

CORPORATE PROFESSIONAL PROFILE TS. Dr. Nurul Muiz Murad

Environmental Sustainable Development

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Ts Dr Nurul Muiz Murad is an Environmental Sustainable Development professional with a background in Engineering, having obtained his Bachelors and PhD degrees in Mechanical Engineering from Swinburne University in Melbourne with 24 years working experience in Australia and Malaysia. He started his career as an academic with Swinburne University Australia as a Mechanical Engineering lecturer in 2001. He later joined a multi-disciplinary engineering consulting firm Norman Disney & Young in Melbourne in 2006 as an environmental sustainable development (ESD) consultant and later joined an ESD consultancy firm Sustainable Built Environment (SBE) as a senior ESD consultant in 2008.

He returned to Malaysia in 2009 and joined Open University Malaysia as a Senior Lecturer in the Faculty of Science and Technology. He was invited to join Solar Energy Research Institute (SERI) in the Malaysian National University (UKM) as a research fellow in 2011, contributed in the research and development of applied solar photo voltaic systems for community application. He founded his consultancy and advisory firms Green Earth Design Solution (GEDS) in 2011 and later GEDS Group Holdings in 2014 providing services in ESD consultancy particularly green building facilitation and later provided services in renewable energy and energy efficiency. In 2017, Ts Dr Muiz was appointed by the Johor State government of Malaysia through its Johor Biotechnology agency to develop and implement the Bio-compostable and Biodegradable Food Packaging Blueprint. With the Johor State government, he was also the subject matter expert in providing advisory service for waste to wealth (WTW) project in the state.

He founded Ecodwell Ventures in 2019, a company specializing in designing and building modular and mobile housing and providing services in solar PV energy. He partnered Group 27 Advisory as subject matter expert involved in developing two Malaysian government blueprints; the 4th Industrial Revolution Roadmap for the Ministry of Economic Affairs (MEA) Malaysia in partnership with Price Waterhouse Cooper (PwC) in 2019 and Low Carbon Society for Iskandar Malaysia 2030 Blueprint for Iskandar Regional Development Authority (IRDA) in partnership with ERE Aurecon in 2022. He was appointed as financial director for a private group Lancelot Investment International Ltd in 2019 to advise on the group large scale RE projects in the APAC region.

In 2023, he was appointed as the Chief Executive Officer of Yayasan Hijau Malaysia (YHM), a federal foundation and non-profit agency under the Ministry of Natural Resource and Environmental Sustainability (NRES)in Malaysia, responsible for advocating and implementing community sustainability and environmental conservation program on communication, education, public awareness and action for climate change mitigation and adaptation to benefit Malaysian community at large. His leadership in YHM has seen him developing and implementing programs in the areas of community renewable energy, green mobility, waste circular economy, water conservation, biodiversity, community green lifestyle transformation and ESD in education.

He was recognized for his efforts and achievement by STAR newspaper profiling him in the STAR Outstanding Malaysian Abroad in 2009 and was showcased by Green Plus Magazine in 2024 for his leadership in innovation, sustainability and environment stewardship.

He is currently a passionate advocate of climate change mitigation, adaptation and decarbonization. He is promoting and assisting micro, small and medium enterprise (MSMEs) and corporates in adopting ESG in their business through capacity building engagements and advisory services.

