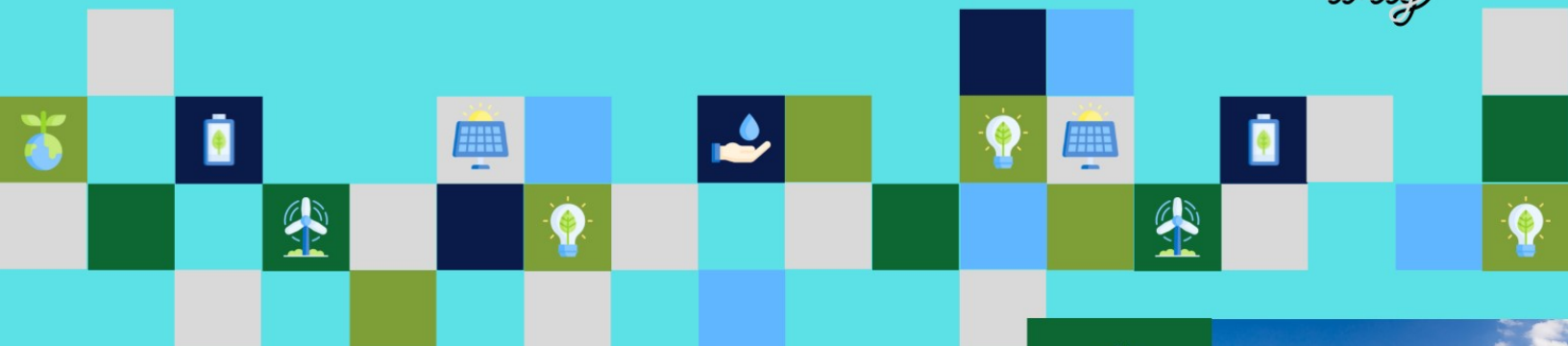




**PHILIPPINE SOCIETY OF SANITARY ENGINEERS, INC.**  
PROFESSIONAL REGULATION COMMISSION ACCREDITED ORGANIZATION NO. 22

# 2021 ANNUAL NATIONAL CONVENTION

## the **GOING 4R** *way* **SANITARY ENGINEERING**



VIRTUAL CONFERENCE

# 12 <sup>1</sup><sub>2</sub><sub>3</sub> 21



Sponsor

the **GOING 4R**  
SANITARY ENGINEERING way

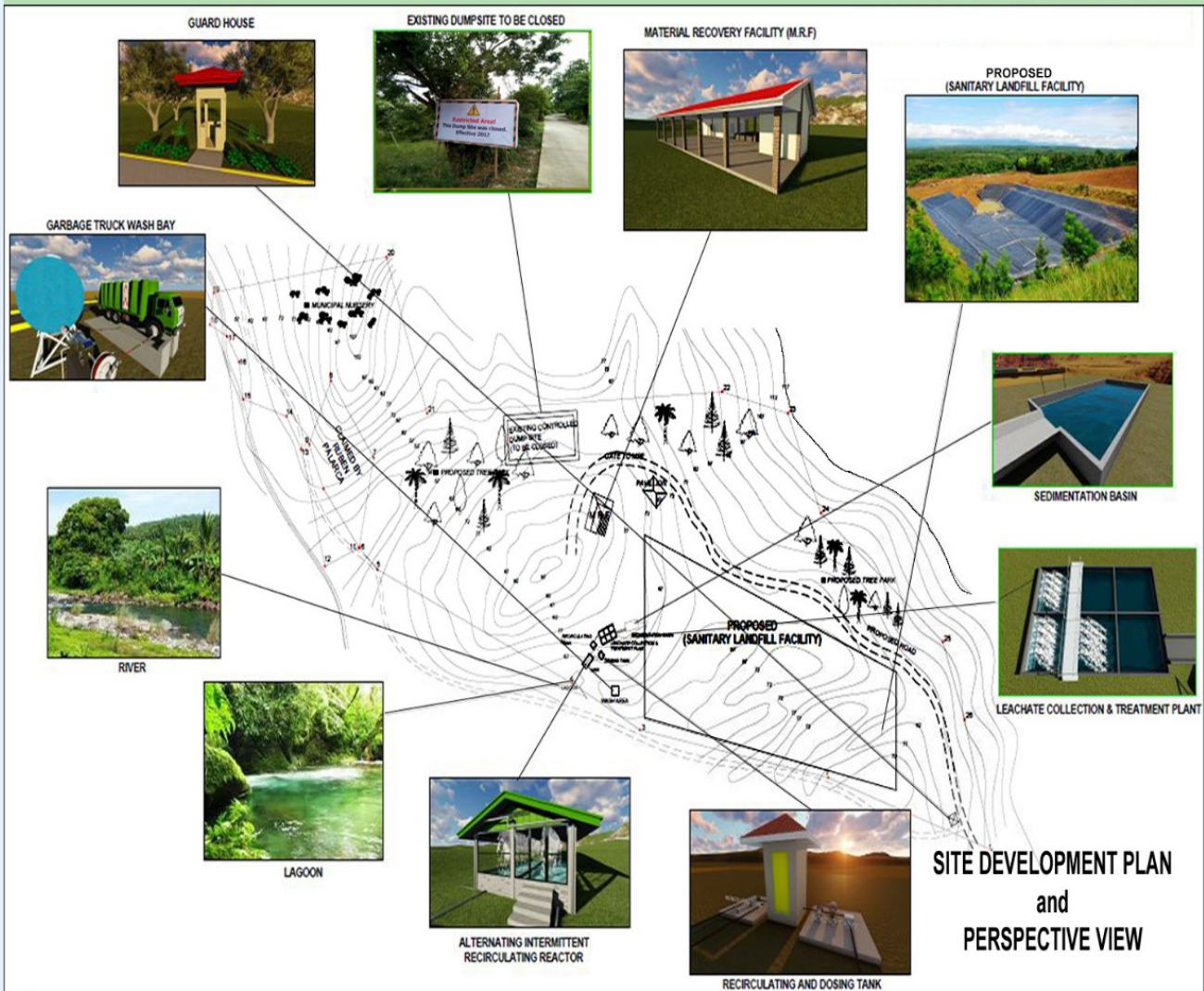


**Rogenox Construction and Supply Corp.**  
Tayug/San Nicolas, Pangasinan



Congratulations to the  
**Philippine Society of Sanitary Engineers (PSSE)**  
on it's

# 2021 Annual National Convention "Going 4R the SE Way"



**Bambang, Nueva Vizcaya Sanitary Landfill**  
\*First Sanitary Landfill in Region II

**2021 ANNUAL NATIONAL CONVENTION**

# PART ONE

December 1, 2021

**PHILIPPINE SOCIETY OF SANITARY ENGINEERS, INC.**  
PROFESSIONAL REGULATION COMMISSION ACCREDITED ORGANIZATION NO. 22

*2021 Annual National Student Convention*  
**SETTING GREEN:**  
Empowering Youth in Achieving the Sustainable Development Goals

**DECEMBER 1, 2021**  
**WEDNESDAY**

**ZOOM**





Program Hosts:

Jemina Gatdula & Blessie Anca

(TIP EnSE Students)



8:30 AM

Preparatory Activities  
Invocation / Doxology  
National Anthem

**MS. CHRIS DENYLLE BONGALOSA**

BS EnSE Student, TIP-QC  
**AVP**

Opening & Welcome Remarks

**ENGR. FRANZ FURBY C. RAMOS**

Convention Chair / MRO, PSSE

House Rules

8:55 AM

Introduction to Resource Speaker 1

**MR. JOHN PATRICK AVISADO**

PSSE-UC Student Chapter President  
Session Moderator

9:00 AM

**EnSEpiring Talk #1:**  
**Sanitary Engineers and the Youth: how  
can Sanitary Engineering Professionals  
and Students ignite Youth Advocacies?**

**EnSepiring Speaker #1:**

**ENGR. PAUL HENDRICK CORTEZ**  
Founding Member, Earth Shaker Philippines  
BS CE, BS EnSE, Mapua University

SDG 16 and SDG12

Question & Answer  
Awarding of Certificates and Photo-Op

9:40 AM

Introduction to Resource Speaker 2

**MR. HEARTWELL PAULINO YU**

PSSE-WMSU Student Chapter President  
Session Moderator

9:45 AM

**EnSEpiring Talk #2:**  
**Strengthening Mental Health and  
Surviving Academic Stress in the New  
Normal**

**EnSepiring Speaker #2:**

**MS. YMARI KRISTIA PASCUA**  
Project Manager, Experto PlayLabs Inc.  
Co-founder and Director, Happy Hearts  
Initiative Youth Mental Health Coach,  
National Youth Commission

**SDG3**

Question & Answer  
Awarding of Certificates and Photo-Op

10:30 AM	Sponsors and Donors Advertisement Virtual Intermission Number	
10:40 AM	Introduction to Student Presenter #1	<b>MR. MIGUEL TENEDO</b> Technical Committee Member, PSSE-NUSC
10:45 AM	<b>Student Presentation #1</b> <b>Research Paper Presentation</b> <b>"Redesigning Waste Analysis and Characterization Study"</b>  Question & Answer Awarding of Certificates and Photo-Op	<b>MS. ANGELIKA VHEM BALIWAG</b> BS EnSE, BatSU
11:10 AM	Introduction to Student Presenter #2	<b>MR. PHILIPPE POWELL PUGAY</b> Chief Executive Officer, Environmental & Sanitary Engineering Program Council DLSU-Dasmariñas
11:15 AM	<b>Student Presentation #2</b> <b>Research Paper Presentation</b> <b>"A Sustainable Integrated Desalination Treatment System for Potable Water in Coastal Areas in Donsol, Sorsogon"</b>  Question & Answer Awarding of Certificates and Photo-Op	<b>MR. JOSHUA EMMANUEL A. VELUYA</b> Science Research Specialist I, National Academy of Science and Technology (NAST Philippines) BS EnSE, Mapua University
11:40 AM	<b>Spoken poetry Contest Presentation</b> <b>Tiktok Contest Presentation</b> <b>Pre-Lunch Announcement</b>	
<b>LUNCH</b>		
1:15 PM	Introduction to Student Presenter #3	<b>MR. JANREY CHESTER GOMEZ</b> PSSE-National University Student Chapter President
1:20 PM	<b>EnSEpiring Talk #3:</b> <b>Practicing Sanitary Engineering Profession Abroad: A Sanitary Engineer's Journey to Success</b>  SDG8  Question & Answer Awarding of Certificates and Photo-Op	<b>EnSEpiring Speaker #3:</b> <b>ENGR. RUBILYN S. EDILLO</b> QS, Bettabuilt NI Ltd., New Zealand VP, PSSE-APAC BS EnSE, National University-Manila

Air Gap Video Presentation

2:00 PM Introduction to Resource Speaker 4

**MS. JEAN ACORDA BACCAY**  
PSSE-St. Paul University Student Chapter  
President

2:10 PM **EnSEpiring Talk #4:**  
**Enhancing Skills and Enriching Portfolio**  
**as Foundations to becoming ASEAN**  
**Engineer**  
  
SDG4 and SDG8  
  
Question & Answer  
Awarding of Certificates and Photo-Op

**EnSEpiring Speaker #4:**  
**ENGR. MARIO S. OLIGO**  
Assistant Resident Engineer, Stantec UK Ltd.,  
Doha, Qatar  
PSSE-MENA Chapter President  
BS CE, BS SE, St. Paul University

2:55 PM Introduction to Resource Speaker 5

**MR. JOHN MARK GAYATIN**  
PSSE-Mapua University Student Chapter  
President  
**MS. PEARL IVORY ABANA**  
PSSE-TIPQC Student Chapter President

1:20 PM **EnSEpiring Talk #5:**  
**Young Engineers: Agents and Leaders of**  
**Social Entrepreneurship & Community**  
**Development (WASH in Education)**  
  
SDG6 and SDG17  
  
Question & Answer  
Awarding of Certificates and Photo-Op

**EnSEpiring Speaker #5:**  
**ENGR. THOMAS DA JOSE**  
Co-founder & Director, Masy Consultants,  
Inc. / Co-founder & Director, ASEAN-Australia  
Strategic Youth Partnership Ltd.  
**ENGR. IRA JOSHUA MANUEL**  
Project Engineer, Masy Consultants Inc.  
Technical Engineer, Prime Water  
Infrastructure Corp.

