MAA Bulletin

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Integrated Solutions For Global Impact

MAA GROUP

MAA Bulletin

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Founded in 1975, **MAA** is a leading Asian engineering and consulting service provider in the East and Southeast Asian region focused in the areas of infrastructure, environment, buildings, land resources, and information technology.

To meet the global needs of both public and private clients, **MAA** has a full range of engineering capabilities providing integrated solutions ranging from conceptual planning, general consultancy and engineering design to project management.

Today, **MAA** has over 1,200 employees with companies in Beijing, Shanghai, Hong Kong, Macau, Taipei, Bangkok, Singapore and Yangon, creating a close professional network in East & Southeast Asia.

MAA's business philosophy is to provide professional services that will become an asset to our clients with long lasting benefits in a rapidly changing social-economic environment. **ASSET** represents five key components that underline **MAA**'s principles of professional services:

Advanced Technology
project **S**afety
client's **S**atisfaction
Economical Solution
Timely Completion

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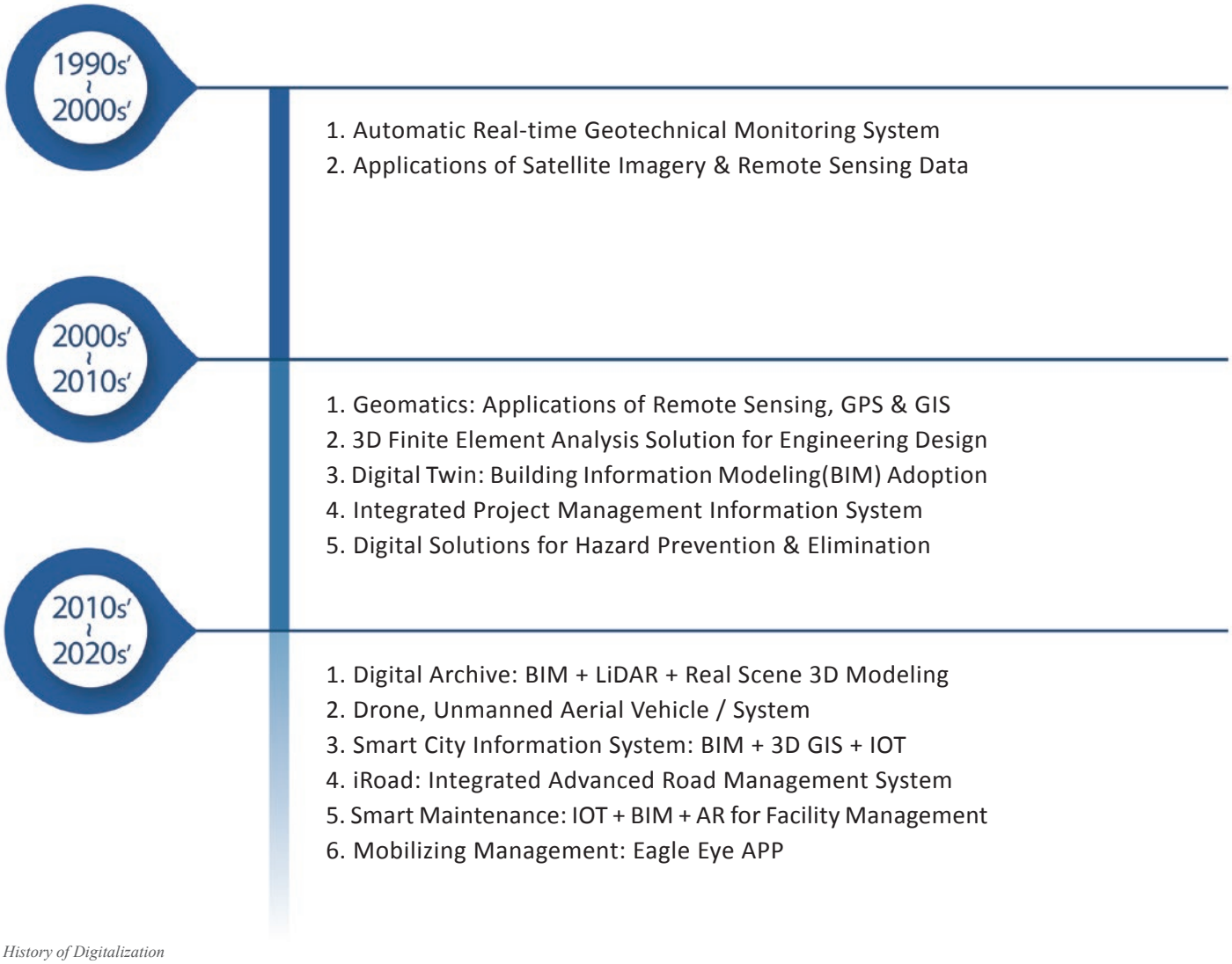
ISO 9001 AND LAB CERTIFICATIONS

DIGITALIZATION

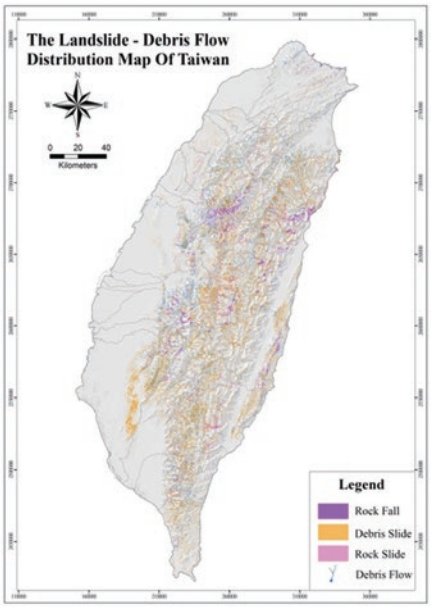
Digitalization in engineering is the integration of digital technology into engineering planning, design, project management, facility management, and hazard management. MAA introduced digitalization in the early 1990's to focus on novel digital technologies as well as internal research and development to improve data management for projects. This digital transformation includes automated geotechnical monitoring technology, remote sensing (RS), GIS, various 3D analysis and design solutions, and has resulted in the development of several management information systems for government's public work project management and nature slope land hazard prevention. In the past decade, MAA's efforts in digitalization has been in the form of 3D digital twins, design integration & communications, facility operation and management in smart buildings & smart cities, and natural hazard monitoring & prevention.



History of Digitalization

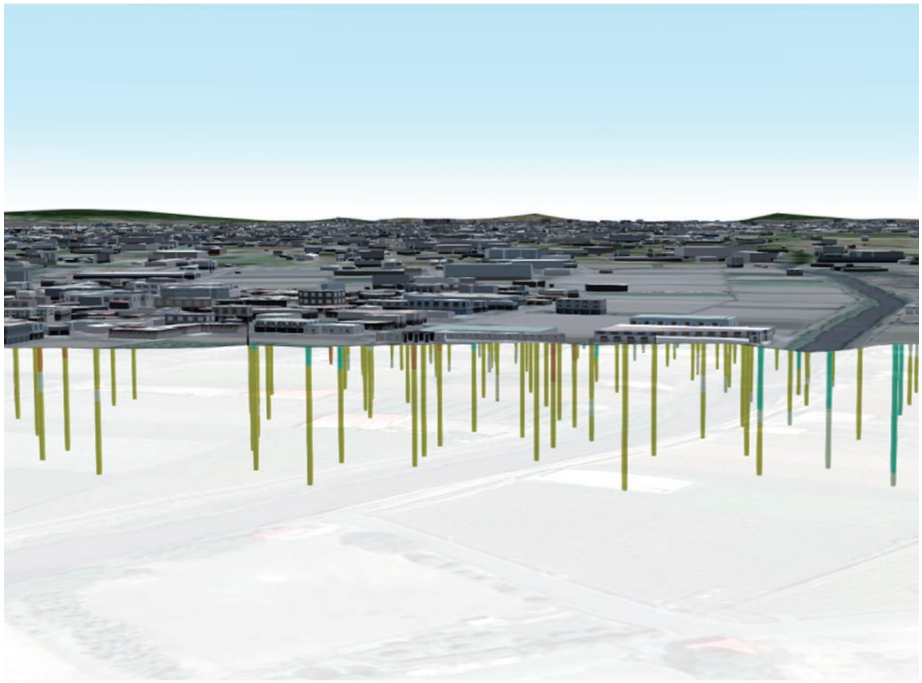
NATURE HAZARD MANAGEMENT & PREVENTION

MAA has been developing Taiwan's slopeland environmental geological and landslide natural hazard potential database to support hazard management strategy and decision making processes for the government. High precision remote sensing (RS) images allow for direct 3D interpretation, and can be integrated with positioning data from GPS devices in the field for accurate GIS positioning. Development of mobile digital tools and interfaces allow surveyors to also audit and correct GIS data in the field through automated programs and easy access to attribute data. Through a combination of remote sensing image processing, interpreting and field surveys, a landslide hazard database is established and used to analyze and monitor impacts due to climate change and slope land hazards. GIS information gathered relevant to hazard mitigation and prevention include soil characteristics and geological conditions, which were used to identify landslide hazard and sensitive regions. These hazard maps can be automatically generated and overlaid in the GIS to perform additional analysis and identify hazard risk maps for hazard mitigation planning.