Corporate Professional History

CHIEF EXECUTIVE OFFICER National Green Foundation Yayasan Hijau, Malaysia

- Mandated to restructure Malaysian Green Foundation after 10 years of establishment. The structuring indicators were divided into five sections: governance, programs, branding, stakeholders, and funding.
- Governance: A 10-year 2025-2035 strategic blueprint for the foundation was established and approved by the board of trustees covering the following:
 - Realigned Vision, Mission, Objectives and KPIs to achieve strategic objectives of the Ministry;
 - Focus Areas and Product Offerings for Community Based Sustainability and Environmental Conservation Initiatives;
 - Human Resource Planning detailing organizational chart expansion, KPI setting, salary structure, career progression and renumeration and disciplinary action;
 - Branding encompassing print, visual and social media strategy and call to action;
 - Stakeholder Management both internally within Ministry and Government and externally among corporates, NGOs and public;
 - Funding in detailing overall funding strategy based on total funding required, mode and source of funding and return of value to donors.
- Focus Areas and Product Offerings:
 - Three focus areas were established covering sustainable energy, biodiversity, and solid waste management. Under the three focus areas, nine sub-focus areas have been established along with 23 initiatives and 25 sub-initiatives.
 - The sub-focus area includes the following details:
 - Solar Community;
 - Green Mobility;
 - Solid Waste Economic Cycle;
 - Water Conservation;
 - Nature Based Land Conservation;
 - Wildlife and Marine Conservation;
 - Rural Communities and Eco-Tourism;
 - Green Lifestyle;
 - Sustainability in Education;
 - Measurement and assessment of initiatives and programs to ensure maximum return of value to corporate fund donors that is in line with their SDG and ESG targets and quantification of embodied carbon value for scope 1,2 and 3 offsets;
 - Identifying overall funds needed and sources of funds to be able to mobilize and implement initiatives and programs developed
- Stakeholders Management:
 - Engagement sessions was held with more than 200 stakeholders from the government sector, non-governmental organizations, and the corporate sector to obtain feedback on the foundation and to share the foundation strategic plans.
 - Partnership building with key stakeholders from the federal government, state government, local government, corporates, academia and NGOs to deliver the strategies developed for acceptance and buy in;
 - Streamlining initiatives with stakeholders to ensure no overlapping of roles and programs implemented. Setting up consortium of partnership where potential of roles overlapping exists for optimum delivery of initiatives;
 - Co-ordinate with key stakeholders to breakdown any possible red tapes and bureaucratic hurdles for smooth programs deliverables.
- Funding:
 - A MYR700million funding strategy (6 years between 2025-2030) was established and approved by the board of trustees covering four main anchor areas:
 - Sustainable Energy: RM300 million for funding the 100 MWac community solar program;
 - Nature Based Land Conservation: RM200 million for funding tree planting, forest and mangrove conservation programs;

- Wildlife: RM120 million for funding the Malayan tiger conservation campaign program with the Department of Wildlife and National Parks;
- Sustainability: RM80 million for funding solid waste management programs, rural communities and eco-tourism, green lifestyle, and education.
- More than 700 companies from the GLC sector and 'public listed companies' listed on Bursa Malaysia have been identified for the funding program.
- A total of 25 funding modes have been identified and established for the purpose of funding the programs.
- Overall monitoring of operations to ensure orderly administration and management, effective use of resources and compliance with relevant regulations were carried out;
- Accountability and integrity in the management and financial procedures of the Foundation was implemented;
- Planning the Foundation's annual budget and programs in line with the Foundation's objectives and functions;
- Monitoring and exercising cashflow management to ensure cashflow reserves are adequate to serve monthly operational expenditure and programs financial obligations;
- Working closely and actively with the Board of Trustees and Foundation staff to obtain funding and financial support to support the Foundation's objectives; and
- Other duties directed by the Board of Trustees.

FOUNDER – SUSTAINABLE & RENEWABLE ENERGY SPECIALIST Green Technology Project Delivery Partner (PDP) Ecodwell Ventures (EDV), Malaysia

- Founded a startup with five other co-founders in Malaysia, specializing in aggregating green technology via PDP business model;
- Initiated the zero-cost solar PV project in 2020 with 100 program partners nation-wide with 100 sites – estimated capacity of 60MWp;
- Acquired by AMG Asset Management in 2021 to provide equity and project funding and corporate support for all current and future sustainable projects.

PRINCIPAL CONSULTANT AND SUBJECT MATTER EXPERT Green Technology Consultancy 27 Advisory, Malaysia

- Principal consultant and subject matter expert on green technology and environmental sustainable development projects;
- A key member in the development of 4th Industrial Revolution Roadmap for the Ministry of Economic Affairs (MEA) Malaysia in partnership with Price Waterhouse Cooper (PwC). Involvement primarily in policy, initiative and key performance index (KPI) development for the energy and utility sector;
- A key member in the development of Low Carbon Society for Iskandar Malaysia 2030 Blueprint for Iskandar Regional Development Authority (IRDA) in partnership with ERE Aurecon. Involvement primarily in policy, initiative and key performance index (KPI) development for the green energy and green building sector;

FINANCIAL DIRECTOR

Lancelot Investment International Ltd., Malaysia

Invited as a partner with a private international investment group Lancelot Investment International Ltd as financial director to advice on technical, financial and risk management on large scale renewable energy infrastructure projects in APAC region. This includes solar PV, wind, mini hydro and energy storage systems.