**Air Gap Video Presentation**  
**TikTok Video Presentation**

4:15 PM Virtual Induction of Student Chapter  
Officers

**ENGR. LEONARDO C. SAWAL**  
Chair, Student Chapter Committee /  
National Director, PSSE

4:20 PM Introduction to Quiz Bee Master

**MS. KATHLEEN BAJALA**  
PSSE-University of Southeastern Phils.-  
Student Chapter President

4:25 PM Virtual Student Quiz Bee

**DR. BONIFACIO B. MAGTIBAY**  
Quiz Bee Master

5:00 PM Closing Remarks

**ENGR. EMILIANA DELA CRUZ**  
Convention Co-Chair / National Director, PSSE

Convention Related Announcement  
Adjournment

**MS. JEMINA GATDULA & MS. BLESSIE ANCA**  
Program Hosts

# PART TWO

December 2-3, 2021

8:00 am – 10:00 am

Opening Ceremonies

ENGR. NICO ALDRIDGE D. CALDERON  
 Master of Ceremony

VIDEO

Chair/Co-Chair, 2021 ANC  
 Past Presidents  
 2021 PSSE Board of Directors and Officers  
 Chancellor of the College of Fellows  
 PSSE National President  
 Professional Regulatory Board for Sanitary Engineers  
 Keynote Speaker & Guest of Honor

Entry of Colors

Chapter Banners  
 PSSE Flag  
 Philippine Flag

Invocation and National Anthem

Audio Video Presentation

CREDO

Audio Video Presentation

Declaration of Convention Opening

ENGR. FRANZ FURBY C. RAMOS  
 Chair, ANC / National MRO, PSSE

Opening Remarks

ENGR. VIRGINIA T. ROCABO, F.PSSE, ASEAN Eng.  
 National President, PSSE

Welcome Remarks

HON. CORAZON DLR ROMERO, F.PSSE, APEC / ASEAN Eng, ACPE  
 Chair, Professional Regulatory Board for Sanitary Engineers

Introduction of Keynote Speaker

ENGR. EMILIANA P. DELA CRUZ, F.PSSE, ASEAN Eng,  
 Co-Chair, ANC / National Director, PSSE

Keynote Speech

GILBERT C. GONZALES, CESO III  
 OIC, Assistant Secretary for Field Operations - Luzon  
 Department of Environment and Natural Resources (DENR)

Awarding of  
 Certificate of Appreciation

ENGR. VIRGINIA T. ROCABO, F.PSSE, ASEAN Eng.  
 National President, PSSE

Introduction of the 2021 Outstanding Sanitary Engineer

ENGR. FRANZ FURBY C. RAMOS  
Chair, ANC / National MRO, PSSE

Response

ENGR. BERNARDO C. HORNILLA, DPA, F.PSSE, ASEAN Eng., ACPE  
2021 Outstanding Sanitary Engineer Awardee

2021 ANC Sponsors and Donors

Audio Video Presentation

10:00 am

HOUSE RULES

Audio Video Presentation

10:00 am – 11:00 am

**TECHNICAL SESSION 1**

Reduce: Innovation in Reducing and Managing Solid Waste

MS. CHANIDA WESNUSIT

Engineer Manager of Engineering Department  
Hitachi Zosen Corporation  
Japan

Question and Answer  
Awarding of  
Certificate of Appreciation

ENGR. AIDA DC. CALMA  
National Director, PSSE

Product Presentation

Audio Video Presentation

11:00 am – 12:00 pm

**TECHNICAL SESSION 2**

Recycle : Rainwater Harvesting + Sustainable Water Systems Innovation

ENGR. JOEL J. DIAZ, APEC ENG., ACPE, LEED AP®

Design Manager / Senior Associate  
P&T Architects, Engineers and Consultants, UAE

Question and Answer  
Awarding of  
Certificate of Appreciation

ENGR. RANELLA JOY F. DE LOS REYES  
National Director, PSSE

12:00 pm – 1:00 pm

Lunch & Product Presentations

Audio Video Presentation

1:00 pm – 2:00 pm

**TECHNICAL SESSION 3**

Reuse: Innovation in Wastewater Treatment Process for Reuse

MR. ROGER PUNG

Regional Sales Director for Nereda (APAC)  
Royal Haskoning DHV

Question and Answer  
Awarding of  
Certificate of Appreciation

ENGR. ROGELIO M. MAGAT  
National Director, PSSE



2:00 pm – 2:30 pm

MOU Signing Ceremony

ENGR. THOMAS DA JOSE  
Managing Director and Co-Founder  
MASY CONSULTANTS

ENGR. VIRGINIA T. ROCABO, F.PSSE, ASEAN Eng.  
National President, PSSE

2:30 pm – 5:00 pm

General Assembly /  
Call to Order

ENGR. VIRGINIA T. ROCABO, F.PSSE, ASEAN Eng.  
National President, PSSE

PRC Updates on  
Sanitary Engineering Profession

HON. FLORIMOND M. LARA, F.PSSE, ASEAN Eng.  
Member, Professional Regulatory Board for Sanitary Engineers

List of August 2021 Successful  
Examinees

Audio Video Presentation

Treasurer's Report

ENGR. FREDISWINDA DL. DE GUZMAN  
National Treasurer, PSSE

President's Report

ENGR. VIRGINIA T. ROCABO, F.PSSE, ASEAN Eng.  
National President, PSSE

7:30 am – 8:00 am

Welcome

ENGR. NICO ALDRIDGE CALDERON  
Master of Ceremony

8:00 am – 9:00 am

Professional Quiz Bee

DR. BONIFACIO B. MAGTIBAY, F.PSSE, ASEAN Eng.  
Quiz Bee Master

1:00 pm – 2:00 pm

**TECHNICAL SESSION 4**

Refuse Environment Violations  
EMB RELATED LAWS  
DENR 2021-19

ENGR. CATHERINE E. JOAQUIN  
Engineer II, Water Quality Management Section  
DENR – Environmental Management Bureau

Question and Answer  
Awarding of  
Certificate of Appreciation

ENGR. MARTIN STEPHEN C. CORPUZ  
National Director, PSSE

**TECHNICAL SESSION 4**

Refuse Environment Violations

Salient Points on the Revised  
Implementing Guidelines on Chapter  
XVII of the Sanitation Code of the  
Philippines

**ENGR. ROLANDO I. SANTIAGO**  
Supervising Health Program Officer  
Environmental Health and Healthy Settings Division  
Disease Prevention and Control Bureau  
Department of Health (DOH)

Question and Answer  
Awarding of  
Certificate of Appreciation

**ENGR. MARTIN STEPHEN C. CORPUZ**  
National Director, PSSE

10:30 am – 10:45 am

**Product Presentations**

**Audio Video Presentation**

10:45 am – 11:30 am

**TECHNICAL SESSION 5**

COVID-19 Status, Trends and  
Responses

**DR. TEODORO J. HERBOSA**  
Special Adviser, National Task Force Against COVID-19

Question and Answer  
Awarding of  
Certificate of Appreciation

**ENGR. DELINO G. CUBACUB, ASEAN Eng.**  
National Vice President, PSSE

11:30 am – 12:30 pm

Introduction of New Chapters and  
Oath taking of Interim Officers and  
Directors

**ENGR. VIRGINIA T. ROCABO, F.PSSE, ASEAN Eng.**  
National President, PSSE

- Middle East and North Africa (MENA) Chapter
- Asia and the Pacific (APac) Chapter
- Central Visayas (Region 7) Chapter

Oath Taking of 2022-2023 Chapter  
Officers and Directors

**ENGR. AIDA DC. CALMA**  
Chair, Regular Chapter Committee /  
National Director, PSSE

Election Rules and Presentation of  
Qualified Candidates for the Election  
of the Board of Directors

**ENGR. BERNARDO N. BUENAVENTURA, F.PSSE, ASEAN Eng.**  
Chair, PSSE Election Committee (EleCom) /  
Chancellor, College of Fellows

12:30 pm – 1:15 pm	<b>Lunch and Product Presentations</b>	<b>Audio Video Presentation</b>
1:15 pm – 2:00 pm	Introduction of Recipient for <b>DELES AWARD</b>	ENGR. MANNY ANTHONY M. TAGUBA National Secretary, PSSE
	Presentation of DELES AWARD	ENGR. BERNARDO N. BUENAVENTURA, F.PSSE, ASEAN Eng. Chancellor, College of Fellows / Past President, PSSE
	Response	ENGR. BERNARDO N. BUENAVENTURA, F.PSSE, ASEAN Eng. Chancellor, College of Fellows / Past President, PSSE
	Presentation of New Member of the College of Fellows	ENGR. BERNARDO N. BUENAVENTURA, F.PSSE, ASEAN Eng. Chancellor, College of Fellows / Past President, PSSE
	Introduction	ENGR. EMILIANA P. DELA CRUZ, F.PSSE, ASEAN Eng. Scribe, College of Fellows / National Director, PSSE
		ENGR. ROGELIO M. MAGAT
	<b>Product Presentations</b>	<b>Audio Video Presentation</b>
2:15 pm – 5:00 pm	<ul style="list-style-type: none"> <li>• Casting of Votes</li> <li>• Canvassing of Votes</li> <li>• Proclamation of Winners</li> </ul>	PSSE Election Committee
5:00 pm	Closing Remarks	ENGR. DELINO G. CUBACUB, ASEAN Eng. National Vice President, PSSE

## *SANITARY ENGINEER'S CREDO*

As a Sanitary Engineer, I pledge that the practice of my profession shall be for God and all his creation, in full accord with my co-professionals for the advancement and betterment of human welfare.

To God and my country the Philippines: I shall apply all my professional knowledge in Sanitary Engineering to protect and preserve the environment always mindful that I owe such to future generations;

To my Clientele: I shall deliver my service promptly, mindful of the life-cycle cost from its conceptualization and retirement all of which must be environmentally-sound;

To my co-Sanitary Engineers: I shall always collaborate with them and, in cases of competing for clients, such must be done fairly for services and shall never undermine;

To my colleagues in the allied professions: I shall render professional services within the specializations allowed in the field of Sanitary Engineering of which I possess the necessary competence and never encroach on other's scope of practice;

And, in all of these, I shall always protect the rights of a Sanitary Engineer as embodied in the Sanitary Engineering law.

Republic of the Philippines  
**OFFICE OF THE PRESIDENT**

Malacañan Palace  
Manila



My warmest greetings to the **Philippine Society of Sanitary Engineers (PSSE), Inc.** as it holds its **2021 Annual National Convention**.

Sanitary engineers play an important role in nation-building by applying good practices in the field of sanitation, which greatly contributes in making our environment cleaner and healthier, especially during this pandemic.

This event is an auspicious time to strengthen linkages and partnerships with your colleagues and clients. I am also confident that the organizers and participants will take this opportunity to explore how we can foster greater citizen involvement in sanitation systems.

As you fulfill your tasks, I am confident that you will continue to use your knowledge and skills for the improved welfare of the Filipino people.

I wish you a meaningful event and mabuhay kayong lahat.

  
RODRIGO ROA DUTERTE

MANILA  
1 December 2021



Republic of the Philippines  
**DEPARTMENT OF THE INTERIOR  
AND LOCAL GOVERNMENT**

DILG\_NAPOLCOM Center, EDSA cor. Quezon  
Avenue, West Triangle, Quezon City  
[www.dilg.gov.ph](http://www.dilg.gov.ph)

Warmest greetings to the Philippines Society of Sanitary Engineers (PSSE), Inc. for successfully holding your **2021 Annual National Convention** this December with the theme '**Going 4R the SE Way**'.

This event highlights the key role of sanitary engineers in the field of sanitation and environmental sustainability while creating a platform for key industry players, including students, to synergize and exchange innovations and best practices.

We laud the PSSE for your persistence in carrying out your advocacy to advance the knowledge and practice of designing and directing the construction and operation of hygienic projects amid the ongoing COVID-19 global pandemic. Your role in ensuring safe and sanitary operating methods and infrastructures within business establishments, offices, and public facilities is crucial in preventing health risks to our citizens.