Hazard Database and Map for Hazard Mitigation Planning

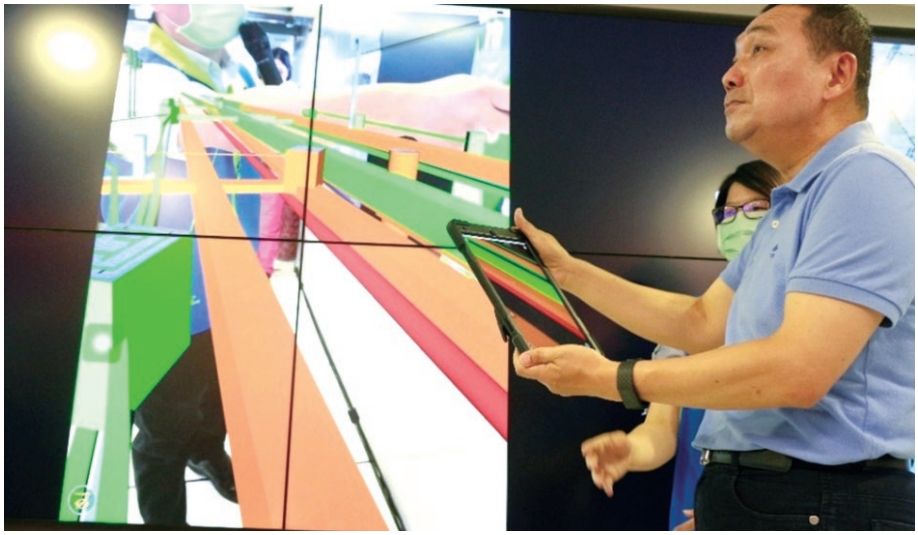
VISUALIZED UNDERGROUND GEOLOGICAL DATABASE



3D Geological Borehole Information System

Borehole investigation data is typically represented as a column in profile and plan layouts, whereby geotechnical engineers interpret strata to perform design analysis. For large-scale areas, 3D modeling provides an advantage by allowing visualization of strata. MAA utilizes the Geo2020 borehole database in accordance with government protocols. Data gathered from the field is also combined with GIS+BIM to create a 3D rendition of borehole data. This data is then used to form 3D fence diagrams, area diagrams, as well as 3D stratum layers, and used for planning and design. Digitalization of geological data is also used to facilitate communication between project stakeholders through a more intuitive manner.

INTELLIGENT ROAD MANAGEMENT: THE "iROAD" SYSTEM

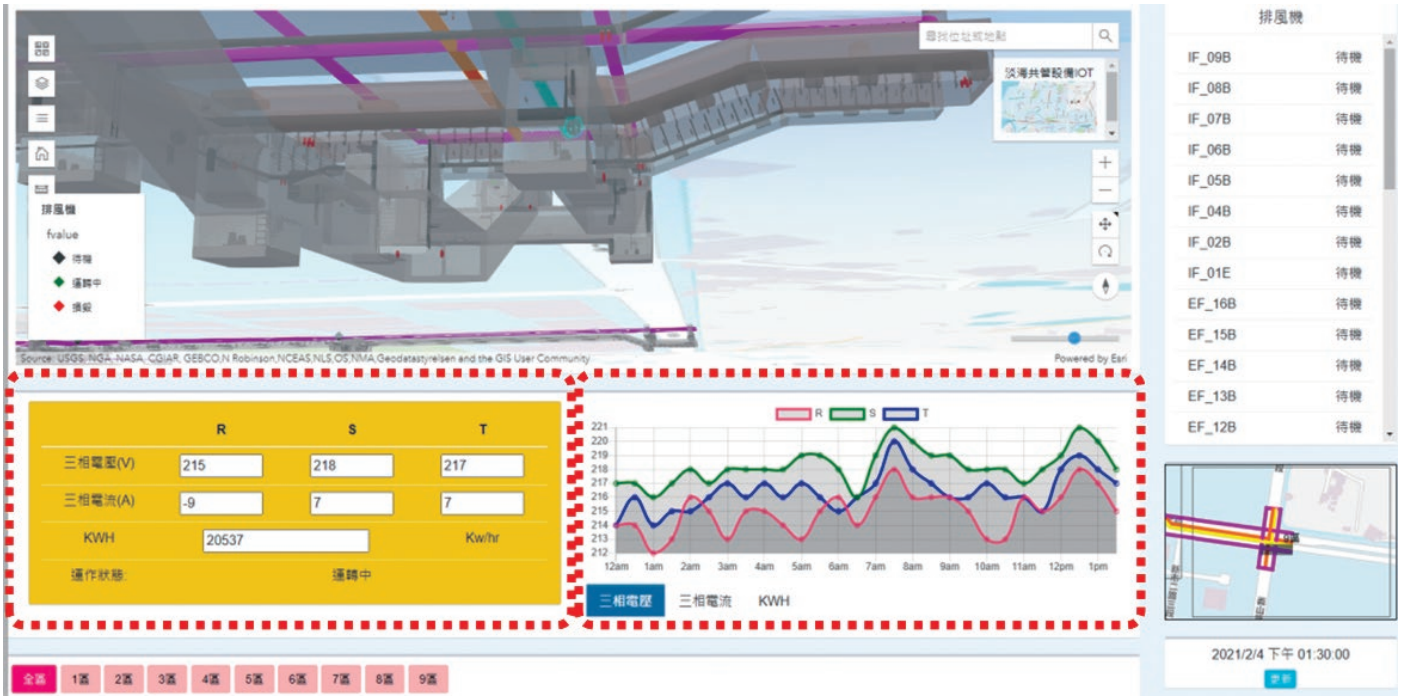


The New Taipei City Mayor is Experiencing the AR App

Infrastructure of iRoad System

As part of New Taipei City's strategy to upgrade and digitize its infrastructure, MAA develops an intelligent, digital management center, using remote monitoring, big data analysis, and other innovations to create "iRoad" system for the New Taipei City Government. iRoad is a transparent, accessible, smart web-based GIS virtual data management system and platform with the ability to facilitate road management operations. It serves several critical functions to provide road information and also allows effective management for road excavation and pavement rehabilitation management services by providing convenient and quick access to necessary information. The iRoad also captures the concept of "mobile office" by enabling Augmented Reality technologies, allowing on-site personnel to visualize and acquire information regarding road relative works as well as perform road asset management in an intuitive manner. iRoad enhances regular operations by combining multiple technologies including big data analysis, AI smart management, mobile access. Main tasks for the iRoad system include enabling remote supervision and management of roads, allowing big data analytics to improve road maintenance performance, reduce construction interfacing issues, as well as support disaster response decision making.

CRITICAL INFRASTRUCTURE / UNDERGROUND UTILITIES MANAGEMENT



Real-Time IOT Facility Operation Information in Common Duct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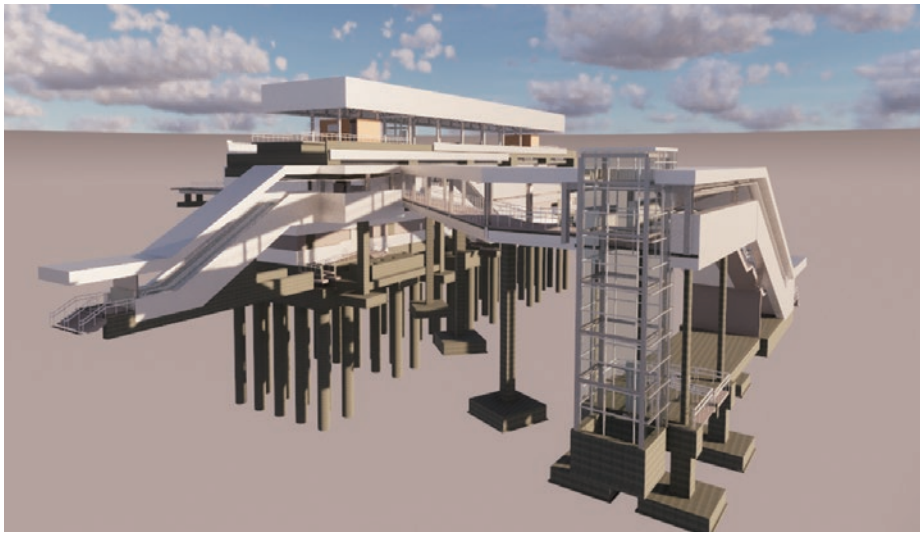
亞新工程顧問股份有限公司
2021年工程數位創新應用獎
工程名稱：新北市3D智慧管線查詢及管理系統建置
特頒獎狀以茲表揚
理事長 宋裕祺
中 華 民 國 110 年 11 月 27 日

CICHE: Engineering Digitalization & Innovation Awards 2021

New Taipei City and MAA have been jointly developing the city government's Road Information Model (RIM) since 2018, focusing on intelligent 3D pipeline query and management systems, to enhance the quality of management for underground utilities. Since its inception, 3D public utility pipeline modeling standards, common duct BIM, 3D pipeline database, and 3D pipeline query systems have been implemented. AR, VR, mobile apps, and Internet of Thing technologies were applied to common duct operations and maintenance management along with RIM and 3D visualization. This improved 3D smart underground utility management system for New Taipei City improved the accuracy of utility data, as well as allows for future applications using 3D common duct management.