2019 to 2022

2019 to 2022

CHIEF EXECUTIVE OFFICER AND PRINCIPAL

Environmental Sustainable Development Consultancy GEDS Group Holdings, Malaysia 2014 to 2023

- Environmental sustainable project development and implementation that includes formation of high level policy and strategic partnership, economics and financial feasibility, multiple stakeholder engagement, multi variable cross discipline integration and implementation;
- Product development at startup level from ideas and concept, proof of concept and prototyping to commercialization and launch;
- Blue ocean and disruptive project development utilizing latest mobile technology and block chain platform;

CHIEF EXECUTIVE OFFICER AND PRINCIPAL Environmental Sustainable Development Consultancy Green Earth Design Solution, Malaysia

2010 to 2014

- Green building consultation work for government and private property developers leading to green building certification from certified green building agencies;
- Environmental Sustainable Development consultation work for government and private clients that includes development of ESD programs, master plan, roadmap and blueprint;
- Green building design and computational modeling work for green building projects;
- Environmental Sustainable Development audit work for government and private clients that includes level 1, 2 and 3 energy, water, waste and indoor environment audits;
- Green building design and computational modeling work for green building projects;
- Training and development of university graduates as ESD professionals;
- Managing daily operations of the consultancy ensuring issues pertaining technical, client and administrative matters are being handled accordingly;
- Business development and marketing work ensuring consistent projects into the consultancy through building and maintaining new and existing relationship with clients;
- Ensuring financials of the consultancy is handled accordingly through managing billingswith clients and any bridging or project funding needed is obtained through relevant financial institutions;
- Providing talks in conferences and seminar on Environmental Sustainable Development matters;
- Organizing regular team building and social events with staff to ensure high morale and a maintained healthy workplace.

RESEARCH FELLOW

Solar Energy Research Institute National University, Malaysia

- Research work based on renewable energy particularly solar technology and green building performance;
- Setting up and management of computational modeling laboratory for green building performance;
- Preparation of research scientific report and paper for conference and journal publication;
- Collaborative work with industries on commercialization of research institute IPs;
- Consultation work with government agencies and industries on subject matter concerning renewable energy and green building;
- Providing talks and lectures promoting research institute;

SENIOR LECTURER

Faculty of Science and Technology Open University, Malaysia

- Guiding and assisting diploma and degree open learning engineering students through a series of carefully structured weekend classroom lectures, online tutorials and consultations;
- Development and revision of new and existing learning modules for diploma and degree engineering subjects;
- Development and revision of new and existing syllabus for open learning diploma and degree
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2011 to 2012

courses;

- Obtaining and maintaining new and existing courses accreditation in line with Malaysian Qualification Agency (MQA) requirement for compliance;
- Supervising final year diploma, degree and masters research projects. Advising students with projects and the preparation of final thesis. Explaining the stages and methods to proper conduct high quality research project;
- Audit of existing learning centers ensuring lectures, tutorials and laboratory work carried out by external appointed academics are done in accordance to the requirement set by the university;
- Research work based on pedagogical open learning concept applied for engineering courses and subjects;
- Preparation and marking of semester tutorial and exam questions;
- ✤ Moderating semester exam sessions;
- ✤ Other administrative office duties and responsibilities as required by university.

SENIOR ESD CONSULTANT

Environmental Sustainable Development Consultancy Sustainable Built Environment, Australia

2008 to 2009

- Green Building performance modeling using various computational modeling software packages;
- Built environment active and passive energy and ventilation design and consultation work;
- Project consultation meetings and submission work for new and existing green building certification projects;
- Existing building audit work, which includes energy, water, waste and indoor quality audits;
- Renewable Energy modeling and design work, which includes Solar Photovoltaic, Solar Thermal and Wind Energy;
- Assessment and approval of building plans in accordance to building code of Australia requirement for energy;
- Analysis and interpretation of modeling and numerical data;
- Preparation of feasibility and technical papers and reports.

ESD CONSULTANT Building Services Consultancy Norman Disney & Young, Australia

- Green Building performance modeling using various computational modeling software packages;
- Built environment active and passive energy and ventilation design and consultation work;
- Project consultation meetings and submission work for new and existing green building certification projects;
- Renewable Energy modeling and design work, which includes Solar Photovoltaic, Solar Thermal and Wind Energy;
- Analysis and interpretation of modeling and numerical data;
- Preparation of feasibility and technical papers and reports.

