

PD 873M-070
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WASTE-TO-ENERGY TECHNOLOGY EVALUATION

United States of America
October 2 - 13, 1994

Prepared for:

US - ASIA ENVIRONMENTAL PARTNERSHIP



WORLD ENVIRONMENT CENTER

DISCLAIMER

This project was sponsored by the U.S. Agency for International Development (USAID) through the World Environment's (WEC) Cooperative Agreement in support of the U.S.-Asia Environmental Partnership (US-AEP). The opinions expressed here are the professional opinions of the author and do not represent the position of the Government of the United States of America or the World Environment Center.

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I. EXECUTIVE SUMMARY

A seven member delegation from the Philippines visited the United States on an Environmental Business Exchange (EBE) from October 2 to 13, 1994. The purpose of the EBE was for the Philippine delegation to observe a system of converting waste-to-energy that has been developed by YSC Corporation Holdings (YSC). The system can process high moisture content (MSW) through a hydrolysis and fermentation process that yields both lignin, a solid residue similar to coal that can be combusted, and chemicals for sale.

Developed by the Tennessee Valley Authority (TVA) in Muscle Shoals, Alabama, the technology converts cellulosic compounds into several distinct products (ethyl alcohol, furfural, acetic acid, carbon dioxide, etc). YSC, a company licensed to market and use the technology internationally, hosted the Philippine group and led them to facilities around the country where the technology was developed. They also met with representatives of Black and Veatch of Kansas City, MO, the turnkey engineers for the proposed project in the Philippines utilizing this technology.

Upon the conclusion of the exchange, YSC and representatives of the Philippines signed a Memorandum of Understanding (MOU) that serves as the first step in transferring this technology to the Philippines. Under the terms of this agreement, YSC will build, operate, and transfer (BOT) the US \$23,000,000 facility that will utilize their technology. Since the completion of the exchange, the Government of the Philippines has chosen Bataan as the site of the facility.

Funding for this project was provided through a Cooperative Agreement between the World Environment Center (WEC) and the United States-Asia Environmental Partnership (US-AEP), the U.S. Agency for International Development (USAID).

II. INTRODUCTION

A seven member Philippine delegation participated in an Environmental Business Exchange from October 2 to 13, 1994. The purpose of the exchange was for the participants to observe and evaluate a waste-to-energy system that has been developed by YSC Corporation Holdings (YSC). This technology involves a new and unique method of transforming solid waste into a high grade energy fuel (ethy. alcohol) and other salvageable and salable chemical products. The technology is particularly well suited to process high moisture content waste, one of the main reasons it was being considered for use in the Philippines. The proposed project represents an innovative approach for the safe disposal of municipal solid waste (MSW) via an environmentally sound process. The focus of this exchange was to reinforce the business development steps taken, thus far, between YSC and the Philippine representatives.

The members of the Philippine delegation were as follows:

- Dionisio C. De La Serna, Housing and Urban Development (HUD) Chairman
- Ramon Revilla, Senator, Republic of the Philippines
- Prospero I. Oreta, Mayor of Malabon
- Jessie L. Todoc, Energy Regulation Officer
- Ofelia P. Monroy, Technical aide to Mayor Oreta
- Natividad M. Sibal, Legal Advisor to Mayor Oreta
- Abelardo R. Topacio, Aide to Senator Revilla

The problem of managing MSW in the Philippines is particularly difficult because of the high moisture content of the waste generated. Informal sector scavengers typically recycle the useable waste stream output (paper and wood products having heating value). Although, a common "solution" in the industrial world, incineration is not feasible in countries where the waste steam is considerably more moist. To further complicate the problem of MSW disposal in the Philippines, urban areas are running out of landfill space to dump solid waste and some municipalities have stopped dumping in the remaining landfills due to excessive cost.

As a solution to the problem of high moisture content, YSC Corporation holdings has teamed up with Black and Veatch, in Kansas City , MO, through a licensing of a technology developed at the Tennessee Valley Authority (TVA) in Muscle Shoals, AL.

III. MEETINGS HELD AND FACILITIES VISITED

A. October 3, 1994, United States-Asia Environmental Partnership (US-AEP) Secretariat, Washington, DC

The Philippine waste to energy delegation met with the US-AEP Secretariat to begin their tour of the U.S. Following a brief introduction by Lewis P. Reade, Director General US-AEP, concerning the nature and mission of the EBE program, discussion focused on the broader concerns of the US-AEP and their work with developing nations in the Pacific Rim and Asian nations.