DIGITAL TWIN: SANYING MRT BIM APPLICATION FOR DESIGN

Immersive BIM Model of Da-Hang River Bridge of Sanying MRT



BIM Model of Sanying MRT Yin-Ge Station

Sanying MRT Station Depot

Not only limited to buildings, the concept of Building Information Modeling (BIM) technology has been adopted in a wider sense to infrastructure construction projects. The New Taipei City MRT Sanying Line turnkey project adopted BIM for design and construction related applications to assist in project scheduling, quality control, and budget control. BIM was used not only to visualize viaducts, bridges, stations, and depot, but also to facilitate 2D drawing production, quantity takeoffs and quality control, clash detection, model analysis, and integrated BIM and GIS applications. BIM allows different disciplines to integrate design information, improving coordination and improving overall design quality. BIM outputs were later used as well to benefit construction and facility management in later project stages.

MAA AND SUSTAINABILITY

The United Nations (UN) expressed its concerns about climate change, stating it as “one of the greatest challenges of our time”. Following the end of UN Millennium Development Goals (MDGs) initiatives signed in 2000, Sustainable Development Goals (SDGs) were formed in 2015 to continue achieving global goals set for 2030. The impacts of climate change on social, natural, and cultural resources can be felt throughout our everyday lives. MAA is keenly aware of the current global situation, and through its projects, continually works with clients and partners to achieve these goals. While many of MAA’s projects affect UN’s 17 SDG’s both indirectly and directly, MAA’s focus in particular include: SDG 6: Clean Water and Sanitation, SDG -7: Affordable and Clean Energy, SDG-9 Industry, Innovation, and Infrastructure, and SDG-11 Sustainable Cities and Communities.

UN SDGs

MAA & WATER

MAA has been involved in over 50% of wastewater treatment plants throughout Taiwan, whether it be through engineering design, project management, contract management, or other capacities, directly affecting both SDG-6: Clean Water and Sanitation, and SDG-7: Affordable and Clean Energy. As Taiwan’s communities and industries continue to expand, the need for increased

sewage treatment capacity as well as demand for water have rapidly increased. With limited available capacity for water supply, MAA in recent years has worked with public clients in renovating and upgrading wastewater treatment plants, increasing their capacity and efficiency, as well as implementing water reuse systems to minimize waste of natural resources. Recent major projects include Dihua Wastewater Treatment Plant Renovation Project and Taoyuan Wastewater Treatment Plant. MAA also extensively participates in environmental projects related to water resources, including the Kaohsiung Oil Refinery Pollution Remedial Project, remediating heavy metal pollution from an area of over 135 hectares.

In October 2021, MAA's Sustainability Group redefined its mission; urging engineers to redefine their roles, purposes, and ethical responsibility in society to create sustainable prosperity.

Dihua Wastewater Treatment Plant Renovation Project

Taoyuan Wastewater Treatment Plant

MAA & URBAN AND LAND DEVELOPMENTS

District 1 of Xinzhuang Taishan Wen Zi Zun Area

New communities and urban developments have continued to increase despite these difficult times, and domestic industries have begun to expand as the global supply chain has been disrupted. Focusing on SDG-9: Industry, Innovation, and Infrastructure, and SDG-11 Sustainable Cities and Communities, MAA works with public and private clients to incorporate these goals into their projects. Land development projects such as First Industrial Zone in Linkou District, Matou Industrial Zone, District 1 of Xinzhuang Taishan Wen Zi Zun Area,

include a high percentage of green area coverage and public spaces, as well as include designs for sustainable roads. Urban developments such as public housing projects Sanxia Youth Social Housing, Wanhua Social Housing seek to improve the livelihood of the people by providing smart and energy efficient homes.

First Industrial Zone in Linkou District

Sanxia Youth Social Housing

Wanhua Social Housing

MAA & URBAN TRANSPORTATION

Another critical focus for MAA is in urban transportation, in particular for Mass Rapid Transit (MRT) and Light Rail Transit (LRT) projects. MAA has participated in 42 metro lines with a total length of 381km and 3 LRT lines with a total length of 19km in Taiwan in various capacities including general consultancy, engineering design, and construction supervision. MRT and LRT projects are critical to reducing global carbon emissions and to meet SDG-9 and SDG-11, both by providing convenient means of transport and reducing car emissions.

Sanying MRT Project

Through adoption of innovative technologies such as BIM in the Sanying MRT Project and Danhai LRT Project, MAA is able to provide quality services to clients, improving overall project efficiency and performance throughout the project lifecycle. Danhai LRT project has received many awards:

- 2021 Chinese Institute of Civil and Hydraulic Engineering (CICHE) Beautification Distinguished Award
- 2021 New Taipei City Public Construction Prime Quality Awards
- 2020 Chinese Institute of Engineers Distinguished Award
- 2019 Chinese Institute of Civil and Hydraulic Engineering (CICHE) Engineering Innovation Award
- 2019 Chinese Institute of Civil and Hydraulic Engineering (CICHE) Construction Beautification Distinguished Award

MAA & CIRCULAR ECONOMY

The construction industry consumes natural resources and produces pollution at a higher rate than most other industries. This has encouraged the industry to look into innovative and sustainable options to be able to meet SDG's, including by adopting circular economy practices, where project and product impacts are considered throughout its lifecycle. These goals seek to inspire and challenge engineers to consider long-term impacts in their everyday work, including the effects of climate change and the need for resilient designs.

At MAA, we strive to adopt circular economy and sustainable engineering practices in both our business practices and approach. In October 2021, MAA's Sustainability Group redefined its mission; urging engineers to redefine their role and identifying novel approaches to sustainability. MAA encourages integration of Green Communication, Green Design, and Green Culture into all our project works and throughout the project lifecycle.

COPING WITH **COVID-19**

The World Health Organization (WHO) first declared COVID-19 a global health emergency on 11 March 2020. Since then, the world has been disrupted by an unprecedented public health and economic crisis. It has been recognized as the most disastrous global event in nearly a century.

Despite the success of COVID-19 control Taiwan had in 2020, Taiwan faced its most challenging COVID-19 spike in May 2021 since the onset of the pandemic. Since mid-May, authorities have imposed strict regulations as local cases surged. The government, businesses, and population are forced to adapt to new norms as the pandemic continues to develop.

IMPACT ON THE INDUSTRY

In Taiwan, the construction industry heavily relies on young foreign construction workers as more millennials prefer office jobs than labor-intensive construction jobs. The career shift away from manual labor to office work across generations has already left a gap in the construction workforce and the pandemic further exacerbates the long-standing issue. Lockdowns, border control, and flying restrictions not only obstruct international trade but also affect many areas of the construction industry.

LABOR SHORTAGE

The construction industry grapples with the lack of foreign workers owing to travel restrictions, which have led to delays in construction schedules.Recent market trends have encouraged the return of overseas factories to production in Taiwan, resulting in increased competition for local construction companies and labor in private construction work. This has adversely impacted public infrastructure work as a result of direct competition, requiring additional budgeting to proceed with work. Taipei MRT circular line is one such public infrastructure project which was affected by the labor shortage.

SUPPLY CHAIN DISRUPTIONS

Supply chain disruptions have been caused by a series of economic impacts by COVID-19, such as reduced labor supply, container shortages, delayed deliveries, and uncertainty of transportation availability. These have led to the current global shortage of raw materials and rise in cost, which result in higher material costs in construction.

CONTRACT MODIFICATIONS

In late May 2021, the Public Construction Commission, Executive Yuan issued a statement in regard to the impact of COVID-19 on public projects and its solutions for the difficulties experienced by construction companies. The statement announced that project durations can be extended when projects are affected by governmental mandates.

FORCE MAJEURE FROM THE U.S. STANDPOINT

In the U.S., what constitutes a force majeure event is discussed. Force majeure is a common clause that refers to halts in performances due to unforeseen events. Logically, the pandemic, which is considered a “black swan event”, should be considered as a force majeure event. However, most force majeure clauses contain events of the following: acts of God, wars, hurricanes, fires,

earthquakes, and terrorism with no mention of pandemics. State laws and contracts vary, which could lead to disputes between parties. The language use of foreseeability in the clause raises some questions in terms of whether or not it should be included in the force majeure clause. In the early stage of the pandemic, the impacts were unforeseeable, but as the pandemic continued on, the impacts became foreseeable. To avoid ambiguity, parties should come to an agreement on the language used in contracts.

