



De La Salle University - Dasmariñas
GRADUATE PROGRAM

**ESTABLISHMENT OF A WASTEWATER TESTING LABORATORY IN
DASMARINAS, CAVITE**

A Project Feasibility Study

Presented to

**the Faculty of The Graduate School of Business
De La Salle University – Dasmariñas**

**In partial fulfillment
Of the Requirements for the
Degree of Master in Business Administration**

by

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1999



FEASIBILITY STUDY ABSTRACT

TITLE:

Establishment of a Waste Water Testing Laboratory in Dasmariñas, Cavite

TOTAL NUMBER OF PAGES: 286

PROPONENT:

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TYPE OF DOCUMENT:

Project Feasibility Study

NAME AND ADDRESS OF INSTITUTION:

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SUMMARY

The study seeks to determine the feasibility of establishing a Waste Water Testing Laboratory in Dasmariñas, Cavite. The laboratory is envisioned to provide analytical laboratory services to industrial firms located in the Calabarzon Area, with particular focus on the province of Cavite. This area is under the jurisdiction of Region IV of the Department of Environment and Natural Resources. Each of the industrial estates held under this jurisdiction can accommodate a large number of manufacturing companies, which would need environmental services.

The DENR has required all companies to submit quarterly monitoring reports, which should include results of monthly laboratory analysis of



several parameters of waste water quality. The issuing laboratory, on the other hand, should be a DENR recognized laboratory.

The Laguna Lake Development Authority has started to implement the Environmental User's Fee starting in January, 1998. This system basically consists of penalizing each manufacturing company that throws its waste water into any body of water leading to Laguna de Bay. The DENR also plans to implement the Environmental User's Fee on a nationwide scale but on a gradual basis, after learning from the experience of the LLDA from its area of coverage. The Environmental User's Fee system, based on the Polluters Pay Principle, shall result into an increased demand for environmental laboratory services.

The proposed laboratory shall primarily serve industries and factories in Cavite and the nearby provinces' industrial estates. It will help enhance the availability and accessibility of wastewater testing services within the area previously mentioned.

Data presented in this study cover a period of ten years (five years historical, five years projection). Primary and secondary data were gathered through a combination of research work, interviews guided by questionnaire, personal visits to private companies, laboratories and government agencies. Subjects of the study are the manufacturing companies in Cavite and Laguna and the existing laboratories within and outside Cavite.



ORGANIZATION AND MANAGEMENT

The project will adopt the corporate form of business organization, with an authorized capitalization of PhP 4,800,000 divided into 48,000 shares with a par value of P100 per share. Initial stock issuance amounts to P1,200,000.

On top of the organization are the Board of Directors, followed by the overall manager (who is preferably also one of the board of directors). The overall manager is in charge of the business and technical administration of the laboratory.

MARKETING ASPECT

The proposed project intends to cater wastewater laboratory services to industrial and factory plants in the CALABARZON area. Demand for such services come from the act of intervention made by the government in the enforcement and regulatory requirement for industries to report the results of its environmental monitoring program (one of which is monitoring of wastewaters emitted into the rivers). Such report can only be issued by a duly registered and DENR recognized environmental laboratory.

Through the researches done, the proponent found that in CALABARZON alone, there are seven hundred thirty six (736) firms (as of 1997) requiring 8,832 physico-chemical testing services and 4,944 heavy metal testing services annually. Out of which, there are only ten to fifteen DENR recognized environmental laboratories, all located in Metro Manila,



available to perform the testing services for all existing factories and industries nationwide (not just the CALABARZON area).

The demand-supply gap implies that as industries grow and the government fully implements their regulations regarding monitoring of wastes and protection of environment, the need for availing wastewater testing services shall also continuously increase. Tabulations of projected demand and supply gap for the next five-year period, together with the targeted market share are presented below.

DEMAND AND SUPPLY GAP

YEAR	PHYSICO-CHEMICAL			HEAVY METAL		
	DEMAND	SUPPLY	GAP	DEMAND	SUPPLY	GAP
1999	11,609	2,125	9,484	6,706	786	5,920
2000	12,916	2,699	10,217	7,627	1,108	6,519
2001	14,222	3,428	10,794	8,549	1,562	6,987
2002	15,529	4,353	11,176	9,470	2,203	7,267
2003	16,836	5,528	11,308	10,392	3,106	7,286

MARKET SHARE

YEAR	PHYSICO-CHEMICAL			HEAVY METALS		
	% SHARE	SAMPLES	CLIENTS	% SHARE	SAMPLES	CLIENTS
1999	6.33	600	50	5.07	300	25
2000	7.05	720	60	5.52	360	30
2001	11.67	1260	105	10.31	720	60
2002	13.42	1500	125	11.56	840	70
2003	13.80	1560	130	12.35	900	75



(3%) The proposed project intends to capture five percent (in first year) to twelve percent (on the fifth year) of the unserved market of industries and factories in CALABARZON area. Growth shall be sustained through sufficient capitalization and proper management of resources.

TECHNICAL ASPECT

The proposed project will render laboratory services particularly for industrial wastewater samples. Procedures, methods, solutions, chemicals, instruments, equipment, and even the structural layout of laboratory to be adopted shall be in accordance with DENR requirements. Standard methods of analysis shall also be followed in performing physico-chemical and heavy metal tests. The proposed project intends to enter into a lease agreement for the building to be used as laboratory; the building is located in San Agustin, Dasmariñas, Cavite. Most of the instruments and equipment to be used are imported from some other countries like Colorado and California, U.S.A. Reagents, chemicals, and other supplies, on the other hand, are locally available but also on a limited basis.