RESEARCH AND DEVELOPMENT ENGINEER Swinburne University of Technology, Australia

- Fluid dynamics, thermo-fluids and aero acoustics design and computational modeling work in areas related to automotive and sports engineering using various computational modeling software packages;
- Engineering design and finite element analysis work involving various computational aided engineering software packages;
- ✤ Basic programming work using FORTRAN, C and C++;
- Analysis and assessment of empirical and numerical data;
- Preparation of technical scientific reports and papers.

2007 to 2008

ASSOCIATE LECTURER

2002 to 2006

Faculty of Engineering and Industrial Sciences Swinburne University of Technology, Australia

- Guiding and assisting Mechanical Engineering undergraduate students with engineering subjects such as Machine Dynamics, Thermodynamics, Fluid Mechanics and Mechanical Design through a series of carefully structured lectures, tutorials and individual consultations;
- Mentoring and supervising final year Mechanical Engineering students undergoing industrial based learning program. This is conducted through industrial visits and direct interaction with students and their industrial supervisor to ensure necessary goals and objectives are achieved and the excellent relationship between the university and the respective industry partners are maintained;
- Supervising final year undergraduate research projects. Assisting students, the proper way to prepare final year thesis and explaining the stages and methods to proper conduct high quality research project.

RESEARCH ENGINEER

2001 to 2001

Swinburne University of Technology & Victorian Partnership for Advanced Computing <u>Project Title:</u> 3D CFD Simulation of Toxic Gas Ventilation in the Melbourne City Link Tunnel

- Designed and model high quality 3D CFD model to simulate toxic gas flow pattern in the Melbourne City Link tunnel for both normal-operating conditions and for accidental fire situations;
- Modeled the dynamic behavior of toxic gas distribution in normal operation and in accidental fire situation, using state of the art combustion model and sliding mesh approach;
- Studied the effect of jet fans mounted on the ceiling through using tunnel jet fan models;
- Preparation of technical scientific reports and papers.

AUTOMOTIVE TEST ENGINEER

General Motors Holden Australia Ltd.

- Co-coordinate automotive mechanical testing on automobile component based on Australian Design Rule and General Motors test procedures;
- Designed automotive mechanical test rigs and facilities;
- Develop and revision of engineering test procedures in accordance to ISO specifications;
- Statistical assessment work of automotive testing including root cause, development, fatigue and validation type testing;
- Conduct advance mechanical testing using state of the art computer and data acquisition software;
- Maintenance and coordinating the schedules of mechanical slam test room;
- Preparation of technical scientific reports and papers.

Designation

Environmental Sustainable Development Professional

Qualifications

Doctor Philosophy in Mechanical Engineering (Computational Fluid Dynamics) Swinburne University of Technology, Australia (2009)

Bachelor Degree in Mechanical Engineering (Honors) Swinburne University of Technology, Australia (2000)

Corporate Experience

24 Years

Work Availability/ Notice Period

N/A

Professional Affiliation

Yayasan Hijau Malaysia Ecodwell Ventures Sdn Bhd (Founded) GEDS Group of Companies (Founded) Group27 Advisory Malaysia Bank Rakyat Malaysia Johor Biotechnology and Biodiversity Corporation, Malaysia Malaysian Green Building Confederation General Motors Holden, Australia Swinburne University of Technology, Australia Royal Melbourne Institute of Technology University, Australia Open University, Malaysia University Technology PETRONAS, Malaysia Solar Energy Research Institute, Malaysia

Victorian Performance for Advance Computing, Australia Norman Disney and Young, Australia Sustainable Built Environment, Australia

Professional Accreditation

Malaysian Board of Technologist Accredited Professional Green Building Council of Australia Accredited Professional Australian NABERS Energy, Water, Waste and Air Quality Accredited Professional Australian First Rate Residential Energy Accredited Professional Institute of Engineers Australia (Member) Society of Automotive Engineers Australia (Member) Institute of Mechanical Engineers UK (Member) Institute of Engineers Malaysia (Member) Board of Engineers Malaysia (Registered) Australian Professional Engineers, Scientist, and Managers Association (Member) Australian Institute for Refrigeration, Air Conditioning and Heating (AIRAH) (Member) TRANE DALKIA HVAC Accredited Professional Green Building Index (GBI) Accredited Professional ISPQ Solar PV Accredited Professional ASEAN Energy Manager Accreditation Scheme Professional (AEMAS) REHDA Green RE Accredited Professional (Green RE) IES Building Performance Modeling Accredited Professional Malaysia Green Building Confederation (Academic Member) Registered Energy Efficiency Manager Energy Commission Malaysia (REEM) Indoor Air Quality Professional Malaysia