MANAGEMENT STANDPOINT

With more companies adopting Work From Home (WFH), managers need to launch a flexible plan and maintain open communication.

WORK FROM HOME PLAN

Having a meeting prior to rolling out a WFH guideline that fits the needs of each individual is pivotal. Flexible plans for remote working resources, working schedules, backup plans, and possible solutions for constraints were discussed to determine the best WFH plan for the company. When building a WFH plan, one has to learn to accept unpredictable changes and adopt a new one when the old plan isn't working. Through discussions, supervisors were able to lead the team toward a more tech-based working style.

COMPASSIONATE LEADERSHIP

Compassionate leadership cultivates positivity and empathy. With schools and extracurricular activities canceled, employees with kids might have competing family and work priorities. Daily Zoom team calls and reporting were implemented to allow employees a sense of stability and routine despite working remotely.

Rubbing alcohol is used to disinfect employees' hands

Regular disinfection of the rest area at the construction site

Temperature monitoring is set up at the entrance of the construction site

COMPANY PROCEDURE

Workplace precaution is positively related to employees' overall work experience, which includes four main areas: safety and security, relationships, culture, and purpose. While not every company can afford financial benefits, especially during a pandemic like this, intangible rewards, such as verbal recognition, still count toward creating a positive working culture, which can still increase the level of work satisfaction for employees. Through navigating crises together, companies can strengthen the bond with their employees and enhance group affiliations.

MAA'S RESPONSE TO COVID-19

COVID-19 PREVENTION TASK FORCE

Established in early 2020, MAA's COVID-19 Prevention Task Force has worked relentlessly to ensure the company's preparedness. It has adopted the following practices: (1) following CDC's guidance closely and establishing precautions, (2) hosting weekly COVID-19 meeting with the senior management team, (3) tracking employees' daily contact history and sending COVID-19 alert emails to distribute relevant information, (4) offering WFH guidelines and software, (5) setting a safe office layout by spacing out desks and installing plastic shielding, sanitizing stations, and body temperature screening, (6) providing each employee a spray bottle containing alcohol for disinfection, (7) cleaning and disinfecting the office regularly.

MAJOR **AWARDS**

TAICHUNG CITY OCCUPATIONAL SAFETY AND HEALTH AWARDS

Taichung City Occupational Safety and Health Awards aim to encourage construction companies to invest in health and safety resources. On 3rd December 2021, MAA won the Excellence Award for Taichung Green Museumbrary project.

MAA's Chairman Richard Moh (right) attended the Taichung City Occupational Safety and Health Awards ceremony

Taichung City Occupational Safety and Health Awards

Located within the Shuinan Economic Park District and in the center of the Taichung Central Park, the Green Museumbrary is Taiwan's first museum and library integrated building, and is set to become one of Taichung's landmarks. The 7 stories RC building includes 2 underground stories, with a total floor area of 58,016 m2. The Museumbrary's complex structure consists of 8 connected spaces with different functions, allowing clear separation of purpose between each space yet remaining flexible and interconnected through open areas. The building exterior is also designed to allow people to feel connected with the outdoor activities from the surrounding Central Park, providing a comforting indoor space.

MAA provided construction supervision services to this iconic project, working with the design and construction team to overcome geological and architectural challenges presented by the project. Located in an area with high underground water pressure during tidal season, additional monitoring precautions and inspections were carried out to continually monitor potential risks. With large open spaces and complicated structures, construction sequencing including scaffolding, structural steel assembly and installation, and curtain wall installation were identified early on as high risk activities and carefully monitored. Through the careful planning and undertaking of the project team, the project was awarded with the Excellence Award for HSE by the Taichung City.

THE 21ST PUBLIC CONSTRUCTION GOLDEN QUALITY AWARDS

Public Construction Golden Quality Awards recognize the award-winning engineering teams' outstanding professional performance in planning, design, supervision and construction.

Public Construction Golden Quality Awards

MAA's Chairman Richard Moh (right 4) attended the 21st Public Construction Golden Quality Awards ceremony

XUE SI BUILDING AND ERYA BUILDING OF NATIONAL TAIPEI UNIVERSITY OF NURSING AND HEALTH SCIENCES

MAA received the 21st Public Construction Golden Quality Award for its PCM services of the "Multipurpose Teaching and Research Building" and "The Third Residential Hall" for the prestigious National Taipei University. The Multipurpose building is 11 stories tall with 2 underground stories and a floor area of 30,000m^2, while the residential hall includes 13 stories above ground and 2 stories below. The residential hall will serve as housing for over 700 students.

During the early phases of the project, MAA worked closely with the Client to prioritize several features within the project. The team collaborated with the school's administration as well as students in order to optimize and focus on shaping the residential hall for the students' needs. Model rooms were set up to facilitate communication between the party and improve the overall design. To align itself with sustainability goals, the building aimed for Taiwan's Green Building and Smart Building Silver standards, which were certified and achieved by the end of the project. Efforts to ensure the building reached these goals included implementation of an early "Tree Protection, Transplantation, and Reforestation Program", to protect key and diverse tree species located within the area.

This project also emphasized HSE measures, receiving several HSE awards in 2019 from Taipei City's Occupational Health and Safety Department, including HSE Excellence Award, HSE Personnel Awards, Safety Innovation Award, and HSE Quality Award.

THE 15TH PUBLIC CONSTRUCTION SAFETY GOLDEN AWARDS

Public Construction Safety Golden Award recognizes institutions which maintain healthy and safe environments during construction processes. It aims to perpetuate enterprise safety culture. On 26th November 2021, MAA received the 15th Public Construction Safety Golden Award for the Turnkey Project for Kaohsiung MRT Gangshan-Luzhu Extension Line (Phase 1).

KAOHSIUNG MRT GANGSHAN-LUZHU EXTENSION LINE (PHASE 1)

The 1.46km MRT Red Line Extension provides improved access to important upcoming industrial parks, such as Kaohsiung Science Park, Telecommunications Park, Benjhou Industrial Park, and Yongan Industrial Park Service Center. The elevated viaduct project seeks to limit commute time between the Greater Kaohsiung Region to 30 minutes, promoting use of public transportation through ease of access. The MRT Project will not only benefit the immediate industry around it, but also provide increased commercial opportunities as part of Executive Yuan's Kaohsiung Business City Plan.

Public Construction Safety Golden Awards

Identified as one of the key transportation projects in Kaohsiung City, MAA and the client implemented an early risk management program, in particular for design and construction phases to reduce potential delays as well as to assess potential construction issues. One of the most difficult challenges identified for this project was the elevated viaduct section above the Agongdian River. With limited space and clearance requirements from two nearby bridges and highways, U-shaped girders were installed using the bridge launching method, reducing the space needed for the viaducts and meeting the complicated construction space limitations. The project was recognized for its innovative combination of construction techniques, and the efforts placed in HSE and risk mitigation.

NEW TAIPEI CITY PUBLIC CONSTRUCTION PRIME QUALITY AWARDS

New Taipei City Public Construction Prime Quality Awards acknowledge institutions with high quality construction projects. On 10th November 2021, MAA received New Taipei City Public Construction Prime Quality Award for the construction supervision for Danhai LRT turnkey project.

New Taipei City Mayor You-Yi Hou (left) and MAA's Engineering Design SVP Ting-Chiun Su (right) attended the New Taipei City Public Construction Prime Quality Award Ceremony

DANHAI LRT TURNKEY PROJECT

Danhai New Township is projected to be a home to 300,000 residents by 2041, up from its current 16,000. As a major thoroughfare area, the public is already frustrated by the current traffic conditions. The NT$ 15.3 billion, 14km Danhai LRT Turnkey Project was implemented to alleviate traffic congestion in this region, while also stimulating local economic growth. The first phase of the project includes 7 elevated stations, 4 at-grade stations, and one level 5 depot across a total distance of 10km, beginning from Danshui's famous tourist hotspot Fisherman's Wharf, and connecting through Danhai New Township.

MAA was tasked with providing construction services for this project, including overseeing core system, track system, civil engineering (depot included), elevators and escalators, E&M, environment, plumbing, system integration and coordination, assistance to final inspection, and others (e.g. pipelines relocation and restoration work).

New Taipei City Public Construction Prime Quality Awards

Danhai LRT was the first LRT in Northern Taiwan region, and more importantly, the first LRT project using domestically made rolling stocks (by Taiwan Rolling Stock Co., Ltd. in cooperation with Voith Engineering Services from Germany). The signaling system was also designed and manufactured locally by adopting European standards. The construction supervision team worked closely with the Independent Verification and Validation (IV&V) consultants to closely identify potential risks, implementing mitigation measures to significantly reduce construction and operational risks.