The issue of sanitation is likewise a priority of the Department and our local government units nationwide, especially those in far-flung areas where resources and facilities are scarce. We have established projects in sanitation and water supply under the Sagana at Ligtas na Tubig Para sa Lahat (Salintubig), Bottom-Up Budgeting (BuB), and Local Government Support Fund - Assistance to Municipalities (LGSF-AM) in order to better the wellbeing and development of Filipino communities.

With the PSSE's body of work and advocacy campaign, we are assured that we have a reliable ally in providing the much needed sanitation projects to our fellow countrymen.

Meanwhile, the Department of the Interior and Local Government (DILG) stands with PSSE in pursuing excellence in the field of sanitation as we altogether delve to improve the daily lives of Filipinos.

May this convention serve to inspire all sanitary engineers to aspire for innovation in the service of the Filipino people.

Mabuhay ang PSSE!

  
EDUARDO M. AÑO  
Secretary

Republic of the Philippines  
**DEPARTMENT OF PUBLIC  
WORKS AND HIGHWAYS**  
OFFICE OF THE SECRETARY  
Manila



My warmest greetings to the Officers and members of the **Philippine Society of Sanitary Engineers (PSSE)** on the occasion of your **Annual National Convention** on December 1-3, 2021.

On top of the burgeoning environmental concerns we continue to face, this global health emergency highlights once again the imperative role of sanitary engineers in the assurance of public health and safety.

Your chosen theme, "**Going 4R the SE Way**" bespeaks of your unwavering commitment to advance the field of sanitation and environmental engineering, bearing in mind that environment-friendly practices are adopted and natural resources are consumed responsibly.

The Department of Public Works and Highways extends its heartfelt appreciation for your relentless efforts in providing an avenue for engineers to connect with fellow professionals and share new perspectives that are vital in the practice of sanitary engineering and nation building.

May you continue to bring forth relevant programs that support the development of Filipino engineers and advancing the knowledge and interest in the profession.

Congratulations and more power in your endeavors.

Mabuhay!

  
**ROGER G. MERCADO**  
Acting Secretary



## Republic of the Philippines **DEPARTMENT OF HEALTH** **OFFICE OF THE SECRETARY**


My warmest greetings and hearty congratulations to the Philippine Society of Sanitary Engineers (PSSE), Inc. on the occasion of its 2021 Annual National Convention that is aimed at promoting public health and safety, advancement of overall well-being, and environmental protection.

Transpirations in our health system's epoch are a testament to the significance of sanitation in our daily lives. Our battle with the COVID-19 pandemic has opened our eyes to the immense significance of proper management, treatment, and disposal of sewage and waste water in the prevention of infectious and noninfectious diseases that burden productivity and flourishing of different communities. Hence, it is vital that we build sustainable structures and systems, and put forward programs that will protect our local communities from outbreaks of diseases. It is necessary that we continue to explore solutions that fuel our initiatives towards more sustainable communities for everyone. Your society has always been at the forefront of this advocacy, and your contributions in the past years have only built upon each other, and have created foundations that have proved beneficial during these trying times.

It is in this light that the PSSE's staging of this convention is of great value, as it reminds us that proper sanitation must be duly recognized as one of the most important lines of defense against transmissible and non-transmissible diseases. The COVID-19 pandemic has exposed the deep connections that run between the sectors of health and environment protection, and has shown us that true safety necessitates the striking of a precise balance among health, sociological, and ecological aspects of society.

May this convention fortify the essential role you play in our quest to attain a safe environment for all. May your efforts towards the development and realization of healthier, more sustainable communities positively impact our habitat.

Maraming salamat, at mabuhay tayong lahay!

  
**FRANCISCO T. DUQUE III, MD, MSc**  
Secretary of Health

**2021** ANNUAL NATIONAL  
CONVENTION



Republic of the Philippines  
**PROFESSIONAL REGULATION COMMISSION**  
**BOARD OF SANITARY ENGINEERING**



We wish to extend our warmest greetings to the officers and members of the Philippine Society of Environmental and Sanitary Engineers on the occasion of your Annual National Convention on December 1-3, 2021, via Zoom Webinar Application.

Your convention theme: "Going 4R the Sanitary Engineering Way" which will focus on Sanitary Engineers as a game changer in the field of sanitation and environmental sustainability is good and timely as we now live in times of volatility, uncertainty, complexity, and ambiguity as we fight the pandemic brought about by COVID-19. We look forward to the success of your annual convention and as we are hoping that the Philippine Society of al Sanitary Engineers (PSSE) will come up with strategies, action plans and recommendations to help resolve the pressing issues relating to the global problems as well to strengthen and establish relationships not only with fellow Sanitary Engineers but with providers of technologies as well.

The Professional Regulatory Board of Sanitary Engineering laud our Accredited Professional Organization for its advocacy in providing continuing professional development as a strategy for maintaining the professional competitive edge of our Filipino Sanitary Engineers and to stand tall among their counterparts.

Again, our congratulations!!!

**HON. CORAZON DLR. ROMERO**  
Chairperson

**HON. FLORIMOND M. LARA**  
Member

**HON. ALFREDO B. ESPINO**  
Member



## Philippine Society of Sanitary Engineers, Inc. **COLLEGE OF FELLOWS**

Greetings to the Members and Officers of the PHILIPPINE SOCIETY OF SANITARY ENGINEERS, INC. (PSSE), as we hold our 2021 Annual National Convention on December 1-3, 2021 via Zoom Webinar Application with the theme “Going 4R the SE Way”. The theme adopted for this convention is very timely as it focuses on the Sanitary Engineers as game changers in the field of sanitation and environmental sustainability.

The convention will be attended not only by practicing Sanitary Engineers but also by suppliers/manufacturers of equipment and technology providers in environmental and sanitary engineering services as well as students from colleges and universities offering Environmental and Sanitary Engineering courses all over the country.

In addition to the provision of CPD credits as mandated by RA 10912, the other objectives of this convention are:

1. To obtain updates on new knowledge and available technologies in the practice of the profession and for professional growth;
2. To strengthen and/or establish relationship not only with fellow Sanitary Engineers but with provider of technologies as well; and
3. To identify areas where the Sanitary Engineers can be of help towards nation building;

Thus, and on behalf of the Officers and Members of the PSSE College of Fellows, we hope to see you at the convention.

Keep safe and healthy!

**BERNARDO N. BUENAVENTURA, F.PSSE, ASEAN ENG.**  
Chancellor

Philippine Society of Sanitary Engineers, Inc.



The **2021 PSSE Annual National Convention** entitled “**Going 4R the SE Way**” is a strategic approach to sanitary engineers as game changers in the field of sanitation and environmental sustainability. Covid-19 has brought the world in much confusion and uncertainties. Health and safety have become the eminent priorities to sustain. And during these trying times, the Sanitary Engineers are called be more resilient by leading in public health, environment, and sanitary engineering. This also provides us to new perspective and to go beyond what is accustomed. Changing times go beyond the norm.

The term 4R, Reuse, Reduce, Recycle, and Refuse, is typically associated with the solid waste management. The **Philippine Society of Sanitary Engineers, Inc. (PSSE)** sees it differently. Innovations bring our mind towards adaptation and leadership. We see 4R as multifaceted meanings in various expertise.

The 2021 Annual National Convention Committee has invited local and international speakers to share their technical expertise in solid waste management (prospects of waste to energy in the Philippines), utilization of treated wastewater using innovative technologies, urban rainwater harvesting and updates on the latest environmental laws and regulations.

I am hoping that PSSE has contributed even a little bit of additional information through this conference.

Maraming salamat po at mabuhay po ang mga Sanitary Engineers!

  
VIRGINIA T. ROCABO, F.PSSE, ASEAN ENG.  
National President, PSSE



## Philippine Society of Sanitary Engineers, Inc.

Dear fellow Sanitary Engineers, distinguished guest, resource speakers, and sponsors, welcome to the **2021 Annual National Convention** of the Philippine Society of Sanitary Engineers, Inc. with the theme: **“Going 4R the SE Way.”**

As sanitary engineers, we are the forefronts in ensuring health and safe environment most particularly in this trying times. We are called to be game changers and to seek new approaches as we face today’s environmental and sanitation challenges.

This year’s convention focuses towards adaptation and leadership. I hope that these technical presentations from our local and international speakers profession as knowledge as sanitary engineers.

Maraming salamat at mabuhay tayong lahat.

FRANZ FURBY C. RAMOS  
2021 ANC Chair

National Media Relations Officer, PSSE

Philippine Society of Sanitary  
Engineers, Inc.



Dear Colleague Sanitary Engineers, Distinguished Guest & Resource Speakers, Sponsors & Exhibitors, in behalf of the 2021 PSSE Convention Committee, I welcome you all to this year's virtual **2021 Annual National Convention** with theme "**Going 4R the SE way.**"

As practitioners, we Sanitary Engineers' have encountered so many challenges specially in different aspects of our practice due to fast changing & growing demand of the industry as well as on the challenging effect of climate change & what we've done to mother Earth. We must be ready to combat and protect our resources with whatever sustainable solutions & strategies needed to protect & so it's not be depleted nor permanently damage.

Thus, all technical presentations during this convention will focus on the 4R (Reduce, Recycle, Reuse & Refuse) the Sanitary Engineers' way.

I hope that these topics on this Convention will help us further enlighten our insights on sustainable solutions & strategies relevant to the challenges we're facing as we practice our Sanitary Engineering profession. Thus, protecting & giving importance on protecting resources & using it sustainably.

Mabuhay tayong mga Inhenyero Sanidad!

  
EMILIANA P. DELA CRUZ, F.PSSE, ASEAN ENG.  
Convention Co-Chair  
National Director, PSSE



**ENGR. JOSHUA BON ROCO**

*Chief Executive Officer  
Anthroserv Inc.*

**ENGR. KEVIN L. VALDERRAMA**

*Chief Supply Chain Officer  
Anthroserv Inc.*

Sustainable Development Goal 6 focuses on ensuring access to clean water and sanitation. While substantial progress has been made in increasing access to sanitation, the Philippines still has the long way to go to cover its sanitation targets. Currently, only 10% of the total wastewater generated is treated in the country. A major factor in these statistics is the high CAPEX and OPEX costs of putting up wastewater treatment plants to comply with the new DAO 2016-08 & DAO 2021-19 standards.

Wastewater management does not equate to wastewater treatment. Like any other waste management practice, wastewater management should go through the waste management hierarchy. In this manner, wastewater management becomes sustainable, even profitable. It should start with resource efficiency and cleaner production (RECP) principles to prevent wastewater discharge upstream. Wastewater treatment shall be the last option in wastewater management.

There is no wastewater treatment technology that fits all. You may hear from different technology providers that their technology is the best among the rest, but environmental engineering principles state otherwise. The end-of-pipe techniques for wastewater treatment are usually composed of various technologies classified under either preliminary, primary, secondary, or tertiary treatment. Arranging them in sequence depends on the type of wastewater and the desired effluent water quality. You can think of it as puzzle pieces that need to merge depending on the photo intended.

For business owners, pollution control officers and especially sanitary engineers, it is very important that they understand the step-by-step procedure on holistic wastewater management, from upstream analysis to technology selection, to prevent unnecessary investments.

The resource speakers are expected to train the participants in RECP principles, including water audit, to identify wastewater management saving strategies. Further, participants will be taught how to identify design parameters, such as capacity and quality, and decide on what wastewater treatment technology is suited for them given the constraints in their costs, space, and operations.

*Sanitary Engineers and the Youth:  
How can Sanitary Engineering Professionals and Students Ignite Youth Advocacies?*

*ENGR. PAUL HENDRICK CORTEZ*

Engr. Cortez was a top-ranking student of the Civil and Sanitary Engineering Department of the Mapua University, he earned his bachelor's degree in Civil Engineering and Sanitary Engineering last 2020. He took his internship training last 2019 in the Department of Environment and Natural Resources EMB in Manila under the Environmental Engineering and hazardous waste division. He also had his internship at DCCD Engineering Corporation in Makati where he worked on Engineering designs under the environmental engineering department. He also worked on construction management and civil engineering works as an intern at Ironcon Builders Corporation in 2019. He then became the Marketing manager at Trabiesa Tagaytay in Tagaytay City and a project engineer trainee at RAC Construction and Landscaping Services. where he work on different residential construction projects.