Areas of Expertise

ESG and Carbon Mitigation and Adaptation Based Programs

ESG Digitalization Program Development for Supply Chain MSME ESG Reporting – Global Reporting Initiative (GRI), FTSE Russell, IFRS S1 and S2 ESG Environmental Program Mapping and Integration Carbon Scope 1, 2 and 3 Measurement, Reporting and Verification (MRV) Low Carbon Framework Using Asia Pacific Integrated Modelling (AIM) Low Carbon Strategy and Blueprint Development Carbon Verification for Offset and Credits – Verra, Gold Standard, Corsia, Renewable Energy Certificates (RECs)

Biodiversity Nature Based Program Development and Strategic Partnership

Peatland and Mangrove (Wetland) and Forest Based Conservation Projects Land Use, Land Use Change and Forestry (LULUCF) Programmes Redd+, Forest Conservation Certification (FCC) and Forest Carbon Offsets

(FCO) Programmes

Wildlife Conservation Programmes (Tiger and Elephant) Marine Life and Coral Reefs Conservation Programmes Indigenous Community and OECM Biodiversity Programmes Central Forest Spine (CFS) and Forest Corridor Programmes Geo Site and Geo Parks Development and Conservation Programmes

Environmental Sustainable Development Strategic Partnership

Governmental strategic environmental sustainable policy development Global strategic project partnership facilitation and implementation Strategic partnership in R&D, commercialization, funding and outsourcing

Infrastructure and Utility Scale Projects

Highways Sustainable Development Projects Sea Ports Sustainable Development Projects Telecommunications Sustainable Development Projects Rail Sustainable Development Projects Utility Scale Renewable Energy Projects Carbon Offset and Zero Carbon Projects

Renewable Energy

Utility Scale Solar PV turnkey project development and implementation Rooftop Solar PV turnkey project development and implementation Hybrid and Off Grid Solar PV turnkey project development and implementation Co and Tri Generation turnkey project development and implementation Wind Energy turnkey project development and implementation Passive Cooling and Heating (Thermal Mass, Solar, Geothermal) turnkey projects Sub-Metering and BMS Strategies and Monitoring Biogas turnkey project development and implementation Biomass turnkey project development and implementation Biomass supply chain strategic planning, development and implementation Pico and Micro Hydro design, strategy and assessment

Sustainable Housing Strategic Development and Implementation

Zero Carbon and Carbon Offset Housing Modular and Mobile Housing Disaster Relief and Off-Grid Sustainable Housing

Sustainable Master Planning

High Level sustainability policy, vision and targets ESD constraints and opportunities study Sustainability strategic development Sustainable design and development guidelines

Ecological, Carbon Footprint and Green Building Rating Assessment

Green Star (Australia) rating assessment for residential and commercial buildings NABERS Energy, Water, IEQ and Waste rating assessment for buildings First Rate energy ratings assessment for residential developments Vic Urban rating assessment for commercial buildings Storm Water assessment using MUSIC and STORM Green Building Index Malaysia rating assessment for buildings Green Mark Singapore rating assessment for buildings US LEED rating assessment for residential and commercialbuildings World Resource Institute and World Business Council for Sustainable Development Carbon Footprint Rating Tool for Companies and Organization

Advanced Computational Modeling

Energy simulation for GBI, Green Mark, NABERS, Green Star and LEED Overall Thermal Transfer Value building simulation and analysis Thermal comfort simulation and analysis Solar and natural daylight simulation and analysis Natural ventilation simulation and analysis Conceptual building services design including renewable energy simulation Fluid Dynamics (CFD) simulation and analysis – Fluent, AIRPAK, Flotherm, FloEFD HVAC simulation and analysis PVSYST, Homer and Helioscope Solar PV Design and analysis

Sustainable Water Management

Water efficiency and reduction strategies Grey water solutions development strategies and implementation Black water solutions development strategies and implementation Storm Water advisory and management Solar hot water solutions development strategies and implementation Healthcare, Hotels and Aquatic Centre water management strategies Water metering implementation strategies Level 1, 2 and 3 water audits implementation and assessment Rainwater harvesting design, strategies and assessment Waste water initiatives and strategies