The Philippine delegation members expressed their appreciation for the work done by US-AEP in the Philippines. Senator Dionisio De La Serna stated that he was appreciative of the opportunity to meet because it enlightened him about a number of specific US-AEP programs of which he had not been aware. Martin Yingling, President, YSC, welcomed the Philippine delegation and thanked the US-AEP for supporting his company's business development efforts.

B. October 4, 1994, Infrastructure and Finance Advisory Service (IFAS), Washington, DC

The Philippine delegation met with representatives of the Infrastructure and Finance Advisory Service (IFAS) to discuss potential means of obtaining financing for the proposed project.

C. October 5, 1994, YSC, Washington, DC

Martin Yingling, President, YSC, remained in Washington, DC to conduct negotiations with the Philippine delegation leaders, Senator Revilla, Housing Urban Development (HUD) Chairman Dionisio De La Serna, and Mayor Prespero Oreta at the Philippine Embassy. Working closely with the Philippine Ambassador, the group was able to reach terms of agreement which were finalized at these meetings. A Memorandum of Understanding (MOU) was signed to go forward with a build, operate and transfer (BOT) development plan for the waste to energy facility in the Philippines.

D. October 6, 1994, Coal Fired Power Station, Muscle Shoals, AL

The group leaders remained in Washington, DC while the technical advisors, legal council, and environmental experts traveled with YSC representatives Mr. Mars De La

Cuesta, Project Manager, and Gerald Thompson, Vice President of Finance, to Muscle Shoals, AL.

The participants had an opportunity to observe the conventional methods of power generation used in the U.S. when they visited a coal fired power station in Muscle Shoals, AL. The participants toured the facility and noted that some of the technology used at the coal fired power station would be used in the YSC/TVA waste to energy electric power generation plant.

The group was taken to a trash combustion station in Huntsville, AL to observe a different aspect of U.S. technology and infrastructure.

E. October 10, 1994, Tennessee Valley Authority (TVA), Biotechnical Research Center, Muscle Shoals, AL

The delegation visited the Tennessee Valley Authority (TVA) Biotechnical Research Center to see the pilot demonstration of the YSC waste-to-energy technology. The participants toured the facility where the research to develop the technology was undertaken, and met with scientists and engineers to discuss the technical merits of their approach. This meeting proved to be very interesting for the delegates, as it allowed them an opportunity to observe the research methodology supporting the YSC technology.

The researchers explained the three step process of how sugars and cellulosic materials are decomposed using acid hydrolysis. The process requires the extracted sugars to be refined and neutralized by hydroxylate process. Finally, fermentation and distillation are used to complete the process.

Estimates of potential annual output from the process were also given. The plant proposed by YSC is reported to achieve 25,000,000 gallons production of ethyl alcohol and 50,000 tons of furfural. TVA experts supported these reports. The total output of salable products was of particular interest to the delegates because of the high cost of energy in the Philippines.

Along with the more valuable, energy generating products that result from the YSC/TVA process, a number of ancillary byproducts were also retrieved, among them lignin which has a heating value similar to that of coal; other byproducts are acetic acid and carbon dioxide. The TVA hosts explained how the lignin could be used with traditional fluidized bed boilers to create steam used for cogeneration of electricity. Philippine delegation members were concerned that the lignin could be environmentally hazardous. The TVA representatives assured the delegation that this was not the case. Lignin, they explained, undergoes a purification process which renders it "clean" and undesirable emissions do not result from this process.

F. October 11, 1994, Black and Veatch, Kansas City, MO

Black and Veatch is a large turnkey design and engineering firm with an interest in waste management and waste-to-energy projects. YSC has enlisted the support of Black and Veatch to operate as the principal designer for the proposed project in the Philippines. They also will act as YSC's technical partner on other projects.

The Philippine delegation was invited to Black and Veatch's offices to meet with managing engineers and discuss Philippines' waste management needs. The group also discussed practical issues related to the design of the YSC proposed waste-to-energy facility. Black and Veatch expressed an interest in working on the project with YSC and the Philippines. Black and Veatch was confident that the project would be successful.

In need of an objective perspective on various technical issues related to chemical segregation during and after the YSC/TVA treatment process, the Philippine group asked questions resulting from their observation of the TVA demonstration site. For example, Black and Veatch representatives were requested to estimate the expected output of various chemical components based on the waste stream generated in the Philippines. Black and Veatch engineers explained the process of how sugars and cellulosic materials are decomposed through the process of acid hydrolysis, how the extracted materials are then further refined and neutralized by hydroxylate process, and finally how fermentation and distillation is used to complete the process. Black and Veatch commented that their physical schematic of the light chemical plant was based on expected output. However, the design also included a margin of flexibility to allow for project throughput to increase. Should the Philippine's waste management needs increase beyond the expected scope of the project, the Black and Veatch design would allow for expansion with minimal retrofitting, redesign, capital input, or basic construction; the project should last well beyond its 30 year build, operate, and transfer (BOT) period.