He received his certificate in project management from the International Institute of projects and project management which is an ISO/IEC internationally accredited certification for project management. He is also a certified Safety officer 2. He is trained at STAAD.Pro, Residential Building estimate, residential plumbing design and construction management foundation.

Aside from his exceptional academic track record, with his natural leadership skills, he became the Chairman of the Mapua Council of Presidents where his primary task was to convene and lead projects for all the departments and schools of Mapua in 2017. He was also the President of the Mapua Central Student council in 2018 and became a founding member of the Earth Shaker Philippines where he leads projects about environmental conservation and life science awareness campaigns.



*MR. JOHN PATRICK AVISADO*  
*PSSE-UC Student Chapter President*  
*Session Moderator*

## Strengthening Mental Health and Surviving Academic Stress in the New Normal

### MS. YMARI KRISTIA PASCUA



Ms. Ymari Kristia is a Bachelor of Arts in English graduate from the Polytechnic University of the Philippines and is currently working as the Project Manager for Experto PlayLabs International Consultancy, a management consultancy and professional training firm which innovates solutions, programs, technologies, and systems that enables to effectively build sustainable businesses and enhance learning strategies towards inclusive development globally.

She is a staunch advocate for the Sustainable Development Goals and focuses on SDG 3: Good Health and Wellbeing. She has also worked as a volunteer for the Parent-Advocates for Visually Impaired Children, Asian Development Bank, U.S. Embassy in the Philippines, and other institutions.

Her advocacy and passion for Mental Health Awareness started in 2016 after being diagnosed with Bipolar 1 with Psychosis. Currently, she is a Youth Mental Health Coach for the National Youth Commission's Mental Health Youth Hub and is also serving as a Co-founder and Director for Happy Hearts Initiative, a youth-led coalition of organizations that works to elevate the Filipinos consciousness on mental health and bring support to those in need of mental health-related assistance, and as Co-founder for INTROSPECT, a Mental Health initiative that focuses on Social Media Depression. She has spoken in various seminars and conferences primarily about mental health and already spoke in front of thousands of students for more than 50 schools and organizations.

Her life story was also featured in CNN's Business Matters and ABS-CBN's Maalaala Mo Kaya, portrayed by Ms. Julia Barretto in the #MMKAlwaysKeepGoing episode.

### MR. HEARTWELL PAULINO YU PSSE-WMSU Student Chapter President Session Moderator





*Practicing Sanitary Engineering Profession Abroad:  
A Sanitary Engineer's Journey to Success*

**ENGR. RUBILYN S. EDILLO**

She is a Bachelor of Science in Civil Engineering graduate at Cagayan State University in April 2013 and had a BSCE qualification assessed by New Zealand Qualifications Authority (NZQA) equivalent to a bachelor's degree Level 7 and Quantity Surveying.

Then, she proceeded with her second bachelor's degree in Environmental and Sanitary Engineering by 2018 at National University-Manila. In addition, New San Jose Builders Inc. formerly employed her as a Technical Auditor for a year. She then worked in an International based company, Sigmabear Inc., as a Rebar Engineer Analyst.

By 2016, she was an Estimator or Detailer of Reinforcing Steel to Euro Corp – Complete Reo, a New Zealand-based company that established a Manila-Philippine team of Rebar. Previously, she was a Quantity Surveyor from 2019 to April 2021 at B&B Interiors 2013 Limited, the main contractor of Steel Framing, Insulation, Plasterboard Linings Fixing, Stopping Suspended Ceilings, and Carpentry projects based in Queenstown.

Currently, she has been a Quantity Surveyor to a different company at Bettabuilt NI Limited since April 2021, the main contractor of Carpentry projects based throughout New Zealand.

With her numerous project-involvements abroad and knowledgeable experiences in her field. Indeed, our attention deserves to be at its fullest as she shares her thoughts on Practicing Sanitary Engineering Profession Abroad: A Sanitary Engineer's Journey to Success.



**MR. JANREY CHESTER GOMEZ**

*PSSE-National University Student Chapter President  
Session Moderator*

Enhancing Skills and Enriching Portfolio as Foundations to  
Becoming ASEAN Engineer

**ENGR. MARIO S. OLIGO, ASEAN ENG.**



Engr. Mario S. Oligo has a total experience of 22 years of which 14 years spent in the Middle East and 8 years in the Philippines. He has a wide array of experiences in civil, sanitary, and environmental engineering in the field of project management & site supervision, consulting, design, and construction management.

He executes excellent skills in managing the construction of open channels, large box culverts, microtunneling works, deep shaft/manholes, drainage networks, sewerage and TSE networks, roadworks, residential and commercial structures, storm water lift/pump stations, and construction, design, and operation and maintenance of sewage treatment plants.

Having extensive knowledge of materials and quality management and control. Possesses excellent interpersonal and managerial skills and coordination to owners, clients, consultant and related authorities. Perform exceptional skills in preparing progress reports, tender documents, specification, and BOQs, Ability to analyze and review all submittals like construction baseline schedule, work plan, method statement, materials submittals, health and safety programs, Technical Queries, Proposals, Environmental issues, QA Plan, etc.

**MS. JEAN ACORDA BACCAY**

*PSSE-St. Paul University Student Chapter President  
Session Moderator*



Young Engineers: Agents and Leaders of Social Entrepreneurship & Community Development (WASH in Education)



**ENGR. THOMAS DA JOSE**

**ENGR. THOMAS DA JOSE** is currently a certified Project Manager of the Australian Institute of Project Management. He also graduated with the degree of Bachelor of Science in Civil Engineering and is one of the First-Class Honor and is now a practicing humanitarian engineer. His capabilities are developed from his 6 years' experience working in the engineering and social development sectors across Australia and the wider Asia-Pacific region.

Engr. Da Jose is the Co-founder and Director of Masy Consultants, since 2017, leading a multidisciplinary team based across Regional NSW and Southeast Asia to uplift vulnerable communities from rural poverty through capacity-building workshops, collaborative models, and exploration of appropriate technologies in the areas of clean water and sanitation. He is also the Co-founder and Director of ASEAN-Australia Strategic Youth Partnership Limited (AASYP), since 2018, where he co-designed the highly successful ASEAN-Australia Young Leaders Forum, a public policy apparatus for the 18-30-year-old youth demographic, which was integrated in DFAT's signature public diplomacy program, Australia Now. Lastly, he is also a Project Manager of AECOM, where he manages and supports the development and delivery of several projects with key clients including the NSW Government and multinational firms.

**ENGR. IRA JOSHUA S. MANUEL**

**ENGR. IRA JOSHUA S. MANUEL** is currently working at PrimeWater Infrastructure Corporation as Technical Engineer. He also became a Water Supply Engineer in the same company during 2019-2020. Also, he voluntarily works as Project Engineer in Masy Consultant. Engr. Manuel became a Water Supply Engineer Intern at the Local Water Utilities Administration during 2018-2019. And a Sanitary and Plumbing Engineer Inter at DCCD Engineering Corporation in May 2018.



Engr. Manuel graduated from Mapua University in 2019. During his academic years, one of his papers was about the Reduction of Total Suspended and Biochemical Oxygen Demand Using Compressible Media Filtration: A potential Replacement for Primary Treatment of Municipal Wastewater. He also designed a level 2 water supply system for Zone 169 to 174, Malibay, Pasay. Also, he is the designer of the Level 1 water supply system for Peñaranda, Nueva Ecija, and water supply and treatment in Brgy. Kita-Kita, Balungao, Pangasinan. Lastly, he designed a plumbing system in Dasmariñas Village, Makati.



**MR. JOHN MARK GAYATIN**

*PSSE-Mapua University Student Chapter President  
Session Moderator*

**MS. PEARL IVORY ABANA**

*President  
Phil. Society of Junior Environmental & Sanitary Engineers  
TIPQC*





## MS. ANGELIKA VHEM BALIWAG

Engr. Diosamari A. Aguirre | John Leonel D. Javier | Mark Anthony A. Magboo | Maria Eufatima M. Wagan

**DEPARTMENT OF CIVIL ENGINEERING, BATANGAS STATE UNIVERSITY**

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### Abstract

#### RESEARCH PAPER PRESENTATION

### "Redesigning Waste Analysis and Characterization Study"

The waste analysis and characterization study (WACS) is a significant tool in solid waste management used in gathering information on the quantity and composition of generated solid wastes from various sources of the area. This is a part of the Integrated Solid Waste Management Plan essential in the projection of long term solid waste management plan. Therefore, it is necessary for every municipality to have reliable and specific waste management data to evaluate the required waste management processes for a specific type of waste. As such, this study determined the possible improvements in the methods of the current practice in WACS from the different approach utilized by Local Government Units (LGUs). In line with this, the researchers considered the possible impacts of collecting data and redesigning processes based on the results of the selected studies, such as, Philippine WACS Manual, 10-year Solid Waste Management Plans, and Local WACS related studies. Upon evaluation and comparison of the collected data, the proponents redesigned and modified the process based on the methods presented from these various sources. Moreover, there are several areas that are in need of improvement regarding the approach from the identification of waste sources and generators to the end pipe and strategies. It is therefore recommended to consider more specific sampling areas that will generate more specific data. Furthermore, more thorough data will be generated due to the added properties of wastes. This improved comprehensive data to the process of WACS will be an effective way to reduce the lack of proper waste disposal and treatment that negatively impacts our environment, causing continuous harm to public health. Changes in the methods presented in the study include the determination of sampling area, the implementation of pre-assessment of existing waste management programs, additional physical properties for analysis, the presentation of data and the restructuring of the system. By adapting suggested methods, data that will be gathered will now reflect the improved ways of the residents towards their waste management.

Keywords: Waste Analysis and Characterization, redesign, solid waste management, methods

## MR. MIGUEL TEÑEDO

Technical Committee Member, PSSE-NU Student Chapter





**MR. JOSHUA EMMANUEL A. VELUYA**

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*Abstract*

**RESEARCH PAPER PRESENTATION**

**"A Sustainable Integrated Desalination Treatment System for Potable Water in Coastal Areas in Donsol, Sorsogon"**

Water scarcity has been a long-time problem in the Philippines. Around 5,000,000 Filipinos do not have access to safe water. The main source of water in the Philippines is groundwater, and it is running out. Due to lack of clean water, there is a significant increase of waterborne diseases. One alternative source of safe water is through the use of desalination in which it removes salts from seawater. Considering that the Philippines is an archipelagic country surrounded by bodies of water, seawater can be used as an alternative source for drinking water. There is evidence that the current situation could worsen, the study proposes an integrated desalination facility that can address water scarcity by providing a clean, potable, and sufficient source of water. To address the issue, the researchers of this study included the process of converting brine into chlorine. Brine solution or hypersaline water is the by-product of using desalination in which the concentration of salts is two-times the original content which is harmful to the environment when returned back to sea. With this, brine will be used in the design of the whole desalination plant as a source of chlorine disinfectant using electrolysis. The researchers also included solar harvesting technology in the design to address the high electricity consumption of the treatment plant. The main objective of the study is to provide a sustainable additional water source for drinking water to alleviate water scarcity by using a self-sustaining desalination plant that uses solar energy to power the desalination facility. In order for the researchers to attain the objectives of the study, they will employ both qualitative and quantitative approaches in the collection of data that will be gathered from government agencies and software simulation applications for the analysis of efficiency, cost-effectiveness, and environmental impacts of the study.

Keywords: Desalination, Water Scarcity, Brine Solution, Electrolysis



**MR. PHILIPPE POWELL PUGAY**

*Chief Executive Officer*  
*Environmental & Sanitary Engineering Program Council*  
*DLSU-Dasmariñas*

## MS. CHANIDA WESNUSIT



Ms. Chanida Wesnusi is the Engineer Manager of HITZ (Thailand) COMPANY LIMITED (HITAZHI ZOSEN). She graduated from King Mongkut's Institute of Technology Ladkrabang with Bachelor's Degree in Chemical Engineering. She also obtained her Master's Degree of Business Administration Program from the National Institute of Development Administration (NIDA). She's been the Engineer Manager with 2 years experience in Waste to Energy Power Plant Projects of Hitachi Zosen and 10 years experience as process engineer with TTCL focusing on Gas Fired Power Plant Projects with full responsibility from design through commissioning stage.