Sustainable Waste Management

Recycled waste management strategies Green waste strategies (Composting) Waste disposal management Level 1, 2 and 3 waste audit implementation and assessment Construction waste management (demolition and construction) Waste to Wealth initiatives and strategies Food waste Bio Composting and Organic Fertilizer Black Soldier Fly initiatives and implementation

Sustainable Materials

Micro Climate design and assessment Sustainable ecological land assessment Sustainable materials assessment in constructionSustainable product advice and assessment

PVC minimization and hazardous materials assessment Insulation and glazing advice and assessment Recycled and reuse materials strategies and assessment

Ventilation and Indoor Environment Quality (IEQ)

Level 1, 2 and 3 IEQ audit implementation and assessment Chilled beam systems design and strategies Thermal mass systems design and strategies Night purging design and strategies Natural ventilation strategies Air change and air effectiveness assessment and analysis CO2 and CO monitoring design and assessment Air performance index (API) and air quality monitoring and assessment Low VOC strategies and assessment Microbial strategies and assessment

Environmental Sustainable Design Advisory

ESD advice and reports for project proposals and submissions Detailed ESD advice on project opportunities, building fabric and systems Detailed ESD advice on building fit-outs Cost planning of energy efficient and ESD elements of a project Monitoring of legislation, regulatory policies and industry implications ESD assessment of concept and feasibility study proposals Communication of sustainable concepts for focus group research and marketing briefings Bio-Degradable and Bio-Compostable implementation framework and roadmap

Building Code Compliance and Energy Audit

Level 1, 2 and 3 energy audit implementation and assessment First Rate energy efficiency "Star Rating" assessments Energy Audits for Buildings, Companies and Industries Building Code Energy Compliance Assessment and Reporting QLASSIC and CONQUAS construction quality assessment

Post Occupancy and Existing Buildings

ESD building user guideline development and implementation ESD post-occupancy evaluation Post Occupancy energy commissioning, audit and monitoring NABERS energy and Greenhouse rating for office buildings NABERS commercial building assessments – water, waste and IEQ

Research, Training and Guidelines

ESD guidelines development ESD policy research and review Building portfolio ESD management and reviews Strategic direction analysis, target setting and action planning Sustainability strategies Greenhouse abatement plans

Highlighted Professional Projects Involvement

Environmental, Social and Governance (ESG) Project

Micro, Small Medium Enterprise (MSME) Supply Chain ESG Project, Malaysia

Involved as the subject matter expert in the integration and implementation of a digital ERP platform developed for MSME supply chain. The platform was then integrated with ESG and Carbon assessment component that is meant to provide an early filter for MSME supply chain to qualify for sustainable financing from the banks. The platform also provides capacity building and advisory to guide the MSME to improve on their ESG and carbon reporting and disclosure to improve their overall sustainability rating with banks and financial regulators.

Biodiversity Project

100 million Tree Planting Project, Malaysia

Involved in Malaysia national campaign which spans between 2021 to 2025 aims to plant 100 million trees and to ensure a minimum of 50% forest cover nationwide. This initiative provides planting of tree saplings and 2 years maintenance of mangrove, forest and landscape trees. A total of 30 corporation participated in the campaign donating more than MYR7.4 million planting more than 240,000 trees.

Circular Economy Project

Waste Circular Economy Project, Malaysia

Involved in waste circular economy project established and implement an ecosystem in solving downstream solid waste management problems through bringing together four initiatives in providing the proper infrastructure for communities to send/collect and store the waste, incentives and rewards to encourage the 3R of waste management process, for community to be part of the supply chain for sustainable waste upcycling through proper capacity building, turning waste into highly valuable products that can be used as building materials for example. The final initiative includes getting program enablers such as corporate donors to participate in waste upcycling product buyback program. These initiatives will assist to mitigate waste to landfill and at the same time creating circular economy ecosystem of waste to wealth.

Carbon Mitigation Project

Low Carbon Society Blueprint Iskandar Malaysia, Iskandar Regional Development Authority Malaysia

Involved as a Subject Matter Expert ("SME") for Energy, Green Building, Infrastructure & Technology. Roles & responsibilities on the following areas:

Existing energy generation and consumption pattern on carbon emission implication, impact of carbon mitigation in the energy sector, including the improvement of energy efficiency (EE), the use of renewable energy (RE) and energy management.

Recommended targets including RE, EE and green building action and measures to reduce carbon emission, and climate mitigation and adaptation.