FINANCIAL ASPECT

The project's total cost amounts to P4,000,000. Of this amount, P1.2 Million shall come from stockholders' investment while P2.8 Million shall be borrowed from a bank at 11% interest, payable in 5 years.

Financial ratios show that the business is liquid, stable and profitable. As per financial projection, the business may incur a deficit of eight percent



(8%) on the first year, but in a four-year time, it will be able to achieve a forty per cent (40%) net income ratio. Because of certain advantages enjoyed through financial leverage, the proposed company posts as much as two hundred eighty four percent (284%) return on stockholders' equity by the fifth year. Payback period, on the other hand, is expected to be two years and two months. Internal rate of return is computed at twenty seven percent (27%), compared with the firm's cost of capital set at eleven percent (11%). Tabulations of the results of financial performance analysis for the proposed project are presented below.

TESTS OF LIQUIDITY

TEST RATIOS	1999	2000	2001	2002	2003
Current Ratio	1	1	1	2	3
Quick Ratio	1	1	1	2	3
Working Capital	228,921	156,912	221,962	1,449,793	3,609,002
Receivables T/O	35	20	23	20	19

TESTS OF DEBT SERVICE

DEBT SERVICE RATIO	1999	2000	2001	2002	2003
No. of Times Int. Earned	0.45	1.85	13.25	28.73	65.60
Debt-to-Networth Ratio	2.28	1.65	1.08	0.60	0.34
Debt Ratio	0.70	0.62	0.52	0.38	0.26
Total Debt Coverage	0.28	0.97	5.48	8.33	10.00



TESTS OF PROFITABILITY

Payback Period 3 Years, 2 months, 15 days

PROFITABILITY RATIOS	1999	2000	2001	2002	2003
Net Income Ratio	(0.08)	0.05	0.29	0.37	0.40
Operating Income Margin	0.06	0.17	0.45	0.55	0.57
Gross Income Margin	0.52	0.56	0.70	0.74	0.76
Ret. On Financier's Invest.	0.05	0.16	0.99	2.38	2.91
Ret. On Stockholder's Invest.	(0.14)	0.12	1.39	2.26	2.84
Return on Assets	(0.05)	0.04	0.45	0.55	0.53

TESTS OF FINANCIAL LEVERAGE

TESTS OF FINANCIAL LEVERAGE	1999	2000	2001	2002	2003
Earnings per Share	(14)	12	139	226	284
Dividend per Share	-	-	67	100	133
Dividend Payout	-	-	0.48	0.44	0.47

**TEST OF OPERATING LEVERAGE
(BREAK EVEN POINT)**

LABORATORY SERVICE	1999	2000	2001	2002	2003
VOLUME					
PHYSICO-CHEMICAL	654	679	768	759	734
HEAVY METALS	322	335	378	374	361
REVENUE					
PHYSICO-CHEMICAL	1,830,543	2,092,320	2,601,466	2,828,167	3,006,813
HEAVY METALS	531,306	607,286	755,252	820,762	872,900



TESTS OF CAPITAL INVESTMENT

Payback Period	2 Years, 2 months, 15 days
Capital Recovery in Years	3 years, 3 months, 28 days
Net Present Value	PHP 2,594,268.00
Internal Rate of Return	27.00%

SOCIO-ECONOMIC ASPECT

The project will generate revenue and will benefit various parties, people who will be directly or indirectly employed in its operation. It will generate employment within the community; help keep the environment clean; help implement government's regulations; and give additional income to the government.

RECOMMENDATION

Findings of the study show that the proposed business is feasible and viable, and that it will provide benefits not only to the investors but also to the other sectors of the society. The proponent, therefore, strongly recommends that the project be pursued.



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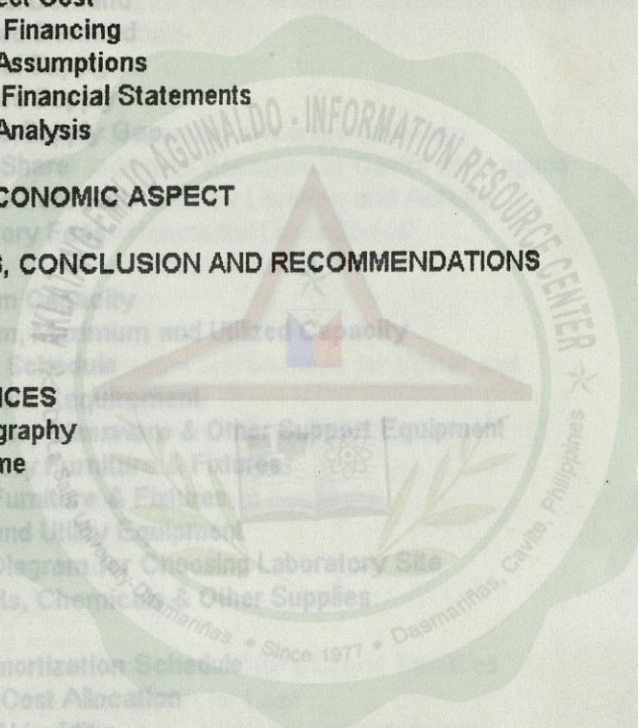




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