ODA	Official Development Assistance
OECD	Organization for Economic Cooperation and Development
PHILSUCOM	Philippine Sugar Commission
PP	Purchasing Power Parity
PPP	Policy, Plans and Programs
SA	South Australia
SEA	Strategic Environmental Assessment
SIEEA	System of Integrated Environmental and Economic Accounts
SIFI	Sugar Industry Foundation Incorporated
UK	United Kingdom

UN	United Nations
UNCED	United Nations Conference on Environment and Development
UNECE	United Nations Economic Commission for Europe
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework Convention on Climate Change
UNIDO	United Nations Industrial Development Organization
US	United States of America
USAID	United States Agency for International Development
US-AEP	United States ASEAN Environment Partnership
US-EIP	United States Environmental Improvement Partnership
USEPA	United States Environmental Protection Agency
WTO	World Trade Organization

MEASUREMENT

cum	cubic meter
hr	hour
kg	kilogram
kw	kilowatts
kw-hr	kilowatt hour
l	litre
mg	milligram

TABLE LIST

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