The project also focuses on smart and sustainable infrastructure. BIM was adopted in its design and construction stages to facilitate communication not only within the project team, but also with the public. Being the first of its kind in Northern Taipei, 3D visualization and VR technologies assisted in public education of the LRT ticketing system, as well as demonstrate the at-grade operations and right-of-way between the train and pedestrians.

To support the LRT system, a level 5 depot was identified as necessary for this project. The project identified this area as having great potential for sustainable design, and was able to achieve Taiwan's Silver Label Green Building Certificate. Major energy-saving features included the construction of solar roofs, use of green construction materials, as well as using precast concrete construction.

TAINAN CITY PUBLIC CONSTRUCTION PRIME QUALITY AWARDS

MAA's SVP of Construction Supervision & Management Group Shih-Chang Huang (left 3) attended the Tainan City Public Construction Prime Quality Awards ceremony

Tainan City Public Construction Prime Quality Awards

Tainan City Public Construction Prime Quality Awards acknowledge institutions with high quality construction projects. On 15th December 2021, MAA won the Distinguished Award for Matou Tainan Industrial Zone Rezoning Project Management.

To promote the development of the Matou Industrial Zone, the Tainan City Government decided to proceed with land rezoning according to the industries' needs. These include planning of public facilities, roadway systems, and mitigating current flood issues within the zone, improving the functionality and usage rate of the industrial land. The project covers an area of 110.83 hectare. The Tainan government expects the Matou Industrial Zone to develop into a satellite city to the Tainan Science Park.

The main challenge of this project was to rapidly improve construction site conditions by implementing drainage systems to reduce the impact of rains and flood on the overall construction schedule. During the beginning of the construction, Matou was frequently flooded because of its low-lying elevation,which delayed the construction schedule. For that reason, box culverts were installed, using prefabrication and mechanical lifting methods. These techniques meet the four elements in construction management: standardization, prefabrication, automation, and specialization. In addition, enhanced fencing was installed around the detention basin to prevent workers from falling in. MAA received the award for its PCM services.

MAA **ACADEMY**

MAA Academy was established on 27th January 2021 as a capacity building educational entity with MAA Vice Chairman Chung-Cheng Kao as the dean. Capacity building focuses on cross-disciplinary collaboration and challenges oneself to learn new knowledge. "Environment, Technology, and Humanities" Workshop was designed to expand employees' knowledge and stimulate creative thinking at the workplace. Professionals from various fields were invited as guest speakers to speak on a wide range of topics, including, environmental protection, advanced technology, and health and wellness. The first workshop began in January 2021 in the multifunctional room.

"ENVIRONMENT, TECHNOLOGY, AND HUMANITIES" WORKSHOP

LECTURE **1**

LIVE FULLY / 活出健全的自己

Speaker: Liang-Wei Chang

Summary: Liang-Wei Chang is the founder of Qiji Daoyin (氣機導引). Qiji Daoyin is a set of exercises based on the "medicine of movements". The movements form on the balance between the body mind, and soul. Qiji Daoyin is a professional approach to the movement of health through holistic exercises, diet, and lifestyle, emotion management, and lifestyle that is in touch with nature. Qiji Daoyin is designed for people of all ages and can be customized based on your preferences.

Mr. Chang is a well-known master in Taiwan's Qiji Daoyin society and has published numerous popular books and articles relating to health and wellness.

LECTURE **2**

ENVIRONMENT IN DISARRAY- NATURE OR NURTURE? / 自然失了序或原本就無序

Speaker: Dr. Chia-Wei Li

Summary: Botanists estimate there are 300,000 species of plants on earth. In the next 50 years, one in four will be facing extinction. If we don't take action now, two in every three plant species may be gone by the end of this century. "Our mission is to conserve tropical and subtropical plants, in order to sustain the richest biodiversity on Earth" (quoted Dr. Cecilia Koo, Botanic Conservation Center.).

Dr.Li is a professor of the Department of Life Science at National Tsing Hua University. He recently received the 27th TECO Award for his outstanding contribution to the eco-environment and humanities society.

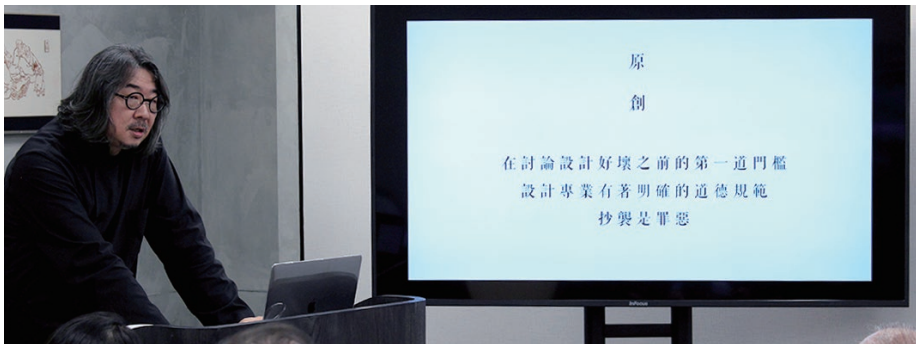
YUAN CHUANG / 原創 (Translated title)

LECTURE 3

Speaker: Jeff Dayu Shi

Summary: "Originality" is a mode of thinking; a process of thought on how to find the answer. Regardless of whether the final result is good or bad, it is the product of "Originality" that one creates after honestly facing oneself.

Mr. Shi is a founder and creative director of the lifestyle brand "Dragonfly". Mr. Shi has received many outstanding awards and honors, including 2020 Robb Report BOB Award Best of the Best - Designer of the Year, 2020 Chinese Culture Promotional Society (CCPC) Honorary Member in Presidium, 2019 Outstanding Fashion Personages, and 2018 Beijing Design Enhancement Program-Outstanding Design Figure.



椅.逍 遙

GERMAN DESIGN AWARD SPECIAL 2016

LECTURE **4**

ENGINEERING AND CONSERVATION - THE COMMUNICATION AND HARMONY ／ 工程和保育不要打架要溝通

Speaker: Dr. Hsiao-Wei Yuan

Summary: Restoration and recovery efforts of lands may be difficult or near impossible once areas have been developed. Projects may need to be adjusted where critical plants and animals are located, as they may be difficult to relocate, have low reproduction rates, or low mobility. On the other hand, some developments must proceed due to economical and public pressure. In the face of climate change effects, engineers in this era have the moral responsibility of learning to coexist with nature.

Dr. Yuan is a well-known professional in the conservation society and has received many prestigious international and domestic awards. Dr. Yuan is a professor in the School of Forestry & Resource Conservation at National Taiwan University.

CIRCULAR ECONOMY: NET ZERO AND ECOLOGICAL SUSTAINABILITY / 打造淨零碳排永續環境生態鏈-循環經濟

LECTURE 5

Speaker: Dr. Chih-Kung Lee

Summary: Carbon dioxide forms a greenhouse effect, causing global warming/climate extremes. To limit the rise of global temperatures to within 1.5 degrees Celsius, the world must reach net zero carbon emissions by 2050. The concept and practice of circular economy is vital to generating net zero emissions. The concept looks into minimizing waste through a combination of optimized use of resources, manufacturing processes, and emphasis on recyclable materials, to achieve a sustainable development and economy. Innovations in material science are one of the key factors to changing the ecological chain value system. Taiwan's industries must examine their current capacity and adopt innovative technologies; leading the way to creating new opportunities in industries to achieve net zero carbon emissions.

Dr. Lee is the Chairman of Industrial Technology Research Institute and has received many outstanding awards, including 2020 Chinese Institute of Engineers Fellow Award and 2019 Chinese Institute of Engineers Engineering Medal.

LECTURE 6

ENVISIONING WATER INFRASTRUCTURE / 水利工程展望

Speaker: Dr. Chien-Hsin Lai

Summary: In face of extreme weather, the Water Resources Agency has used runoff sharing and outflow control to enhance the land's flood-carrying capacity; with careful management of water resources, Taiwan's water supply has been extended for four months to successfully overcome the 100-year drought event experienced in 2021. In times of peace, preparations should be made to protect the livelihood of the people, the land, and the next generation can be continued. Every drop of water travels hundreds of kilometers, creating the prosperity of every piece of land, the vitality of the city, and the stability of the lives of 23.5 million people.

Dr.Lai is the Director-General of Water Resources Agency (WRA) Ministry of Economic Affairs (MOEA) and he has received numerous professional awards, including the 2021 Chinese Society for Management of Technology Fellow Award, 2021 Chinese Institute Engineers Outstanding Engineering Award, and 2020 Excellent Contribution Award from Chinese Water Resources Management Society.