G. October 13, 1994, YSC /U.S. Environmental Protection Agency/ U.S. Department of Energy, Washington, DC

Representatives of YSC and the Philippine delegation met in Washington, DC to discuss their observations and meetings in Muscle Shoals and Kansas City. The technical recommendation of the group was to proceed with the plan. Additional meetings were also held with the U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy. At the closing ceremony, presided over by the Philippine Ambassador to the United States, a MOU was signed between YSC Corporation Holdings and the Government of the Philippines at the Philippine Embassy. Special thanks was given to US-AEP for their support of the project

development. A wire was sent to the President of the Philippines, thus formalizing the signing.

IV. CONCLUSIONS

The overall impact of the Philippine Waste to Energy Exchange was a success. During the exchange, preliminary agreements were reached between YSC Corporation Holdings and representatives of the Government of the Philippines (GOP), a Memorandum of Understanding was signed, and the basis for further collaboration was established. The technical participants' work of assessing of the technology was accomplished which has allowed the proposed project to continue.

Subsequent to the exchange, a number of developments have furthered the working relationship between the GOP and YSC which will result in the transfer of waste to energy technology to the Philippines. Shortly after the exchange, it was announced that the project will be called the Philippine Light Chemical and Energy Project, operated by the newly established YSC Philippines Light Chemical and Energy Co. Inc. Considering the infrastructure needed to support the waste processing and light chemical recovery plant, the total project is now estimated at US \$538 million and has been given support by the President of the Philippines.

On October 27, 1994 the member mayors of the Metropolitan Manilla Council signed Board Resolution No. 26, Series 1994 which designated Bataan as the site for the project. A copy of the resolution is included as Appendix A. On December 27, 1994, the proposal was presented to Governor Leonardo B. Roman of Bataan Province for financial, technical, and legal consideration. Since that time, financing has been approved for the project.

Once operational, the facility is estimated to employ approximately 700 workers, address the problem of solid waste management for Metro Manilla, and provide 100 Megawatts of cogenerated electricity to the region.

APPENDICES

APPENDIX A

RESOLUTION NO. 26, SERIES 1994, METROPOLITAN MANILA COUNCIL



REPUBLIKA NG PILIPINAS
TANGGAPAN NG PANGULO
PANGASIWAAN NG KALAKHANG MAYNILA
(METROPOLITAN MANILA AUTHORITY)

METROPOLITAN MANILA COUNCIL

Resolution No. 26
Series of 1994

APPROVING THE MEMORANDUM OF UNDERSTANDING ON THE PROPOSAL TO ADDRESS THE MUNICIPAL SOLID WASTE (MSW) ISSUE OF METROPOLITAN MANILA BETWEEN YSC CORPORATION HOLDINGS AND THE METRO MANILA AUTHORITY AND THE PRESIDENTIAL TASK FORCE ON WASTE MANAGEMENT (PTFWM) UNDER THE BUILD, OPERATE AND TRANSFER PROGRAM OF THE PHILIPPINES

WHEREAS, the Metropolitan Manila has always been beset with the problem of solid waste disposal;

WHEREAS, Honorable Prospero I. Dreta, MMA Chairman, in behalf of MMA and PTFWM, and under the Exchange Partnership Program Meeting in Washington, D.C., United States of America, sponsored by the United States Asia Environmental Partnership, entered into a Memorandum of Understanding with the YSC Corporation Holdings on October 11, 1994, to address this problem of solid waste disposal in Metro Manila;

WHEREAS, after Honorable Mayor and MMA Chairman Dreta fully explained to the Metro Manila Council (Council) the objective and the importance of the aforesaid Understanding wherein the Project Proposal of YSC Corporation Holdings would utilize the solid waste in Metro Manila and through a process would generate from it useful chemical by-product that will only cost a minimal tipping fee for a metric ton of solid waste, the Council, after due deliberation in session duly assembled, moved for the approval of the said Memorandum of Understanding;

NOW THEREFORE, be it resolved, as it is hereby resolved, by the Council, pursuant to Section 2 of Executive Order No. 392, s.1990, that the Council hereby approves the aforementioned Memorandum of Understanding on the proposal to address the Municipal Solid Waste (MSW) issue of Metropolitan Manila between YSC Corporation Holdings and the Metro Manila Authority and the Presidential Task Force (PTFWM) on Waste Management under the Build, Operate and Transfer Program of the Philippines, and as provided therein, hereby favorably endorses the same to the PTFWM for its consideration.