### Abstract

#### Reduce: Innovation in Reducing and Managing Solid Waste

As Hitachi Zosen Corporation, it's the world's leading company, the 140th anniversary of establishment this year. We have 3 main business areas that consists of Environment systems, machinery, and infrastructure. Hitachi Zosen Company delivers a large number who provide design, construction, and manufacture of Energy-from-Waste plants and other business with 1018 project references to the worldwide as of 2021, 707 references in Asia followed by Europe and North America. The proven and reliable technology with energy system can reduce the amount of landfill waste by combustion to convert the waste into electricity. The generated electricity is sent to local utility companies for using in their business or selling electrical transmission lines in Philippines.

The presentation shows the main equipment with explanation for Waste receiving & Charging system, Incinerator & Boiler System, Waste heat energy recovery, Flue gas clean system and Ash handling system including A.I. operation and maintenance system which monitors and analyze the plant operates 24 hours. The Operation lifetime of our designed around 79 plants in Japan are in operation more than 20 years that plants can be achieved long life by proper O&M. The maximum operation time is 46 years. Moreover, Hitachi Zosen Company realizes the surrounding environment by considering plant design according to legal standards of Philippines to prevent pollution such as flue gas emission standard, ignition loss of slag.

We believe that our WtE technology can propose the following improvements among the next four environmental problems in Philippines. (1) Various problems caused by the waste not being treated before disposal;, (2) Problem of shortage of final disposal site, (3) Need for consideration for the surrounding environment and (4) Need for renewable energy in the Philippines. We would like to present suggestions for these issues in this presentation.

The base practices in Japan show the history of Waste to Energy Plant since Japan faced the problem of waste management due to the amount of waste increased rapidly because of economic growth and development. The Japanese government enacted the Waste Management Act and the Public Cleansing Act to protect the pollution problems and living environment and the Waste to Energy plant is a development plan by using waste as a source of energy and need further. Now, the Japanese Government enhances the development of high-efficiency waste power generation facilities by local governments or private business operators and improves the thermal recovery efficiency of waste power generation. The result of base practice showed the total amount of generated waste, final waste disposal has tended to greatly decrease as a result of waste management.

*ENGR. JOEL J. DIAZ, APEC Eng., ACPE, LEED AP®*

Engr. Joel J. Diaz is a registered Sanitary Engineer, a Registered Asia Pacific Economic Cooperation (APEC) Engineer, a Registered ASEAN Chartered Professional Engineer (ACPE), a LEED AP (BD+C) and a Professional Member of Society of Fire Protection Engineers with 19+ years of extensive experience in building services design and construction; providing MEP sustainable and energy efficient solutions for broad variety of commercial, private, and public buildings in Southeast Asia, Middle East and Africa including mixed-use high rise towers, Hospitals, Clinics, 3 to 5 star Hotels, Offices, Residential Buildings, Villas, Airports and Seaports. Having successful background in design and construction with regular trainings and seminars, I have developed and enhanced my knowledge and familiarity with pertinent engineering innovations, international design code and standards like ASHRAE, AIA, CIBSE, PESDG, NFPA, IPC, UPC/IAPMO, HTM (For Healthcare), ASPE, LEED 2009, etc as well as local authority regulations.



Engr. Diaz is currently an Associate - MEPF at P&T Architects, Engineers and Consultants in Dubai , United Arab Emirates. P&T Group is presently ranked as one of the top 20 MEP consultant in GCC, ranked 6th in the world in Architectural Engineering practice and the oldest & largest Architectural Engineering practice in the South East Asia established in 1868.

*Abstract*

*Recycle : Rainwater Harvesting + Sustainable Water Systems Innovation*

**Rainwater harvesting** is one of the simplest and oldest methods of self-supply of water for households. It is also recognized as the cheapest strategies to reduce potable water and electricity use. This strategy has been used for ages to mitigate problems of water scarcity.

Another sustainable strategy to reduce potable water and energy use is the implementation of **Sustainable Water System Innovations** including but not limited to:

- Greywater Treatment and Reuse
- AC Condensate Recovery and reuse
- Solar Water Heating
- Use of efficient Sanitary Fixtures
- Use of water flow restrictors and fixture sensor
- VFD Operated Pumps

## MR. ROGER PUNG



Roger Pung has over 25 years of experience in water/wastewater industry in APAC from management, techno-commercial direction, tender, costing, sales, legal & finance analysis, risk analysis and management, drafting of contract including contract negotiation & signature, procurement and to a lesser extent completion of project. His previous role include Director of Proposal for Veolia Water Technologies APAC and Operations Director for Biwater APAC.

Roger also has over 20 years experience in water/wastewater projects in APAC funded under Multilateral funding organizations (World Bank, ADB), Bilateral funding organizations (JICA/JBIC, DANIDA, French protocol, etc) including export credit finance (i.e COFACE). This is in addition to projects funded by large water companies (i.e Shenzhen Water, Beijing Drainage Group, Manila Water, Maynilad, Hong Kong Drainage Services Dept, etc) under different bidding and evaluation criteria. His experience range from traditional design-bid-build (Employer's Design contract), Design-Build, Design-Build-Operate, PPP project. This has enabled Roger to develop a close understanding of various type and nature of water/wastewater projects essential for Private- Public Project participation and contractor involvement.

Roger is currently engaged as Regional Sales Director APAC for Nereda business unit under Royal HaskoningDHV.

### Abstract

#### Reuse: Way Forward for Water Reuse and Resource Recovery from Municipal Wastewater Treatment Plant

The global water crisis affects many countries and yet water is seldom reused. Many parts of the world are suffering from the change in rainfall patterns and serious water shortage due to climate change. These shortages can be greatly reduced by utilizing treated effluent from municipal wastewater treatment plant in replace of drinking and surface water for non-potable usage. In addition, natural resources are becoming more and more scarce, while municipal wastewater treatment plant can be an interesting place to "mine" resources back.

This presentation reviews the following;

- Introduction to water reuse and how reuse water can supplement water supply for different application
- References of water reuse standards for different application (i.e. irrigation, lake water recharge, non-body contact application, indirect potable use, industrial, etc) adopted by selected countries for reuse water
- Selected case studies worldwide showing Innovative design and engineering approach for municipal wastewater treatment plant (WWTP);
  - Technologies: Focus on low footprint and low energy, whole life cycle cost; Aerobic granular sludge Nereda® process integrating tertiary filtration
  - Aesthetically design WWTP that blend with surrounding
  - Waste sludge for agriculture application
  - Resource recovery from WWTP; sludge reclaimed as resource/raw materials; Kaumera®
  - Renewable energy from WWTP: increased biogas production via Ephyra® sludge digestion for increased energy production for internal use.
- Way forward in adopting sustainability and integrated approach for water reuse and resource recovery.



*ENGR. CATHERINE E. JOAQUIN*

Engr. Catherine E. Joaquin is licensed Civil and Sanitary Engineer. She is currently working as Engineer III in the the Water Quality Management Section of the Environmental Management Bureau of the DENR. For almost a decade working in the Department of Health, she authored/crafted several policies, guidelines, monitoring tools, and training modules such as the; (a)National Standard on the Design Construction Operation and Maintenance of a Septic Tank System, (b)Revised IRR of Chapter 17 of PD 856 Code on Sanitation "Sewage Collection and Disposal, Excreta Disposal, and Drainage." (c)Monitoring Tools for Hospitals, PCO/Healthcare Waste Focal Person and Regional Engineers in compliance to DOH-DENR JAO 2005-02 (Effective and Proper Handling, Collection, Treatment, Storage, and Disposal of Health Care Wastes), (d)Training Design for the National



Sewerage and Septage Management Program (NSSMP) for the DOH Regional Engineers. She strongly advocates the importance of Sanitation and currently integrating all her public health experience in crafting and formulating EMB policies and guidelines related to water quality management.

*Abstract*

*UPDATES ON THE DENR-EMB WATER QUALITY GUIDELINES (WQG) and GENERAL EFFLUENT STANDARDS (GES)*

The Department of Environment and Natural Resources (DENR), the country's primary government agency who has mandate and responsibility for the conservation, management, development, and proper use of country's environment and natural resources, has made updates to the DENR Administrative Order (DAO) No. 2021-19 or the "Updated Water Quality Guidelines (WQG) and General Effluent Standards (GES) for Selected Parameters" that business establishments should become aware of and should comply.

This Administrative Order partially amends the DENR AO No. 2016-08 or the "Water Quality Guidelines and General Effluent Standards of 2016.", which is a basic legislation on wastewater management. The main modifications include raising the standard values for six parameters. It also stipulates the obligation to submit data on influent values of BOD for establishments with influent BOD equal to or greater than 3000 mg/L. The WQG were created to maintain and preserve the quality of water based on the intended beneficial use as well as to prevent and abate pollution. The GES, on the other hand, set legal restriction or limitation on quantities, rates, and concentrations of physical, chemical or biological parameters of effluent which an establishment is allowed to discharge into the environment. Furthermore, DAO 2021-19 is based on the current classification of water bodies and on its beneficial use and also based on the perceived impact to the activities in the area and to the environment. The study emphasizes the new parameters in DAO 2016-08, the updated parameters in DAO 2021-19, and the changes in some parameters (e.g. copper, the scope was changed from "dissolved copper" to "total copper").

The study highlights also the process of applying or requesting for modification of Significant Effluent Quality Parameter of SEQP made by any person or establishment (i.e., juridical person).

## ENGR. ROLANDO I. SANTIAGO



Engr. Rolando I. Santiago is a licensed Sanitary Engineer. He took his Bachelor of Science in Sanitary Engineer in National University - Manila. He obtained his Master's Degree in Management Major in Public Administration in Philippine Christian University and Master's Degree in Public Health in the Institute of Community and Family Health Inc.

Engr. Santiago is the Supervising Health Program Officer in Environmental Health and Healthy Setting Division under the Disease Prevention and Control Bureau of the Department of Health. He formulates/evaluated policies, standards, guidelines and develop plans and programs relative to environmental health and sanitation, develops program and projects towards the reduction of morbidity and mortality of water and sanitation related diseases, provides technical advice/assistance to the DOH Regional Offices<sup>1</sup>, local government units, academe, non-government organizations and other partner agencies on environmental health and sanitation, and develop programs for advocacy on the prevention and control of water and sanitation related diseases.

### Abstract

#### Salient Points on the Revised Implementing Rules and Regulations of Chapter XVII - "Sewage Collection and Disposal, Excreta Disposal and Drainage" of the Code on Sanitation of the Philippines (P.D. 856)

The Presidential Decree 856 (PD 856) or the Code on Sanitation of the Philippines has been enacted on December 23, 1975 to prescribe sanitation requirements for the improvement of lives for all Filipinos through protection and promotion of health. PD 856 has been crafted to integrate all existing laws and regulations on public health and sanitation.

Protecting water resources from pollution and people from water contamination are the two of the most pressing challenges facing the Philippines today. The direct relationships between diseases such as diarrhea, cholera, hepatitis and dysentery and untreated sewage and wastewater coming from households and establishments are well documented.

With the increasing population and economic development in addressing the problems pertaining to polluting and contaminating water sources and bodies e.g. Boracay Island and Manila Bay due to poor sanitation practices, the issues on permitting requirements for operation of sewage and septage treatment and disposal, the DOH has revised and updated the provisions of the law and its Implementing Rules and Regulations (IRR) for it to be relevant and responsive to the needs of the country to address the environmental issues and concerns.

The Philippine Department of Health (DOH) is responsible in prescribing regulations and to carry out the provisions of Chapter XVII, "Sewage Collection and Disposal, Excreta Disposal and Drainage". The DOH is taking a big leap to make sanitation programs effective and sustainable to protect the environment and public health. Last May 27, 2021, the DOH has signed and approved the Revised Implementing Rules and Regulations (RIRR) of Chapter XVII, "Sewage Collection and Disposal, Excreta Disposal and Drainage" of the Code on Sanitation of the Philippines (PD 856).