Baseline to benchmark development for the carbon emission of building sector in Iskandar Malaysia.

Conducted assessment and propose intervention on the impact of green building and infrastructure strategies and rating tools on the carbon emission of building sector.

Framework development on the implementation of policies and incentives for green building in Iskandar Malaysia.

4th Industrial Revolution Project

Study on National Policy Framework for the Fourth Industrial Revolution, Ministry for Economic Affairs Malaysia

The study encompasses a country readiness assessment for 4IR, gap analysis on existing policies and plans, and also extensive stakeholder engagement. The study details the issues that are identified in relation to pursuing the 4IR agenda in the country, potential solutions, and the implementation roadmap.

Sustainable Development Block-chain Project

REMO2CO Project, Malaysia

REMO2CO is a major disruptive project developed to provide solution to limited disposable income, which is facing most working individuals especially in a developing country. It integrates renewable energy and utility, transport mobility, living modularity, insurance and triple play connectivity under a single crypto block chain platform. It works through solving the disposable income issue by providing potential customers a discounted single payment solution for their multiple household expenses.

Bio Degradable and Bio Compostable Projects

Johor Bio Degradable and Bio Compostable Implementation Framework and Roadmap, Malaysia

The Johor state government in Malaysia commissioned the project in 2017. A phase 1 roadmap and implementation framework were developed for 2018 to 2021 for phasing out food packaging made from polystyrene and conventional plastic. The project involved multiple stakeholders comprising the state government, industry players, retailers, non- governmental organization and the general public. Innovative initiatives were introduced including a formation of eco captains among influential community members, development of a central online system on a block chain platform to monitor and manage the project while gathering data and optimizing resources allocated to the project.

Renewable Energy Projects

100MWac Large Scale Solar Community Project, Malaysia

Large scale solar community in Malaysia supplying 100MWac solar energy to community that is connected to the national grid. The solar energy will be supplied via solar farms of 20MWac each located in five different states in peninsular Malaysia. Corporate sponsors purchase the solar RE in 1MWAac lots and will donate it to its community of choice in exchange of Renewable Energy Certificate (RECs) and ESG scoring points with Bursa Malaysia. The community will benefit from the solar RE donation by selling the energy

to the national electricity utility provider at system marginal pricing (SMP) which varies between MYR0.20/kWhac to MYR0.37/kWhac. The total generation of the solar RE energy is estimated to be of 138GWhac/year providing an income of estimated around MYR27.74million to MYR51.3million per year to communities. The income can be used to assist the community to a better standard of living. The community solar farm would be an agrovoltaic facility acting as nursery for plants used for tree planting. Beneficiary community of the solar farm would need to recycle one PET/PP bottle or container for every RM0.01 obtained from the income of the solar energy for the incentives. The beneficiary community consist of old folks homes, orphanage, places of worship, schools and low income households.

70MWp Rooftop Solar Project for Commercial and Industrial Premise, Malaysia

Aggregated commercial and industrial rooftop amounted to 70MWp across Malaysia. Project implementation via 21 years PPA investment through registered photo voltaic investors, site owners, SEDA, Tenaga Nasional Berhad (TNB) and Suruhanjaya Tenaga (ST). Mechanism of connection through either Net Energy Metering (NEM) or Self Consumption (SELCO). Project commencement in 2019 and is still ongoing.

5MWp Solar Farm Project, Malaysia

The 5MW_p solar farm is located on a 17 acres site in the state of Melaka, Malaysia. Owned by the state government, the power plant produces 6,300 MWh of electricity per year. The solar energy is sold to the grid through a feed in tariff scheme introduced by the federal government with tenure of 21 years at a tariff rate of USD0.36/kWh. The project was completed in 2014.

Rooftop Solar PV Residential Project, Malaysia

The project aims to install 50,000 houses with 200 MWp solar PV system by the year 2018. The project will produce 260 GWh of energy into the grid per year. In exchange of roof space, the homeowner will be supplied with free electricity for a period of 30 years. The project is a joint venture with ANGKASA, a governmental body that manage more than 11,000 co-operatives in Malaysia with a member base of 8 million.

Infrastructure Projects

Light Railway Transit (LRT) Green Technology Program, Malaysia

The LRT green technology program is carried out on the existing LRT network in Malaysia covering 49 stations at a distance of 63 kilometers. The holistic program covers all areas of sustainability such as management, energy, waste, water, indoor environment quality and security. The project is divided into 4 phases starting from audit and benchmarking, design, retrofitting and maintenance. The project will serve as a leading global model for sustainable railway transit. It aims to generate a combined revenue over USD2.5 billion dollars and a 10 million tonne of CO_2 reduction over a 15 years period.