PROJECTS

PCM AND CONSTRUCTION SUPERVISION FOR TAIPEI MRT JIANTAN STATION TOD PROJECT

The project aims to build a 20-story aboveground, 4-story underground commercial building at Jiantan MRT Station and integrate the area into a Transit-Oriented Development (TOD). The design of the building is based on smart and green building principles to ensure a sustainable and livable space, improving connectivity with nearby famous tourist spots such as Shilin Night Market, Yuan Shan Recreation Center, Jihe Park, and The Grand Hotel. The underground of the building will provide much-needed parking space, while the remaining building space is planned for commercial and office tenants, including retail, conference center, offices, and gym. A MRT square will be built to directly link the station and the building. Top-down construction for deep excavation will be used to improve the safety of construction. To avoid the use of deep excavation and reduce the length of the diaphragm wall, a unitized curtain wall system is implemented to enhance the endurance of floor drift. MAA was engaged by Taipei Rapid Transit Corporation to provide detailed design, BIM, PCM, and construction supervision services. The services began in 2021, with expected completion in 2025.

TAOYUAN AEROTROPOLIS TURNKEY PROJECT B1

Taoyuan Aerotropolis serves as an integral part of Taiwan's 12 Major Infrastructure Projects. Taoyuan Aetrotropolis aims to integrate nearby railway developments, promote green and people-oriented transportation, and create a sustainable community. As a large-scale project covering a total area of 1,756 ha., the Taoyuan Aerotropolis Project is separated into 10 procurement packages, in which MAA has provided detailed design/ planning services for package Lot B1 (186.63ha.) and Lot A3 (192.64ha.).

MAA provides detailed design and construction consultancy services. The main features of Lot B1 are as follow:

1. This area is planned to develop into an intelligent industrial zone, dedicated to transport-related industries.
2. Areas within the industrial zone plan to adopt open channel irrigation to maintain a sustainable ecological system, with multiple gardens designed to include permeable pavements and reservoir systems.
3. A long-span bridge (220m).
4. This Project includes a slag and recycled aggregate demonstration area, whereby 1,758 tons of recycled aggregate will be used for soil stabilization, along with 223 tons of recycled CLSM aggregate will be used.

MAA was engaged by Taoyuan Aerotropolis Co., Ltd. to provide detailed design. The services began in June 2021 with completion in December 2026.

PLANNING, DESIGN, AND CONSTRUCTION SUPERVISION FOR LUZHOU DISTRICT LAND ACQUISITION

Located in New Taipei City, the project covers an area of 156.22ha., and is divided into Northern Luzhou and Southern Luzhou. Northern Luzhou covers an area of 133ha. and is planned to comprise two development areas, “Secondary Development District” and “Northern Luzhou Waterfront District”. Combined with the neighboring “Galaxy Bay Development”, Northern Luzhou will become a Waterfront City. The southern part covers an area of 22ha. It is planned to be a TOD, where the Y20 Station of Taipei MRT Circular Line will be located. It is planned to construct residential and commercial areas, common ducts, water distribution pipes, drainage system, parks, detention basin, and cross-dike platform. Public transportation and smart street lighting will be built to encourage sustainable living. Upon the completion of Taipei MRT Circular Line and the Wugu-Taishan Line, the convenient public transportation will stimulate the growth of Luzhou District.

MAA was engaged by the Land Administration Department, New Taipei City Government to provide planning, design, and construction supervision services. The services began in 2021, with completion in 2026.

PCM SERVICES FOR TAMSUI SEWER SYSTEM BOT PROJECT PHASE 6

To improve the overall living environment and public health in New Taipei City, the New Taipei City government has been promoting sewerage network connectivity in recent years. The effort has won the highest performance achievement for six years consecutively by the Construction and Planning Agency, Ministry of the Interior. This Project is a BOT Project for sewerage network and connection construction across 2,709 hectare, a 56,000 CMD wastewater facility, including operations for a period of 35 years. The services began in August 2021, with completion in July 2024.

PCM AND CONSTRUCTION SUPERVISION FOR YU CHIN ARMY CAMP

The goal of this project is to facilitate the unity of 3 military branches and resource sharing in the military. Located in Taoyuan, at the juncture of Bade and Daxi District, Taoyuan and Yinge District, New Taipei City, the total site area of the project is 8.7ha. The building is designed in a U-shaped layout, saving energy through the use of natural wind and lighting. The multifunctional, RC building (10,581m2) offers space for dorm and office; with the courtyard as an assembly space. Other facilities include a restaurant (1,277m2), a second maintenance shop (2,885m2), military carport, and training yard. Sustainable and green design concepts adopted for this project include permeable pavements and green roofs. MAA was engaged by the Ministry of National Defense, Construction and Real Estate Service Center Armaments Bureau to provide BIM, construction supervision, and PCM services. The services began in 2021, with expected completion in 2024.

iROAD

INTRODUCTION

The New Taipei City Government (NTPC) of Taiwan has continually expanded the digitalization of its road management systems, beginning from establishing GIS databases from underground pipeline, facilities, pavement investigations, etc., to developing its road related management systems since 2001. However, the current decentralized data and applications are facing challenges in meeting the increasing modern road management demands. To meet these challenges, NTPC upgraded and consolidated its existing systems into an "Intelligent Road Management System," named iRoad.

FEATURES

iRoad system is comprised of five major functions, as briefly described below:

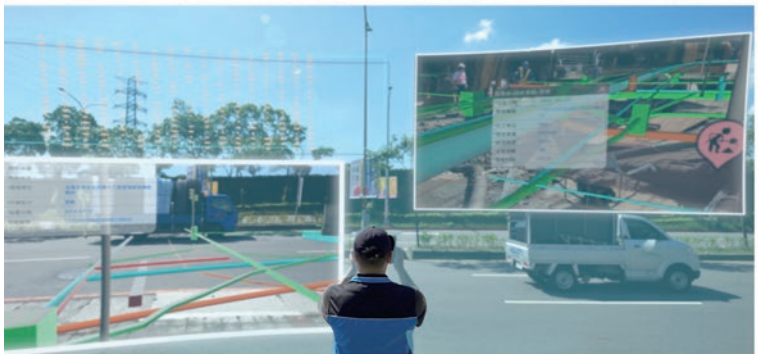
1. Road Excavation Management: Road excavation management system will include management of road excavation applications, current roadworks, inspections, project closeout, fines, public utility database management, and training.

2. Pavement Maintenance Management: Management of road maintenance processes including road roughness and reporting management, road inspection, road issues and mitigations, pavement maintenance scheduling, etc.

3. Common Utility Duct Management: Incorporate Building Information Modeling (BIM) technologies to enhance facility management capabilities and assist common utility duct inspection processes.

4. Roadworks Query: Integrate the previously mentioned functions and systems into an accessible query system to allow the public and relevant authorities to easily query and obtain relevant information.

5. Mobile Office: Combine mobile devices and communications networks to allow relevant authorities to easily access and manage necessary information while on-site or from remote locations. These may include construction, utilities, or facility data such as location and relevant attributes, improving overall efficiency.



AWARDS

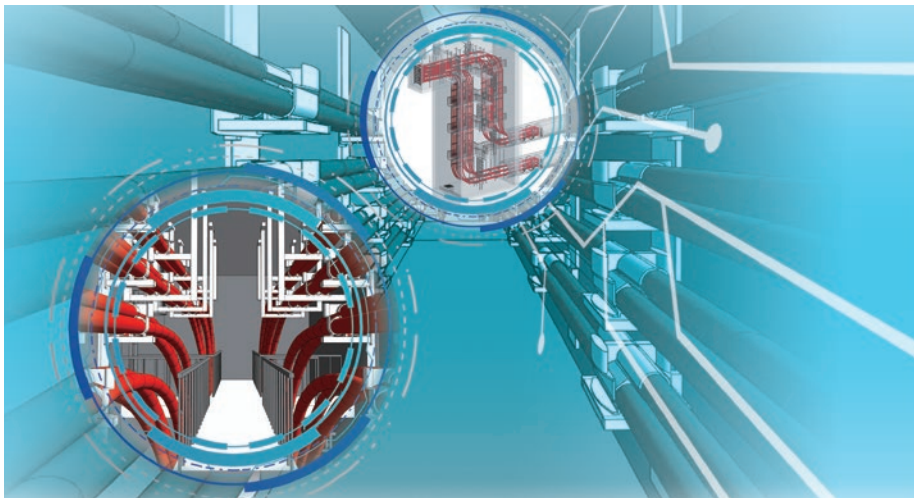
- The 2014~2020 Public Utility Database Evaluation Award - 1st Place/ High Distinction Award by Construction and Planning Agency, Ministry of the Interior
- The 2019 Engineering Digitization Innovative Application Award by CICHE
- 2007, 2018, 2020 TGIS Golden Map Award - Best Application System

POLLUTION REMEDIATION ASSISTANCE FOR GENERAL CONSULTANCY FOR KAOHSIUNG REFINERY DISTRICT

Since 1990, the soil and water in Kaohsiung Refinery District were deemed to be contaminated with heavy metals. In 2004, the entire district was listed as a contaminated site for remediation, which encompasses a total of 15 lots, including Guonan Lot 450, 450-1, 450-3, 432-1, and 328-1. MAA provides remediation for phase 2 and 3, with an area of 135 ha. It is expected that the contaminated district will be deregulated by 2024. MAA provides master planning, procurement advisory, PCM, construction supervision, environmental monitoring inspection, and verification of mitigation for contamination services. The services began in September 2021, with expected completion in June 2026.