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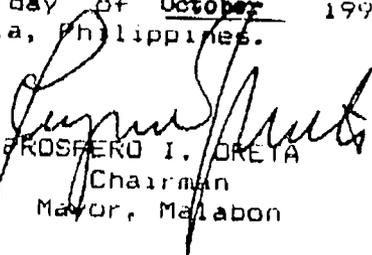
Resolution No. _____

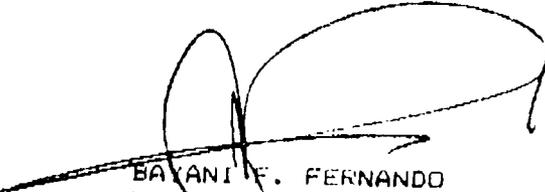
APPROVING THE MEMORANDUM OF UNDERSTANDING ON THE PROPOSAL TO ADDRESS THE MUNICIPAL SOLID WASTE (MSW) ISSUE OF METROPOLITAN MANILA BETWEEN YSC CORPORATION HOLDINGS AND THE METRO MANILA AUTHORITY AND THE PRESIDENTIAL TASK FORCE ON WASTE MANAGEMENT (PTFWM) UNDER THE BUILD, OPERATE AND TRANSFER PROGRAM OF THE PHILIPPINES

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This Resolution shall take effect upon approval.

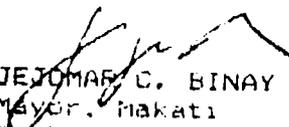
APPROVED this 27th day of October 1994, in the City of Mandaluyong, Metro Manila, Philippines.

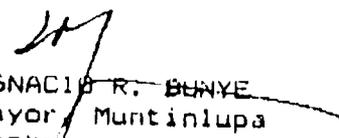

PROSPERO I. DRETA
Chairman
Mayor, Malabon

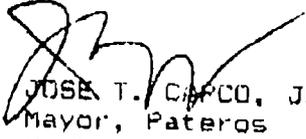

BAYANI F. FERNANDO
Vice Chairman
Mayor, Marikina

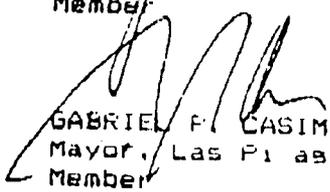

BENJAMIN S. ABALOS
Member
Mayor, City of Mandaluyong

MACARIO A. ASISTIO, JR.
Mayor, Kalookan City
Member

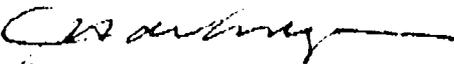

JETHMAR C. BINAY
Mayor, Makati
Member

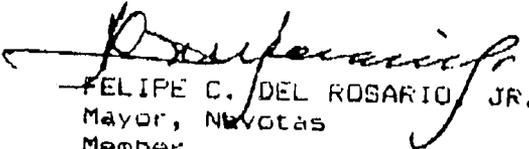

IGNACIO R. BUNYE
Mayor, Muntinlupa
Member


JOSE T. CAPCO, JR.
Mayor, Pateros
Member


GABRIEL P. CASIMIRO
Mayor, Las Piñas
Member

PABLO F. CUNETA, SR.
Mayor, Pasay City
Member


SANTIAGO A. DE GUZMAN
Mayor, Valenzuela
Member

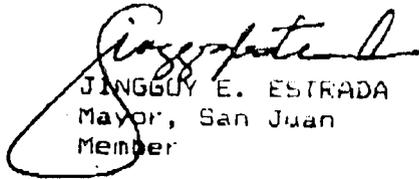

FELIPE C. DEL ROSARIO, JR.
Mayor, Navotas
Member

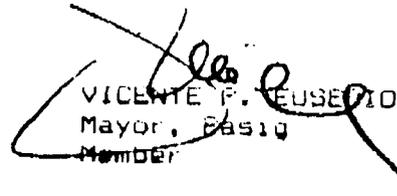
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Resolution No. ---

APPROVING THE MEMORANDUM OF UNDERSTANDING ON THE PROPOSAL TO ADDRESS THE MUNICIPAL SOLID WASTE (MSW) ISSUE OF METROPOLITAN MANILA BETWEEN YSC CORPORATION HOLDINGS AND THE METRO MANILA AUTHORITY AND THE PRESIDENTIAL TASK FORCE ON WASTE MANAGEMENT (PTFWM) UNDER THE BUILD, OPERATE AND TRANSFER PROGRAM OF THE PHILIPPINES