The RIRR shall apply to all individuals, households, firms, establishments, industries, institutions, facilities, utilities, public and private operators, owners/administrators and other entities engaged in the sewage, wastewater and excreta collection and disposal system. This also applies to those engaged in desludging, collection, handling and transport, treatment, reuse and disposal of fecal sludge from cesspools, communal septic tanks Imhoff tanks, sewage treatment plants/facilities and septage from household septic tanks. Further, the scope of the RIRR applies to all local government units for the provision and maintenance of drainage system.

In the implementation of the RIRR, the role of Sanitary Engineers were highlighted particularly in the areas of design of sewerage systems, sewage treatment plants, and septic tanks; processing of sanitary/plumbing permit and operational permit; and in the conduct of sanitary inspection. The appointment or creation of plantilla position for Sanitary Engineers at Local Government Unit (LGU) levels i.e. provincial, city and municipal was also emphasized.



*DR. TEODORO J. HERBOSA*

Dr. Teodoro Javier Herbosa has a BS Degree in Biology, Cum Laude, from the University of the Philippines Diliman. He obtained his Degree of Doctor of Medicine from the University of the Philippines Manila. Dr. Herbosa has a Diploma in Emergency Preparedness & Crisis Management, obtaining it from the University of Geneva, WHO fellow, Geneva, Switzerland.

Dr. Herbosa also took post graduate studies from reputable schools across the globe such as London, John Hopkins University (Baltimore), Downer's Grove, Illinois, Department of Trauma, Cook County Hospital, Chicago and Chaim Sheba Medical Center, Tel Aviv, Israel.



At present, Dr. Teodoro Javier Herbosa sits as a Board Member, expert panel of the Philippine Health Insurance Corp., while at the same time, sitting as a Trustee at the Culion Foundation, Inc. He is the current special adviser of the Philippine's National Task Force Against Covid-19, Chairman of the Board of the Physicians for Peace Philippines, Associate Professor VI at the College of Medicine, University of the Philippines Manila.

Prior to his present positions, Dr. Herbosa was the Undersecretary of DOH from 2010-2015, from 2017-April 2021, the Executive Vice President of the University of the Philippines Systems. The Chief Division of Trauma at the Department of Surgery of the Philippine General Hospital, Senior Consultant of the Globe Telecommunications, Professor at the National University of Malaysia, Flight Surgeon for Formula One, Petronas Malaysian Grand Prix and Course Development Team Leader, for Hospital Preparedness for Emergencies Multi Hazard, USAID-OFDA.

*Abstract*

*COVID-19 Status, Trends and Responses*

The SARS-CoV-2 or COVID-19 pandemic has tremendously impacted the economy, livelihood, and the well-being of people worldwide. And Philippines is one of the most severely affected countries in the Western Pacific Region.

To gain insights and recent updates on COVID-19, this presentation highlights some relevant information and related statistics. As of November 28, 2021, the World Health Organization (WHO) designated the variant B.1.1.529 a variant of concern, named Omicron. Researchers in South Africa and around the world are overseeing studies to obtain better understanding on many aspects of Omicron and will continue to share the findings of these studies as they become available. Recent research findings say that Omicron variant has more than 30 mutations on spike proteins compared to Delta variant that has 15 mutations. Moreover, Omicron is said to be more transmissible, more virulent and has an increased risk of reinfection. As the pandemic lingers and continue to displace many countries across the globe, the concept of complex emergency is becoming more prominent and beneficial. And in order to effectively implement measures addressing morbidity in complex emergencies, the 4Cs of disaster partnering: Communication, Cooperation, Coordination, and Collaboration, are best understood as a combination of distinct and sequential activities.

The study also presents significant dashboard on COVID-19 tallies relative to population of different countries, Philippine COVID-19 case bulletin, the existing alert level guidelines in the country, and the direction of the country's vaccine roadmap. With COVID-19 vaccines proven to be effective in lowering the risk of getting and spreading the virus that causes COVID-19 and help to prevent serious illness and death, the National and Local government continue to provide and perform vaccination roll-out to general public. This presentation tackles the status of vaccine roll-out in the country and prominent information on booster shot.

## TOPNOTCHERS



**RANK: 1**  
**NAME: DELWIN T. YU**  
**RATING: 83.87**



**RANK: 2**  
**NAME: RAHEEMAH A. GOMEZ**  
**RATING: 82.30**

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2021 Midyear  
National Student Convention

SHAPING AND ENRICHING  
FUTURE SANITARY ENGINEERS

JUNE 17, 2021  
THURSDAY

ZOOM

 <p><b>PRACTICING SANITARY ENGINEERING PROFESSION IN ABROAD: A SANITARY ENGINEER'S JOURNEY TO SUCCESS</b></p> <p><i>Resource Speaker</i> <b>ENGR. JESSICA A. DE TORRES</b> Senior Public Health Engineer Highly Commended Plumbing Engineer of the Year - MEP (Mechanical, Electrical &amp; Plumbing) Middle East Awards 2020 BS Environmental and Sanitary Engineering Batangas State University</p>	 <p><b>WATER SUPPLY OPERATION AND MANAGEMENT DURING THE COVID-19 PANDEMIC: A CASE FOR THE MWSS WATER SERVICE AREAS IN METRO MANILA, CAVITE, RIZAL, AND BULACAN PROVINCES</b></p> <p><i>Resource Speaker</i> <b>ENGR. PATRICK JAMES B. DIZON</b> Division Manager, Angat/ Ipo Dam Operation Management, Metropolitan Waterworks and Sewerage System (MWSS) BS Environmental and Sanitary Engineering National University</p>
 <p><b>TRANSFORMING DREAMS INTO BUSINESS START-UP: JOURNEY OF YOUNG CEO</b></p> <p><i>Resource Speaker</i> <b>ENGR. CORNELIO D. MACAPAGAL</b> Owner and President, Cornelius Construction 10th Placer, 2014 SE Licensure Examination BS Environmental and Sanitary Engineering, Mapua Institute of Technology</p>	 <p><b>OPPORTUNITIES FOR SE STUDENTS AND SE GRADUATES IN STUDYING ABROAD</b></p> <p><i>Resource Speaker</i> <b>ENGR. GLIEZA E. CACERES</b> Master in Sustainable Environmental Policy Major in Environmental Planning, University of Seoul BS in Sanitary Engineering, Western Mindanao State University</p>

JUNE 17, 2021 THURSDAY ZOOM


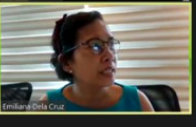

**2021** MIDYEAR NATIONAL CONVENTION  
 VIRTUAL CONFERENCE

**SANITARY ENGINEERS AT WORK:**  
**ADMINISTRATION,**  
**MANAGEMENT AND**  
**OPERATIONS**  
 JUNE 17-19, 2021



**DR. BERNARDO C. HORNILLA,**  
 F.PSSE, ACPE, ASEAN Eng.  
 General Manager  
**Batangas City Water District**  
**WATER DISTRIBUTION UPDATE FOR**  
**BATANGAS CITY WATER DISTRICT**

Moderator  
**ENGR. EMILIANA P. DELA CRUZ,**  
 F.PSSE, ASEAN Eng.  
 National Director, PSSE

**ENGR. LOUIJHON A. PRINCESA**  
 Head, Sewer Service Connections, Sewer Network  
 and Wastewater Management  
**Maynilad Water Services Inc.**  
**SEWER NETWORK AND SEPTAGE**  
**MANAGEMENT**

Moderator  
**ENGR. RAMIL S. GUTIERREZ**  
 National Director, PSSE





**ENGR. BHONA MAY L. OÑATE**  
 Environmental Management Specialist  
**DENR - Environmental Management Bureau**  
**Central Office**  
**SOLID WASTE MANAGEMENT**

Moderator  
**ENGR. AIDA DC. CALMA**  
 National Director, PSSE





**ENGR. CARLITO M. SANTOS, JR.**  
 Chief Executive Officer  
**Uniklean Enviro Construction Corporation**  
**WASTEWATER TREATMENT PLANT FIELD**  
**OPERATIONS**

Moderator  
**ENGR. MARTIM STEPHEN C. CORPUZ**  
 National Director, PSSE







Outreach Program -  
Donation of Air Purifier in  
Hospicio De San Jose  
September 15, 2021





2021 PSSE WEBINAR LECTURE SERIES

September 18 1pm-5pm

WASTEWATER TREATMENT DESIGN AND OPERATION AN ONLINE TRAINING

TOPIC 2

FUNDAMENTAL AND DESIGN PRINCIPLES OF SEQUENCING BATCH REACTOR (SBR)



ENGR. ANDREW T. MONTALBO  
 President  
 ARGONES SOLUTION CONSULTANCY SERVICES, INC.

PSSE - Ramella Joy Feliciano-de los Reyes

Wastewater Treatment Design and Operation September 18 & 25, 2021

R14.2 Requirements for First Time Application

Engineer's Report prepared by a registered chemical engineer, sanitary engineer or pollution control officer containing the ff:

- a) Vicinity map identifying the street address, location or plant premises
- b) The nature of project or business
- c) Production capacity, quantity or volume of and the generic name (s) of products




ENGR. NICANOR E. MENDOZA

2021 PSSE WEBINAR LECTURE SERIES

WASTEWATER TREATMENT DESIGN AND OPERATION AN ONLINE TRAINING

Introduction to Technical Trainer



Engr. FREDISWINDA DE GUZMAN  
 Deputy, Planning & Programming Division  
 City Engineering Department  
 QUEZON CITY LGU  
 PSSE National Treasurer

2021 PSSE WEBINAR LECTURE SERIES

WASTEWATER TREATMENT DESIGN AND OPERATION AN ONLINE TRAINING

PSSE - Wheng De Guzman

PSSE - Carlo Jr. Santos

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WASTEWATER TREATMENT DESIGN AND OPERATION AN ONLINE TRAINING



ENGR. RICO S. ONGCOY  
 Sanitary and Environmental Engineering Consultant  
 ARCHEN TECHNOLOGIES, INC.

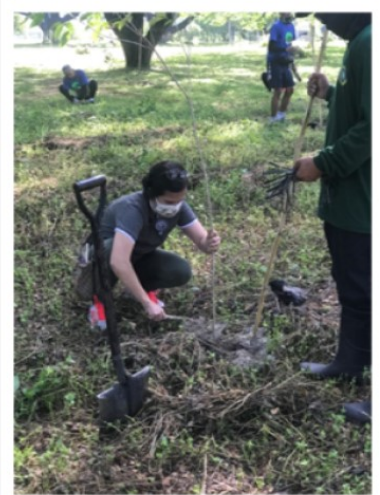
SEPTEMBER 25, 2021  
 08:00am - 12:00pm

RESOURCE TECHNICAL PERSON & TOPIC 3

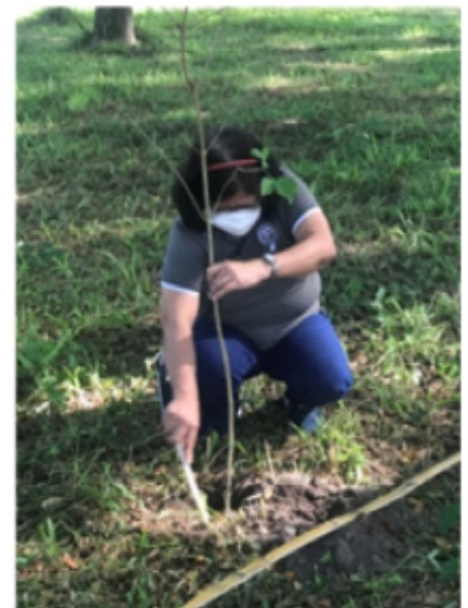
FUNDAMENTAL AND DESIGN PRINCIPLES OF BIOLOGICAL NUTRIENT REMOVAL (BNR)

PSSE - Rico Ongcoy

PSSE - Neil Stephen Bumagat



Tree Planting  
Activity - Clark  
September 26, 2021



*Outreach Program -  
Donation Of Air Purifier In  
Hospicio De San Jose 2  
October 20, 2021*