Sustainable Housing and Disaster Relief Projects

GRid Home Project, Malaysia

The GRid (GReen, Intelligent Design) project provides modular and mobile sustainable homes to areas where permanent land ownership is an issue. The GRid home is the perfect solution for natural disaster relief area. Fully installed, it has a buildup of 600 square feet and can be expanded into a three-bedroom home. It is fully powered by stand-alone solar PV system and equipped with rainwater harvesting system and bio- toilet making the homea fully sustainable house to live in. The GRid home project entered the Global Clean Technology Innovative Programme (GCIP) in 2015 and reached through the semifinal stage of the competition.

Green Building Projects

ANZ Bank Building, Melbourne

Currently the largest 'green' office building in Victoria, the ANZ building has achieved the Vic Urban

Award for Excellence and Green Star Rating of 6 Stars. The ANZ building stands at 10 story high with 80,000 square meter floor area. The 500-million-dollar development features state of the art under floor swirl displacement system with chilled beams systems. It uses 70% less energy and 60% less water with a total greenhouse gas emission reduction 60%. Other features include enhanced daylight, state of the art lighting system and water saving features that includes smart fittings and rain water harvesting strategies.

Royal Children Hospital, Melbourne

The Royal Children Hospital is an AUD1 billion-dollar project to upgrade the existing hospital. Designed as a 5-star Green hospital, the hospital is designed to produce 45% less greenhouse gas emission than a normal hospital. Energy reduction features includes a 2.8MW trigeneration plant, active chilled beam systems, solar hot water panels and 800kW biomass boilers. The hospital will consume 20% less water with implementation of rain water harvesting system, grey water and black water treatment plant, smart fittings and efficient irrigation and storm water management.

321 Exhibition St, Melbourne

A 5 Star Green Star Office Design building. Features include a state-of-the-art onsite cogeneration plant, improved daylight, indoor air quality and thermal comfort, efficient lighting systems, rain water collection and efficient water fittings.

Victoria University, Melbourne

A 5 Star Green Star Education building. HVAC features includes passive chilled beams, thermal mass strategies, PVs, Wind and Ground heat exchangers and heat recovery, Rain water collection and reuse, improved indoor air quality, maximum reduction of emission to the environment.

Government Strategic Advisory Partnership

Australian Embassy, Jakarta

ESD Master Planning strategy with proposed features such as onsite tri-generation plant, rainwater collection with grey and black water processing and reuse, advanced indoor air quality and thermal comfort with CO2 monitoring and humidity control and an advanced waste management system.

Department of Education & Early Childhood Development

Benchmarking study of school to assess the thermal comfort performance through investigation of costs relating to various building fabric options.

Academic Supervision (Completed)

Bottom-Up Approach at Pulau Banggi Sabah';

Alfonso Bin Johan CGS00557617 (2013), Open University Malaysia, Masters of Project Management

Thesis Title: 'Delay Factors in Green Building Development Projects in Malaysia: A Phenomological Study';

Yap Soon Hoe CGS00599027 (2020), Open University Malaysia, Masters of Environmental Science Management Thesis Title: 'Schematic Design and Optimization of a Solar Diesel Hybrid Power Plant using

Grant Funding

University Research Grant – MYR20,000.00 Malaysia National University 2011 Green Campus: A case study of Open University Malaysia through critical sustainable development assessment and implementation Young Researcher Grant – MYR50,000.00 Malaysia National University 2011 Studies on Occupant Comfort in Tropical Climate Buildings

Community- University Research Grant – MYR75,000.00 Malaysia National University 2011 Floating Photovoltaic System for Power Generation at The Tasik Chini Community

University Research Grant – MYR30,000.00 Malaysia National University 2011 Using green building materials in industrialize RM building system (IBS) to improve energy efficiency and cost effectiveness in green building index residential houses

Industry - University Research Grant – MYR68,000.00 Malaysia National University 2011 Portable GBI Smart Assessment System

Private Funding Grant – MYR5,000,000.00 Ecodwell Ventures Sdn Bhd 2021 Zero Cost Solar PV Rooftop Projector Commercial and Industrial Buildings

Professional Publications

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