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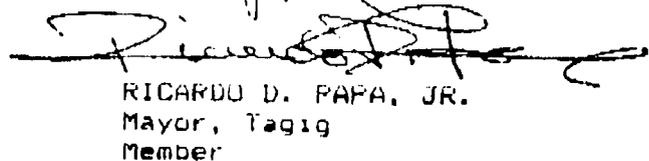

JINGGUY E. ESTRADA
Mayor, San Juan
Member


VICENTE P. EUSEBIO
Mayor, Pasig
Member


ALFREDO S. LIM
Mayor, City of Manila
Member

ISMAEL A. MATHAY, JR.
Mayor, Quezon City
Member

PABLO I. OLIVAREZ
Mayor, Para aque
Member


RICARDO D. PAPA, JR.
Mayor, Tagig
Member

APPENDIX B
CURRICULUM VITAE

DIONISIO C. DE LA SERNA
Presidential Adviser for Housing and Urban Development
and Chairman
Housing and Urban Development Coordinating Council
8th Flr., Allied Bank Center
Ayala Avenue, Makati, Metro Manila
816-1443 / 819-5219

I. PERSONAL INFORMATION

Birthdate :
Birthplace :
Civil Status : Married to Ma. Concepcion V. A. Abella and
blessed with three (3) children- David and
Dennis (twins) and Andrew
Parents : Former District Highway Engineer Felix C. de
la Serna and Florentina Catalya (former
public school teacher)
Provincial Address : Bayanihan Community, Matina, Davao City

II. EDUCATIONAL BACKGROUND

College : Pre-law and Law Proper
University of the Philippines
Diliman, Quezon City
Bar Grade 81.9%
Admitted to the Bar: March 17, 1967
High School : Ateneo de Davao University
Davao City
Elementary : T. Paima Gil Elementary School
Davao City and
Ateneo de Davao University

III. PROFESSIONAL AND WORK EXPERIENCE

- Dec. 01, 1992 -
to present
- Chairman
Housing and Urban Development Coordinating
Council
Presidential Adviser for Housing
- CHAIRMAN OF THE BOARD OF DIRECTORS:**
National Home Mortgage Finance Corporation
(NHMFC)
Home Development and Mutual Fund (HDMF)
National Housing Authority (NHA)
Housing and Land Use Regulatory Board (HLURB)
Home Insurance Guaranty Corporation (HIGC)
- ✓ July 03, 1992
to Present
- ✓ Cabinet Officer for Regional Development (CORD),
National Capital Region
- Board Member, Ninoy Aquino International Airport
Authority
- July 03, 1992 -
- Senior Deputy Executive Secretary
Office of the President, Malacanang
- Member, Oversight Committee on the
Implementation of the Local Government Code
- July 15, 1991
July 02, 1992
- Deputy Executive Secretary
Office of the President, Malacanang
- Dec. 20, 1990
July 14, 1991
- Undersecretary
Department of Justice
- June 08, 1990
Dec. 19, 1990
- Administrator
Parole and Probation Administration
Department of Justice
Concurrent: Acting Undersecretary
Department of Justice
- January 1989
- Acting Secretary
Department of Labor and Employment
- March 1987 -
December 1987
- Undersecretary for Regional Operations
Department of Labor and Employment
- 1987 - 1987
- Practicing Lawyer Villarica, De la Serna, Tinianon

Davao Jaycees

- President, 1972

UP Inter-Fraternity and Sorority Council

- Chairman, 1983

Upsilon Sigma Phi Fraternity (UP)

- Most Illustrious Fellow, 1962
- Director, Alumni Association, 1992 to present

V. POLITICAL AFFILIATIONS AND QUASI-GOVERNMENTAL ACTIVITIES

Chairman	KALIHUKAN ALANG SA TAWHANONG KAGAWASAN (KATAWHAN), otherwise known as the Yellow Friday Marchers, September 1983 until March 1987
Chairman	Legal Support Group for Cory-Doy Team, Region XI, and Davao City, 1985-1986
Chairman	Rally for Peace Movement, 1986-1987
Executive Director	"Yes" Campaign Organization, Region XI (during the last plebiscite)
Member	Ceasefire Monitoring Committee for Davao City and Region XI, 1986-1987
Member	Peace and Order Committee

March 1987 -
December 1987

:

Undersecretary for Regional Operations
Department of Labor and Employment

1967 - 1987

:

Practicing Lawyer Villarica, De la Serna, Tiongco
Tuazon and Domingo Law Offices. Davao City

- Member **Ceasefire Monitoring Committee for Davao City and Region XI, 1986-1987**

- Member **Peace and Order Committee, Regional Development Task Force, Region XI, 1986-1987**

- Member **National Steering Committee, KABISIG, June 1990 to present**

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BROTHERS :**JOSE F. ORETA, JR**

-Surgeon

-Office Address : Room 101, MAB SU., St. Luke's Medical Center,
E. Rodriguez Ave., Quezon City**MARIO A. ORETA**

-Lawyer

-Office Address : 4th Floor, Equitable Bank Bldg.
Sen. G. Puyat Ave., Makati, MM**EDUCATIONAL BACKGROUND**

ELEMENTARY : Ateneo de Manila University
Loyola Hts., Quezon City

HIGH SCHOOL : U.P. High School
Katipunan Road, Quezon City

COLLEGE : Far Eastern University
Degree : Bachelor of Arts in Business Administration
Units in BA : Herald College
San Francisco, California, USA

PROFESSIONAL EXPERIENCE

Feb. 1988 - Present Municipal Mayor (elective)
Malabon Municipal Government

April 1986 - Nov. 1987 Officer-In-Charge
Malabon Municipal Government

1980 - 1985 General Manager
Oreta Subdivision, Emerald
Hills Subd., Monte Oro Subd.
Oreta Subd. I, II & III

1968 - 1985 President & Gen. Manager
J.F. Oreta & Sons, Inc.

1965 - Present Director
A.M. Oreta Construction

Other Positions presently being held :**VICE-CHAIRMAN** : Metro Manila Authority

BIO DATAMAYOR PROSPERO ISIDRO ALEJO ORETA

Residence : #219 M.H. del Pilar Street
Maysilo, Malabon, Metro Manila

Tel. No. : 230-494

Office : Office of the Mayor
Malabon Municipal Bldg

Tel. No. : 281-34-05

PERSONAL DATA

DATE OF BIRTH
PLACE OF BIRTH
HEIGHT
WEIGHT

NAME OF WIFE
DATE OF BIRTH
PLACE OF BIRTH

CHILDREN :

Name	Birthday
Jose Roberto	
Carmen Lorona	
Jose Francisco	
Celine Eliza	

PARENTS :

FATHER : Judge Jose B. Oreta, Sr., deceased
MOTHER : Marcelina A. Oreta,
Occupation Businesswoman
Office Address : Room 109 Pace Bldg.
Granada St., Quezon City

FATHER-IN-LAW : Atty./Former Navotas Mayor Roberto D. Monroy
(deceased)

MOTHER-IN-LAW : Elica D. Monroy

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BIO-DATAI. PERSONAL DATA

Name **DELIA P. MONROY**
 Address [REDACTED]
 Tel. No. [REDACTED] 6
 Nationality Filipino
 Date of Birth [REDACTED]
 Place of Birth Quezon City
 Marital Status Married
 Name of Spouse **ROBERTO D. MONROY**

II. EDUCATIONAL QUALIFICATIONS

1957 - 1970 St. James Academy
 (Primary and Secondary Level)
 1970 - 1976 University of the Philippines
 (B.S. Architecture)
 1976 Passed Board Exams for Architects
 PRC License No. 4964
 1978 : University of the Philippines
 (Masters in Urban and Regional
 Planning - Unites)

III. TRAINING, STUDY AND SCHOLARSHIP GRANTS:

1978 : Land Resource Management Conference
 1979 : Factors Affecting Urban Design -
 University of Louvain-le-Neuve, Belgium
 1985 : Urban Development Strategies -
 Kukaku Seiri, Japan

IV. SERVICE RECORD

1976 - 1980 : Project Officer
 Ministry of Human Settlements
 1980 - 1981 : Program Officer
 Human Settlements Development Corp.
 1981 - 1989 : Assistant Service Chief
 Metro Manila Commission
 1994 - present : Consultant
 Office of the Vice-Chairman
 Metro Manila Authority

V. PUBLICATIONS

1978 : Between Vision and Reality -
 Lungsod Silangan New Town Development
 1982 : Metro Manila Fact Book
 1983 : Urban Development Strategies
 Light Rail Transit Line
 1985 : Metro Manila Atlas
 1986 : Metro Manila Regional Development
 Framework Plan

BIO-DATA OF NATIVIDAD "BABY" MONROY SIBAL

Name:
Husband:
Children:

NATIVIDAD "BABY" MONROY SIBAL
JOSE AGATON "TONY" R. SIBAL
CARMEN GEORGINA
JOSE PAOLO
ROBERTO AGATON
JUAN CARLOS
CARMEN MARGARITA
ROBERTO R. MONROY (Deceased)
ELIZA D. MONROY

Father:
Mother:
Business Address:

Malabon Municipal Hall, Malabon,
Metro Manila

Residence:



EDUCATIONAL ATTAINMENT:

Grade School:
High School:
College:

St. James Academy, Navotas, N.M.
St. James Academy, Navotas, N.M.
Maryknoll College, Quezon City
Major in Bachelor of Arts in
Foreign Service
Ateneo School of Law (Lib. 1988)
Admitted to Bar March 1988

Post Graduate:

MAIN BUSINESS:

Vice President:

CENTRAL PROFESSIONAL BOOKS, INC.

Director:

CENTRAL LAWBOOK PUBLISHING CO.

PHOENIX PRESS, INC.

CENTRAL BOOK SUPPLY, INC.

BUSINESS AND PROFESSIONAL ORGANIZATIONS:

Board of Trustees:

ATENEO LAW SCHOOL ALUMNI
ASSOCIATION

Member:

ZONTA CLUB OF QUEZON CITY

INNER WHEEL CLUB OF QUEZON CITY

INTEGRATED BAR OF THE PHILIPPINES

Q.C. CHAMBER OF COMMERCE AND
INDUSTRY

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DEPT. OF ENERGY 2

③

CURRICULUM VITAE**JESSIE L. TODOC****29 years old, Single*****Work Experience*****Supervising Science Research Specialist**

Department of Energy, August 1993 to present, Supervises activities of the Power Development and Electrification Section which, among others, monitors trends in the power sector and study their possible policy implications.

Energy Regulation Officer

Energy Regulatory Board, March 1992 - July 1993, Provided staff support in the Electricity Audit and Evaluation Branch which analyzes rate adjustment proposals of electric utilities, and now the electric cooperatives and the National Power Corporation.

Senior Researcher

Center for research and Communication (CRC), May - August 1991, Was involved in a foreign-assisted study of the informal sector, which was based on field interviews.

Economist

Basic Technology and Management Corporation, December 1990 - March 1991, Was involved in a foreign-assisted feasibility studies of feeder ports in various regions, particularly Region IV. The studies included field interviews, site visits, and cost-benefit analyses of projects.

Instructor

Mathematics Department, CRC College of Arts and Sciences, SY 1989 - 1990, Taught Algebra.

Faculty of Engineering, University of Santo Tomas (UST), SY 1986 - 1988, Handled lecture and laboratory classes in electric circuit analysis, power system analysis, electric machines, and physics.

Education

Master of Science in Industrial Economics (candidate), CRC, Hanns-Seidel Foundation Scholarship.

Bachelor of Science in Electrical Engineering, UST, Rector Scholarship

Government Examinations Taken and Passed

Licensure Examinations for Assistant Electrical Engineers, October 1986, rating - 81%.

Career Service Subprofessional Examinations, July 1985, rating - 90.29%.

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P. 02

2nd Floor, Marshall II Bldg., Rowas Blvd., Ermita, Manila Tel. Nos. 521-1979, 531-1991, Fax No. 531-06-50

①

RAMON B. REVILLA

Senator
Republic of the Philippines

Residence: 305 Gen. Aguinaldo Highway, Bacoor, Cavite

Educational Attainment - Commerce (Major in Accounting), F.E.U.



Last Employment - Sr. Intelligence Officer
Bureau of Customs (1965-1972)

Business Affiliation President of the following companies:

- JAB Realty & Dev. Corp.
- Imus Prods., Inc.
- San Martin de Porres Village 2,3,4
- Angelus Eternal Garden - Bacoor/Imus
- Cavite Coliseum
- Sea & River Estate
- Southfield Estate

Civic Organization

- Chairman, Kapisanan ng mga Artista sa Pelikulang Pilipino (KAPP) 1986
- Board of Director-Phil. National Red Cross (PNRC) 1985-1986
- Past President/Deputy Governor, Lions Club 1979-1984

Awards Received

- 1983 - Outstanding School Alumni - Imus Institute
- 1980 - Top Outstanding Personality Award
- 1979 - Most Outstanding Actor of the Year
- 1979 - Chairman Marketing Group PAITPA
- 1979 - Box Office King
- 1976 - Outstanding Producer of the Year
- 1975 - Outstanding Film Production and Socio Leader
- 1973 - Famas Best Actor
- 1946 - Outstanding Alumni for Awards for Arts