2021 PSSE WEBINAR LECTURE SERIES

40HR BASIC POLLUTION CONTROL OFFICER Online Training Course



**ENGR. NICANOR E. MENDOZA**  
OIC  
Water Quality Monitoring System  
DENR - EMB CENTRAL

**TOPIC 1**  
FRAMEWORK OF ENVIRONMENTAL REGULATIONS AND EMB MANDATES, PLANS AND PROGRAMS

40 HR BASIC POLLUTION CONTROL OFFICER Online Training Course

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PSSE Manny Anthony Taguba



Engr. Nicanor E. Mendoza EMBSCO

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40HR BASIC POLLUTION CONTROL OFFICER Online Training Course



**DR. KRISTINE ANN S. MARTINEZ**  
Vice President  
Environment and Social Department  
WOODFIELDS CONSULTANTS, INC.

**TOPIC 2**  
THE PHILIPPINE EIS SYSTEM

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PSSE- Calma Aida DC



Kristine Martinez

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**ENGR. JAMES L. ROMERO**  
EMS II  
DENR - EMB REGION III

**TOPIC 3**  
RA 8749 : THE CLEAN AIR ACT AND ITS IRR

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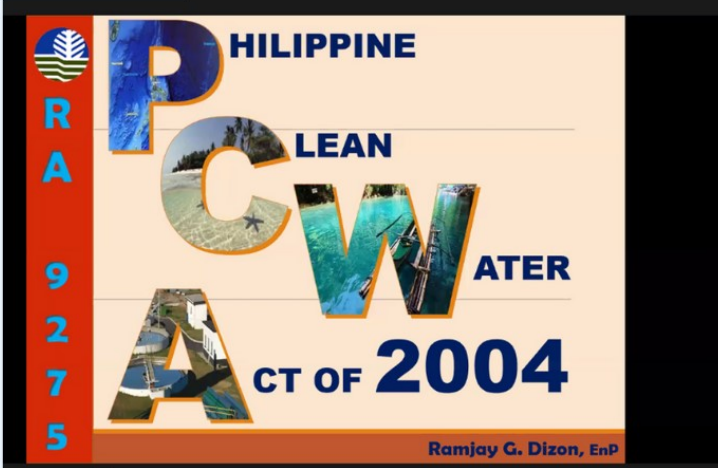
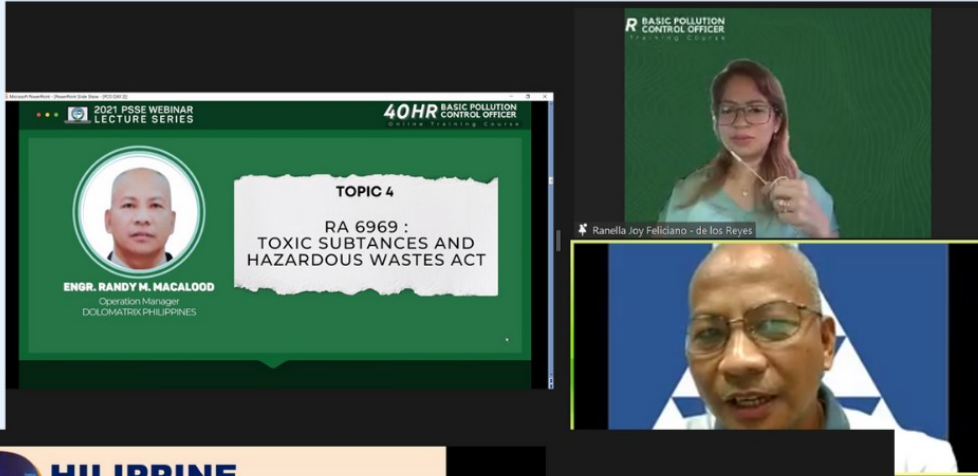


Martim Corpuz

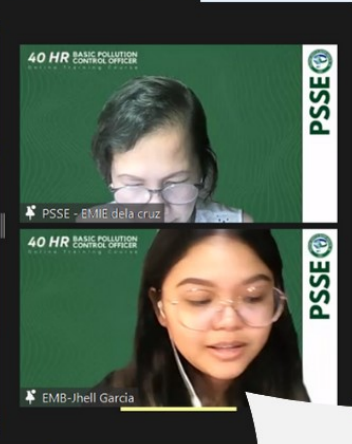
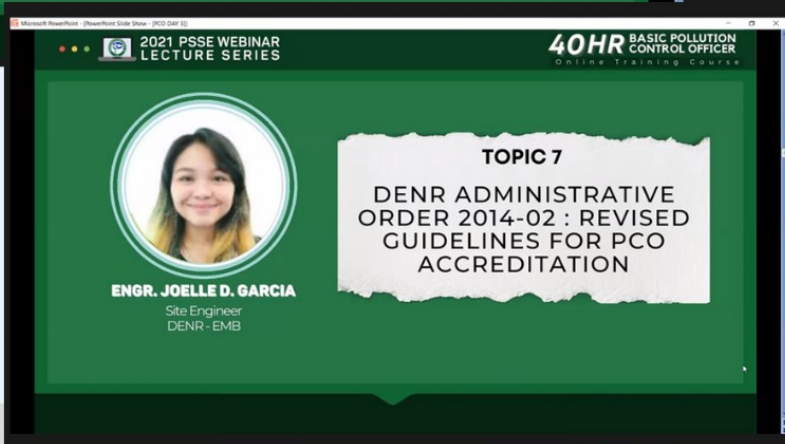


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**TOPIC 8**

**CLIMATE CHANGE AND OZONE DEPLETING SUBSTANCES (ODS)**

**ENGR. GEOFFREY CUETO**  
SOA QC Manager  
MESICAT CONSTRUCTION, INC.

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PSSE - DAVE CASTRO

40 HR BASIC POLLUTION CONTROL OFFICER Online Training Course

Geoffrey CUETO

PSSE

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**TOPIC 9**

**LECTURE ON COMPLIANCE MONITORING REPORT (CMR) PREPARATION**

**ENGR. ROGELIO M. MAGAT**  
Manager, Environmental Permits Division  
CLARK DEVELOPMENT CORPORATION  
PSSE National Director

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Philippine Society of S...

Jhie Rocabo

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For his distinguished contribution in the field of Sanitary Engineering his exemplar service in his profession such as the General Manager A of Batangas City Water District (BCWD) and his 35 years of continuous service in the delivery of safe, affordable and sufficient water supply to the consumers of Batangas City. He is considered one of the champions of the Water Safety Plan (WSP) implementers in the country, a risk management tool designed to ensure the safety of drinking water through the use of comprehensive risk assessment and management approach from the water sources to concessionaire's taps. His expertise and experience in the operation and maintenance of water production facilities focus primarily in the quantity and water quality assurance of drinking water and part of the Non-Revenue Reduction and part of the Non-Revenue Reduction (NRW) team of BCWD. He devoted his time in sharing his skills and

knowledge in the field of environmental and sanitary engineering as resource speaker, adviser and researcher particularly the Groundwater Assessment of Batangas City/Calumpang River as an Alternative Source of Water Supply. As guest lecturer at the Batangas State University in the College of Environmental and Sanitary Engineering. He shows his commitment and professionalism in his field. His competence, excellence, and commendable track record have earned him various awards and recognition such as: Thirty (35) Years Service Award given by the Batangas City Water District; Member of the 1993 Group Study Exchange Team sent to Arizona, USA thru the Rotary Foundation of Rotary International representing water distribution, An ASEAN Engineer in the field of Sanitary Engineering, Received a scholarship grant thru the Netherlands Fellowship Program (NFP) at Erasmus University Rotterdam, The Netherlands for Master of Science in Urban Management and Development (UMD), Specialty in Water Resources and Hydraulics Engineering given by PICE National, Elevated to the College of Fellows for Sanitary Engineering Profession, Asean Chartered Professional Engineer (ACPE) in the field of Sanitary Engineering, Received awards from the Rotary International District 3820 as Chairman of International Coastal Clean Up and also the Water and Sanitation on the 6 Avenues of service. Outstanding High School Alumni of Batangas State University in field of public service. As a member of the Philippine Society of Sanitary Engineer Inc. as officers, former Vice-President and board of directors from 2008 up to 2019 and College of Fellows, the Philippine Institute of Civil Engineers Batangas Chapter as Past President, the Rotary Club of Batangas as Past President and a Multiple Paul Harris Fellow, the Rotary International District 3820 as District Officer, the Batangas Association of Water District (BAWD), Southern Tagalog Association of Water District (STAWD) and Philippine Association of Water District (PAWD), the Brotherhood of Christian Businessmen and Professionals (BCBP) Batangas City, Knights of Columbus, Council 3347 Batangas City as Grand Knight and a Fourth Degree member of the Padre Garcia Assembly, and his relentless dedication to the organization/s is a testament of his outstanding career.



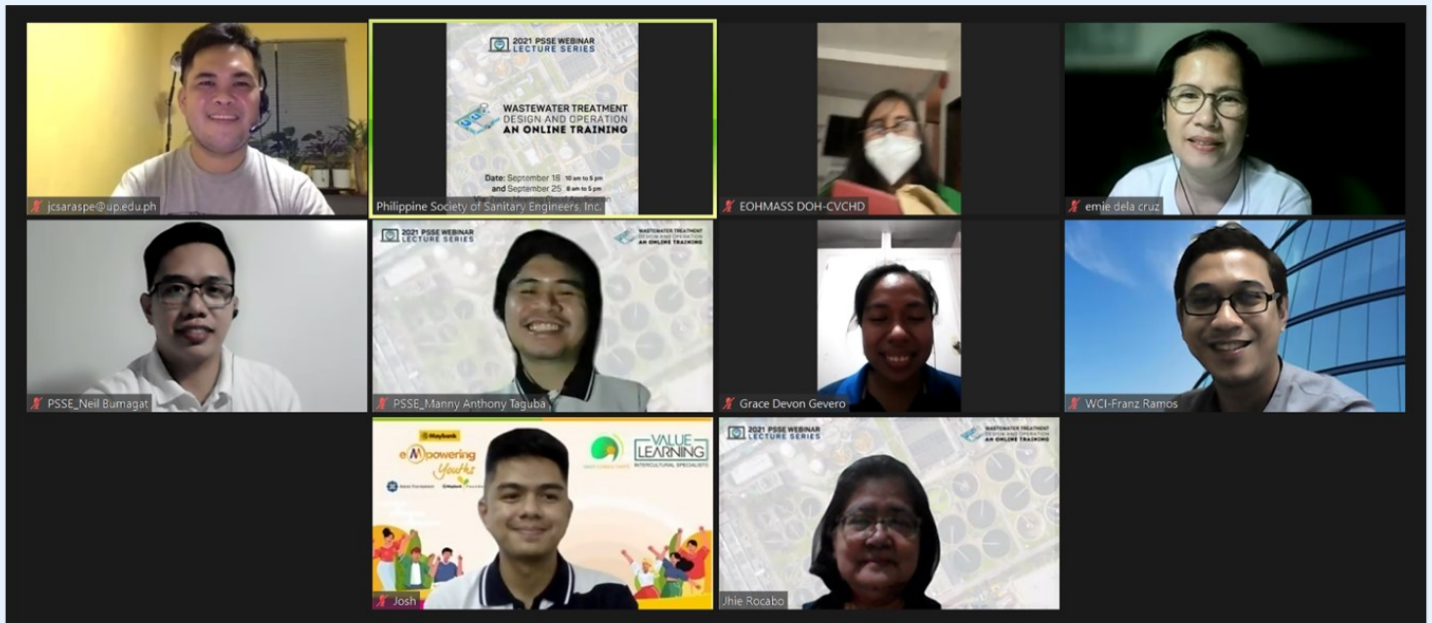
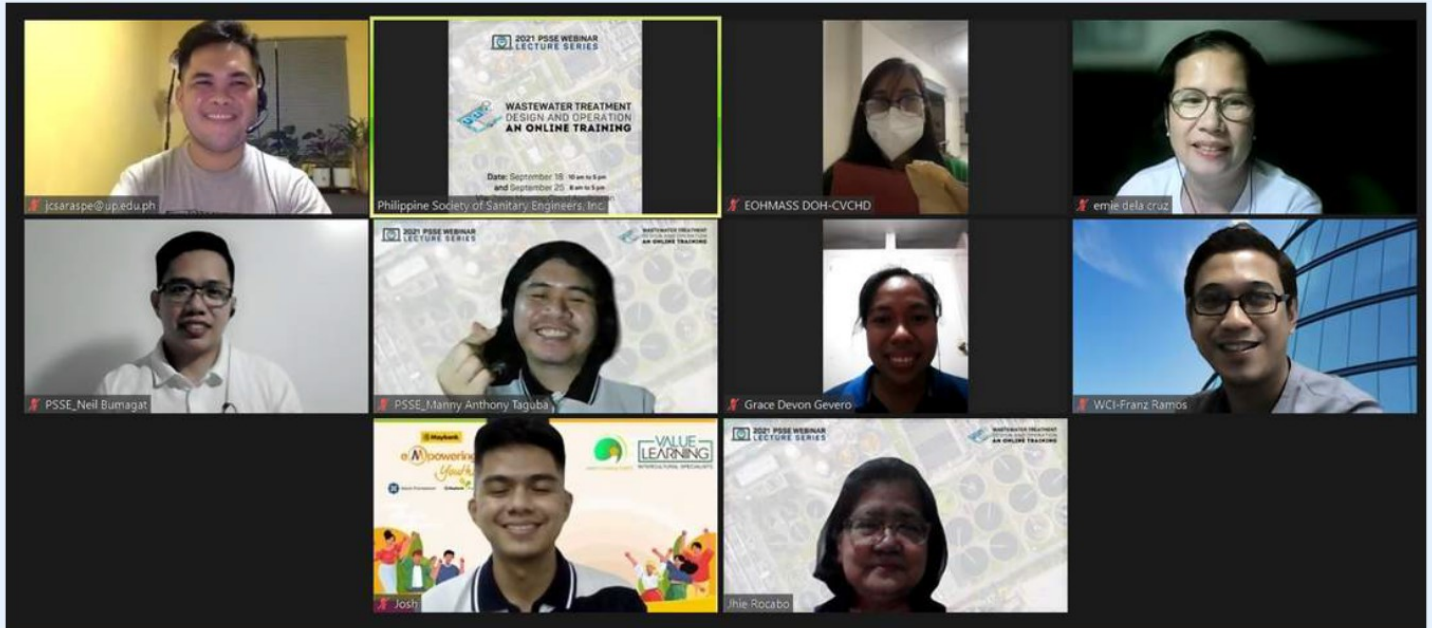
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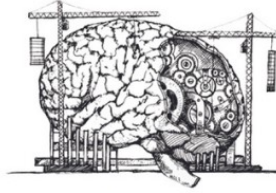
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2021 ANNUAL NATIONAL  
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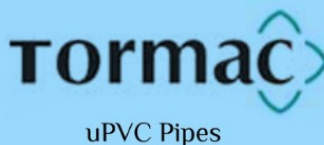