DATAN TO MEIHU 161KV POWER CABLE TUNNEL TURNKEY PROJECT

Taipower Company introduced the "Offshore Windfarm Power Network Improvement Phase 1 Project" in an effort to improve the capacity and quality of power services for the Northern Taiwan Region. MAA is involved in a portion of the 161KV Datan to Meihu section (18km), including 16.3km pipe section, 56 manholes, nine culvert sections. Construction methods for this project primarily consist of micro-tunneling and box pushing techniques.



Major considerations for the project included the potential impact of construction to adjacent buildings, potential impact to traffic, and avoiding impacts to other nearby utilities. As such, geotechnical studies and simulations were conducted, assessing for potential adjacent building risks as well as implementing automated monitoring systems. Geotechnical monitoring systems were also implemented to ensure construction safety and minimize potential impact to aboveground traffic during tunneling works. Studies were also conducted to map out the location of other utilities as most of the cable runs parallel along with other utilities underneath roads.

MAA was engaged by Taipower Company to provide in-situ survey, investigation, and in-situ lab testing. The services began in July 2021 with completion in May 2025.

EIA FOR CIRCULAR LINE NORTHERN AND SOUTHERN SECTION DURING THE CONSTRUCTION STAGE

The Circular Line of the Taipei Metro is a loop line through sections of New Taipei City. The project is the second phase of the Circular Line (Northern and Southern section), with a total length of 20.7 km and 18 stations (Y01–06 and Y21–32 stations). The route covers Muzha section, Wugu section, Xinzhuang section, Luzhou section, Shilin section, and Neihu section. In accordance with the environmental monitoring proposal of the Environmental Impact Comparative Analysis Report (5th), this project aims to carry out environmental monitoring during the construction of the Circular line phase II. MAA provides air quality, noise, vibration, construction site noise monitoring, effluent water quality monitoring, traffic monitoring, terrestrial ecosystem survey, and culture heritage monitoring. The services began in July 2021 with expected completion in July 2031.

BREAKTHROUGH OF THE LONGEST TUNNEL IN THAILAND FOR SRT TRACK DOUBLING PROJECT

The Thailand SRT Track Doubling Project for Northeastern Line between Map Kabao and Thanon Chira Junction, with the total length of 132km, was started from 1 May 2018 and scheduled to complete in September 2022. MAA along with the other three major engineering consultancy companies in Thailand formed the joint venture, AMWW, as the Project Management and Construction Supervision Consultants (PMCSC). Scope of the project includes bridge and embankment construction, tunnel excavation, track work, Electrical and Mechanical work, and other related items. Among the three tunnels in the project, the 5,850m will be the longest traffic Tunnel in Thailand at the time of its construction. Excavation of the tunnel was carried out by drill and blast method from eight working faces, among which four were initiated from both ends of the up and down track tunnels and the other four were initiated from an adit tunnel cut through the middle of the alignment. Final breakthrough of the tunnel was on 16th June 2021.

PROFESSIONAL **ACTIVITIES**

OPENING CEREMONY FOR THE XUE SI BUILDING AND ERYA BUILDING OF NATIONAL TAIPEI UNIVERSITY OF NURSING AND HEALTH SCIENCES

Located in Beitou, Taipei, the project includes two buildings at National Taipei University of Nursing and Health Sciences. Xue Si Building (Learning and Teaching Building) covers an area of 30,001m2 and consists of 11 floors aboveground and 2 floors underground; Erya Building (Residence Hall) covers an area of 13,513m2 and 13 aboveground and 2 floors underground. MAA provided project construction management services for this project. On 25th October 2021, MAA's President Chen-Hui Hsieh attended the opening ceremony for the Xue Si Building Erya Building of National Taipei University of Nursing and Health Sciences.

MAA's President Chen-Hui Hsieh (right 2) attended the opening ceremony for the Xue Si Building Erya Building of National Taipei University of Nursing and Health Sciences

ANKENG LRT SITE VISIT - TRAIN FOR ANKENG LRT BEING TESTED

New Taipei City Mayor Hou Yu-ih (right 5) and MAA's Chairman Richard Moh (right 7)visited Ankeng LRT construction site

The 7.5km Ankeng LRT in Xindian, New Taipei City is in progress and scheduled to launch in 2022.

The line will shorten the commute time between New Taipei City and Taipei City. MAA provides construction supervision services for the project. On 18th October 2021, New Taipei City Mayor Hou You-Yi, MAA's Chairman Richard Moh, and President Chen-Hui Hsieh visited the site to inspect the progress of the train testing.

GROUNDBREAKING CEREMONY FOR DESIGN AND CONSTRUCTION SUPERVISION FOR LAND LEVY OF CHUNGLI SPORTS PARK IN TAOYUAN CITY

Located in Chungli, Taoyuan, the project covers an area of 72.97ha. The project includes construction for a residential area, commercial area, cultural areas, parks, playgrounds, green space, music center, stadium, schools, governmental institutions, common ducts, and roads. On 30th April 2021, MAA's SVP of Engineering Design Group Ting-Chiun Su attended the groundbreaking ceremony.

Taoyuan City Mayor Wen-Tsan Cheng gave a speech at the groundbreaking ceremony for construction supervision for land levy of Chungli sports park in Taoyuan City

3D model of Chungli Sports Park in Taoyuan City

MAA's SVP of Engineering Design Group Ting-Chiun Su (right 3) attended the groundbreaking ceremony for the land levy for Chungli Sports Park in Taoyuan City

SOUTHERN CAMPUS OF ACADEMIA SINICA SITE VISIT

MAA's upper management team visited Southern Campus of Academia Sinica

MAA's Chairman Richard Moh, Vice Chairman Chung-Cheng Kao, President Chen-Hui Hsieh, SVP of Construction Supervision & Management Group Shih-Chang Huang, Manager Fuh-Gwo Wang, and some of the staff visited the Southern Campus of Academia Sinica, one of MAA's PCM projects in Tainan.

The Southern Campus Project for the Academia Sinica is located in the Shalum Smart Green Energy Science City, Tainan. The southern campus will focus on development and expansion of agricultural technology, academic research, sustainable development, and cultural research. This is the second phase of this project, which will include a multi-disciplinary research lab building, a mixed research building (including meeting rooms, administrative offices, research labs, etc.). The project aims to construct an international world-class facility and environment for research, and adopts an inviting atmosphere to its plans.

CHINESE INSTITUTE OF ENGINEERS MEET WITH THE PRESIDENT

President Tsai (right 5, row 1), MAA's Chairman Richard Moh (right 1, row 3), MAA's Vice Chairman Chung-Cheng Kao (left 3, row 2) had a meeting at Office of the President

To unify and inspire the engineering industry to provide better services for the country, the president of the Chinese Institute of Engineers (CIE) Shih Yi-Fang scheduled a meeting for CIE board members to meet with President Ing-Wen Tsai on 22 March 2021. As CIE board members, MAA's Chairman Richard Moh and Vice Chairman Chung-Cheng Kao attended the event.

Founded in 1912, CIE is the longest and largest engineering academic organization in Taiwan. CIE is dedicated to strengthening the ties between domestic and international engineering professionals, introducing new and advanced technology, elevating the educational environment, and inspiring students to enhance and showcase their abilities. CIE has 20,000 members across disciplines and countries with 19 student branches. To connect domestic engineers to the world and gain international visibility for Taiwan, CIE is involved in numerous international organizations: World Federation of Engineering Organizations (WFEO), Federation of Engineering institutions of Asia and the Pacific (FEIAP), ASEAN Federation of Engineering Organizations (AFEO), International Energy Agency (IEA), and Asian Development Bank (ADB).

NTUCE-NCREE AI RESEARCH CENTER VISIT

On 17th March 2021, MAA's Chairman Richard Moh, Vice Chairman Chung-Cheng Kao, SVP of Corporate Development Center Travis Chien, SVP of Construction Supervision & Management Shih-Chang Huang, SVP of Engineering Design Group Ting-Chiun Su, and other MAA employees visited the AI Center. AI Center is a research institute founded by the Civil Engineering Department at National Taiwan University and National Center for Research on Earthquake Engineering (NTUCE-NCREE AI Research Center) in Taipei. The center aims to become a worldwide leader on AI for earthquake engineering, disaster mitigation, smart infrastructure, and smart materials. Goals for the Center include conducting research, recruiting young talents, providing leading software and hardware platforms, partnering with top-notch leaders in the industry.

MAA's management team visited NTUCE-NCREE AI Research Center

MOU WITH NATIONAL TAIPEI UNIVERSITY OF TECHNOLOGY

MAA's management team at the signing

On 2nd December 2021, MAA and National Taipei University of Technology (NTUT) signed "Offshore Windfarm Technical Development and Engineering Technology Application Partnership" MoU.