FAXED MATERIAL:

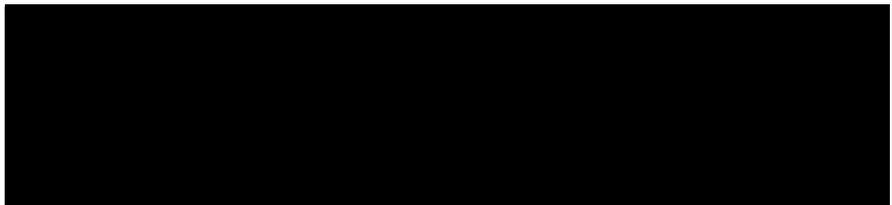
ATTENTION: BRIAN STREIFFER

FROM: BO ALMEDA

RE: CV FOR ABELARDO R. TOPACIO

PERSONAL INFORMATION:

NAME: ABELARDO R. TOPACIO



STATUS: Married

CITIZENSHIP: American

EDUCATIONAL ATTAINMENT:

ELEMENTARY: Imus Pilot School, Imus, Cavite

HIGH SCHOOL: Imus Institute, Imus, Cavite

COLLEGE: B.S. Commerce, Imus Institute

EMPLOYMENT HISTORY

OCCUPATION: Retired U.S. Navy

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APPENDIX C
PRESS CLIPPINGS

Waste project OK'd

Garbage converted to energy soon

By Bert Castro
Staff member

METRO Manila may soon get rid of the pestering garbage problem with a \$538-million project that will convert solid waste to electric power and light chemicals.

This developed as the Philippine government and an American company signed an agreement to put up a complex using the latest technology in waste management.

Sen. Ramon Revilla, one of the signatories, announced the signing of the agreement with YSC Corp., a Washington D.C.-based firm specializing in converting waste materials.

He said the project, which will be called Philippine Light Chemical and Energy Project, would be undertaken through the build-operate-transfer (BOT) scheme of the government.

The project, which will cost the government at least \$538 million, will convert solid wastes to electric power and high-value light chemicals.



REVILLA

Revilla said that "aside from generating power up to 100 megawatts, other industrial light chemicals will be produced out of the garbage collected from the different municipalities and cities in Metro Manila."

He expressed confidence that once the project is completed, "it will solve our problems on garbage and power supply."

Ethanol is one of the main chemicals to be derived from the municipal wastes, a major component to be used in producing alternate fuels to feed the power plant.

Other officials who signed the agreement were Malabon Mayor Prospero Oreta, the current Metro Manila Authority chairman, and chairman Dionisio dela Serna of the Housing and Urban Development Coordinating Council.

Under the agreement, the US firm will put up a waste-to-energy complex in Metro Manila using the latest integrated technology on waste management.

Revilla dispelled fears the project might pollute the environment. He explained the technology to be used would be "environmentally safe and friendly and guarantees total pollution-free emission."

Malacañang has already endorsed the project to the Presidential Task Force on Waste Management which vowed to hasten the drawing up of a final agreement early next month.

PAGE 12 *The Philippine Star* Oct. 20, 1994

US firm to build power plant using garbage as fuel in Metro

By BOBBY CAPCO

An American firm has signed a \$538-million agreement to build a 100-megawatt power plant in Metro Manila that would use garbage and other solid wastes from the metropolis as fuel.

Sen. Ramon Revilla, chairman of the Senate committee on public works, said the Washington-based YSC Corp.'s Philippine Light and Chemical and Energy Project is expected to solve the metropolis' perennial garbage problem.

Revilla said the agreement was signed by himself, Metro Manila Authority (MMA)

Chairman and Malabon Mayor Prospero Oreta and Housing and Urban Development Coordinating Council (HUDCC) Chairman Dionisio dela Serna during a recent trip to the United States.

The project, which will be undertaken by YSC under the government's build-operate-transfer (BOT) program, calls for the construction of a waste-for-energy complex that would use wastes, particularly garbage, in generating electricity.

The complex would also convert solid wastes into high-value light chemicals, such as ethanol.

Since the project is being undertaken under the BOT program, the government will not spend a single centavo nor provide counterpart funding, Revilla said.

Garbage is considered to be one of Metro Manila's main problems, with the government putting up a new landfill site in Carmona, Cavite to accommodate the metropolis' growing garbage.

But some Metro Manila towns and cities have stopped sending their garbage to the Carmona landfill site because of the huge costs they have to pay.

Press Release
of the publisher

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