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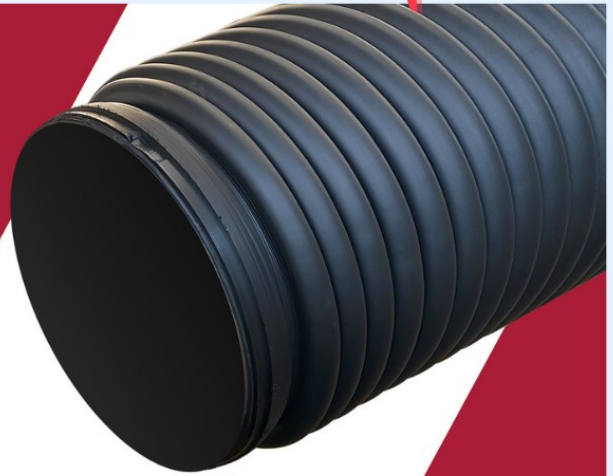


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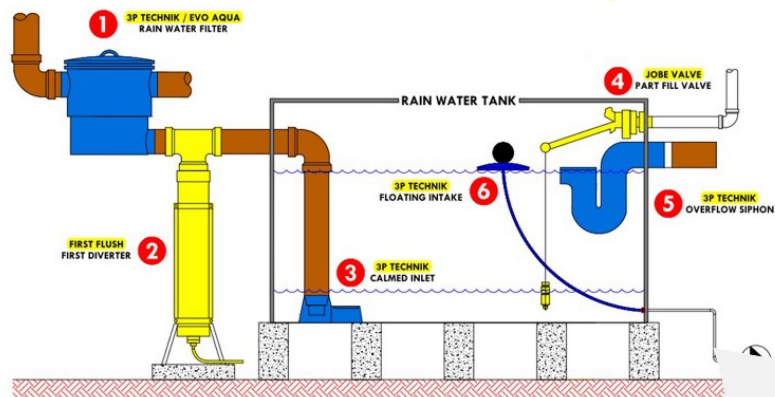
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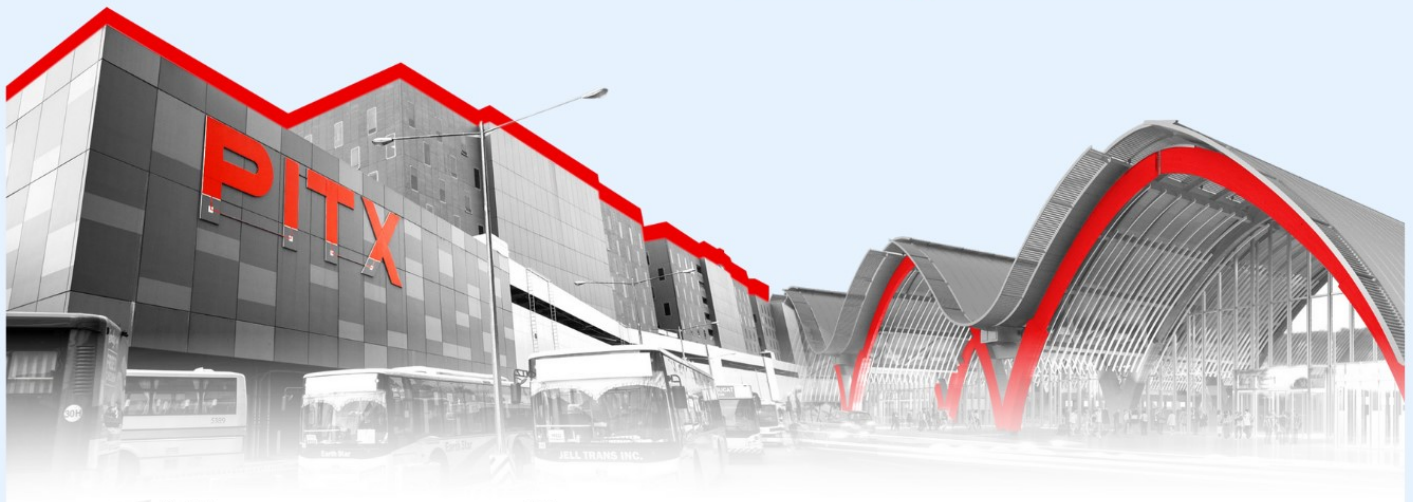
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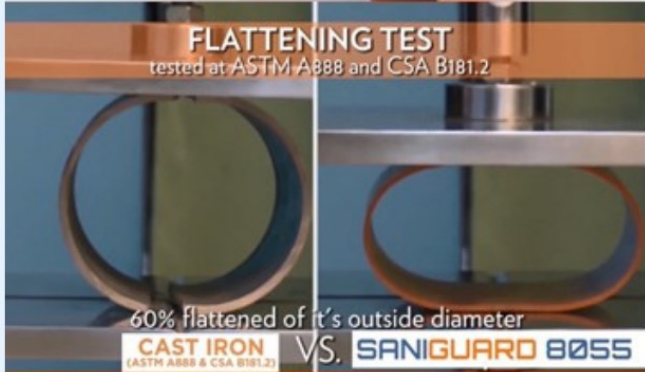


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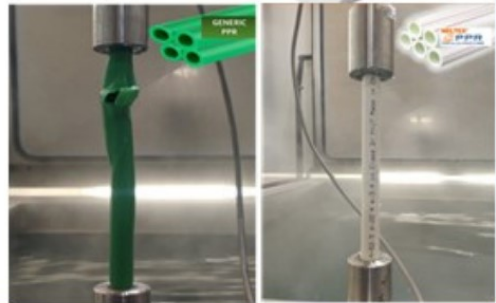
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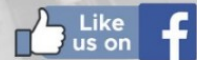


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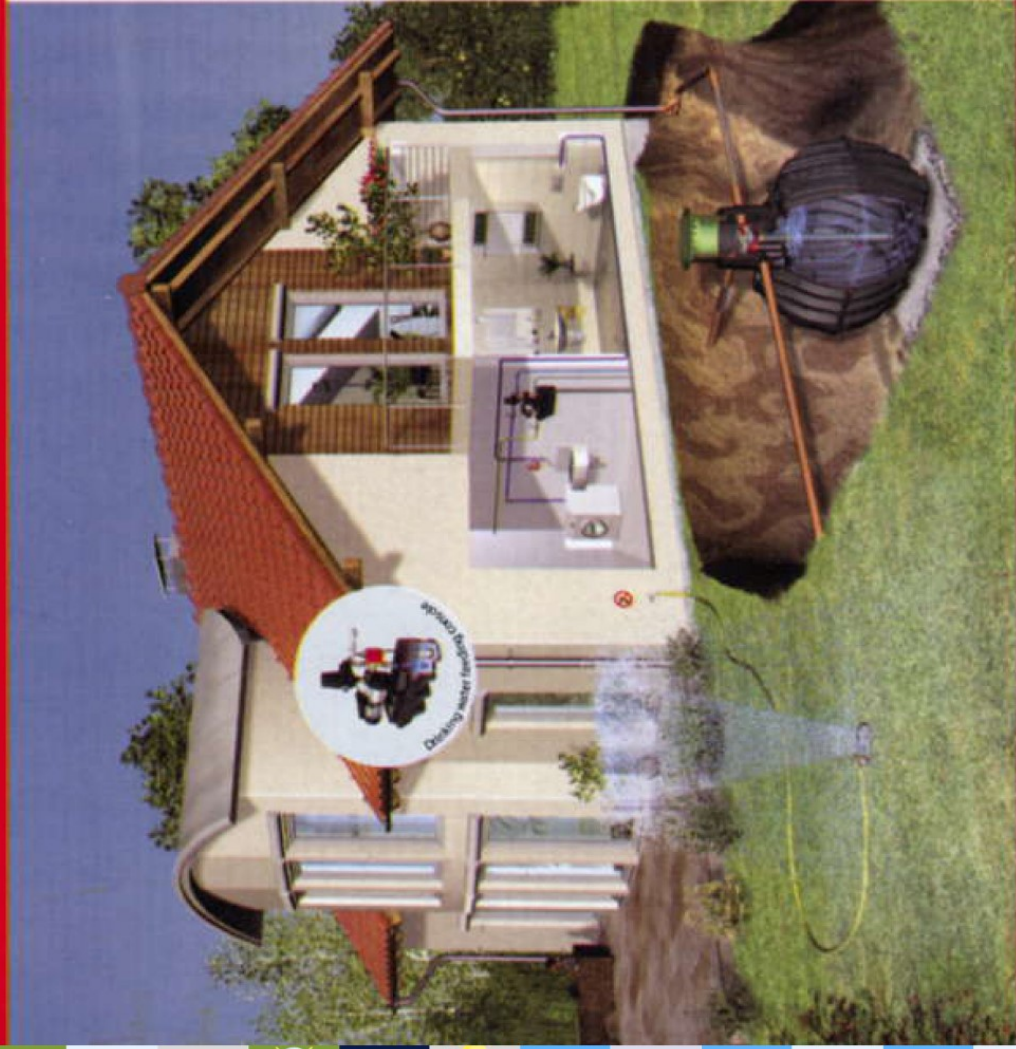


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10,000 <sup>ii)</sup>	2,640
13,000 <sup>ii)</sup>	3,400

<sup>i)</sup> Carat XL underground tank  
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