Taiwan's offshore windfarm has currently advanced into Phase 3, termed the Zonal Development Round, which calls for aggressive expansion for offshore windfarms. By greatly expanding the number of potential windfarms, the government hopes to improve local design and construction capacity through increased opportunities, as well as stimulate local relevant industries.

Since 2018, MAA has actively pursued offshore windfarm businesses. The project MAA participated in will be the first sustainable O&M base and facility center in Asia and the largest in Taiwan upon its completion next year. In addition, MAA participated in the design of turbine tower in the offshore windfarm, which was interconnected to the distribution system in August, 2021. MAA also engages in offshore windfarm talent development to support local technical capabilities.

NTUT President Sea-Fue Wang (left) and MAA's Chairman Richard Moh (right) at the signing

NTUT President Sea-Fue Wang and Yu-Gi Song along with other professionals in Taipei Tech founded Research Center of Offshore Wind Power Engineering to facilitate the localization of offshore windfarm and enact offshore windfarm regulations for the government. The results thus far have been successful. The collaboration between MAA and Taipei Tech will nurture local cross-disciplinary professionals and enable the transition of net zero by 2050.

CENTRAL TAIWAN OFFICE RELOCATION

Central Taiwan Office's new office space

MAA's upper management team attended the office warming ceremony

When Taichung City became a municipality in 2009, MAA saw an opportunity to enter into a new market and established the Taichung Office. Located on Wenxin Road, North District, the office initially started with only 3 employees, and has grown to include over 30 employees ,providing services all across Central Taiwan. The Taichung Office was renamed as the Central Taiwan Office to reflect its expanding capabilities and services to clients, and was relocated to a larger office space on Zhongming Road on 12 April 2021.

The Central Taiwan Office of MAA primarily provides PCM and construction supervision services for industrial developments, land developments, hospitals, smart buildings, and libraries. The Central Taiwan Office will continue committing to maintaining our core values: advanced technology project safety, client's satisfaction, economical solution, and timely completion.

PROFESSIONAL **AWARDS/HONOR**

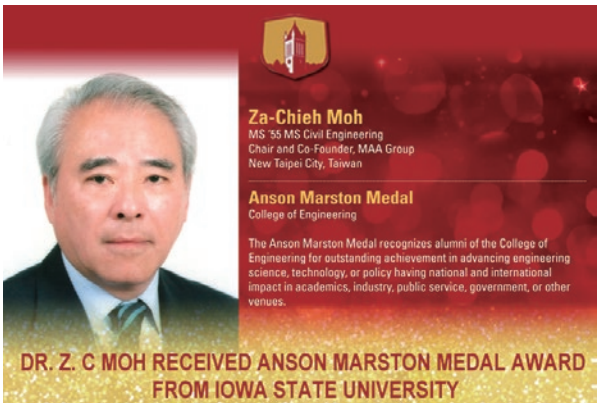
DR. MOH - IOWA STATE ANNUAL HONOR

Dr. Za-Chieh Moh was honored with the Anson Marston Medal by the College of Engineering at the Iowa State University 89th Honors & Awards. Iowa State University Civil, Construction and Environmental Engineering (CCEE) announcement as follows:

Dr. Za-Chieh Moh ('55 M.S. civil engr), Taipei, Taiwan, is being honored with the Anson Marston Medal by the College of Engineering at a virtual ceremony on 7th April 2021 at 7 p.m. Register to watch or leave a note of congratulations here.

The Anson Marston Medal was established in 1938 in honor of Anson Marston, the first dean of engineering. The Marston Medal recognizes alumni of the College of Engineering for outstanding achievement in advancing engineering science, technology or policy having national and international impact in academics, industry, public services, government or other venues.

Dr. Moh is a distinguished educator, entrepreneur, and leader in geotechnical engineering. Dr. Moh's knowledge, professionalism, and pioneering spirit have made him a role model for others in his field, and he's made remarkable engineering contributions in Southeast and East Asia and across the world.



Dr. Moh founded and is chairman of the board of the MAA GROUP, a prominent international engineering consultant conglomerate that serves clients in numerous projects that are vital to the development of Asian regional economies.

Dr. Moh also served as the vice president and provost of the Asian Institute of Technology and has published more than 160 technical publications. His instructions to engineers and researchers have expedited many economic and scientific developments internationally, and his former students have gone on to lead large-scale infrastructure projects across Asia.

He has been named a fellow of many engineering organizations, including the American Society of Civil Engineers, Institution of Civil Engineers (U.K.), Chinese Institute of Engineers, and Institutions of Engineering in Singapore, Malaysia and Hong Kong. Moh was the founding president of the Southeast Asian Geotechnical Society and has served as the vice president of the International Society for Soil Mechanics and Geotechnical Engineering.

In addition to his degree from ISU, Dr. Moh holds a bachelor's degree in civil engineering from National Taiwan University, a doctorate of science degree in civil engineering from Massachusetts Institute of Technology, and an honorary doctorate of technology from the Asian Institute of Technology.

Source: College of Engineering News, Iowa State University

https://news.engineering.iastate.edu/2021/04/05/ccee-alum-za-chieh-moh-receives-marston-medal-award/?fbclid=IwAR2Vw8WyU9IMZtoGRbuigpVDgckdXPi-Tej9k-fsEY4Aq8hsDUmOwyYCay0

OUTSTANDING ENTREPRENEUR AWARD - NATIONAL TAIWAN UNIVERSITY'S COLLEGE OF ENGINEERING

On 12th January 2022, Dr. Moh, MAA's Non Executive Chairman, received Outstanding Entrepreneur Award from National Taiwan University's College of Engineering at National Taiwan University. The award recognizes alumni of the College of Engineering for their entrepreneurship and contribution to the College of Engineering or academia.

Outstanding Entrepreneur Award

MAA's Non Executive Chairman Dr.Moh (right) received Outstanding Entrepreneur Award from Dean of Engineering Wen-Chang Chen (left)

MAA's management team attended the Outstanding Entrepreneur Award ceremony

Dr. Moh delivered a speech titled "On Peaks and Valleys in the Engineering Industry", demonstrating the innovation, dedication, responsibility and ethics that the civil engineering industry requires, and how MAA as a professional consulting company exemplifies these ideals. MAA's strategy is based on the foundation of new culture, strong communication, continual development and application of information, and three pillars (sustainability, advanced technology, and digitalization). MAA has won 15 Public Construction Golden Quality Awards and 14 Public Construction Safety Golden Awards. Dr.Moh also presented the company's iconic projects: Taipei Songshan Airport Taxiway Rehabilitation, Taipei MRT Geotechnical Engineering Specialty Consultant (GESC), Fushing North Road Underpass under Songshan Airport, Taiwan High Speed Rail, and Bangkok Suvarnabhumi Airport in Thailand. He hopes to inspire the audience and students by sharing the attitudes and methods applied in those projects.

Dr.Moh delivered a speech titled "On Peaks and Valleys in the Engineering Industry"

OUTSTANDING GEOTECHNICAL ENGINEER AWARD - CHINESE TAIPEI GEOTECHNICAL SOCIETY

On 13th January 2021, MAA's Senior Geotechnical Engineer Yung Feng Lai received Outstanding Geotechnical Engineer Award from Chinese Taipei Geotechnical Society (TGS) for Detailed Design for Taipei Metropolitan Area Rapid Transit System Xinyi Line Extension Lot DR149.

Senior MAA's Senior Geotechnical Engineer Yung Feng Lai (left) received Outstanding Geotechnical Engineer Award from Chinese Taipei Geotechnical Society (TGS)

OUTSTANDING TUNNELING AWARD - CHINESE TAIPEI TUNNELING ASSOCIATION

On 14th May 2021, MAA received Outstanding Tunneling Award from the Chinese Taipei Tunnelling Association (CTTA) for Turnkey Project for Underground Tunnel and Kaokang Cooling Plant for 345kV Power Cable Connecting Tailin to Kaokang.

MAA's Geotechnical Manager Chung-Ren Chou (right) was delegated to receive Outstanding Tunneling Award for Turnkey Project for Underground Tunnel and Kaokang Cooling Plant for 345kV Power Cable Connecting Tailin to Kaokang

2021 ANNUAL NATIONAL GOLDEN AWARDS FOR ARCHITECTURE - FORMOSA ASSOCIATION OF SUSTAINABLE CARE FOR LIVING ENVIRONMENT

On 13th December 2021, MAA received First Prize for Construction Quality at the 2021 Annual National Golden Awards for Architecture for Ankeng LRT Project.

MAA's Ankeng LRT Project Manager Han-Ting Lo (right) was delegated to receive the 2021 Annual National Golden Awards for Architecture for Ankeng LRT Project

DISTINGUISHED ENGINEERING AWARD - CHINESE INSTITUTE OF ENGINEERS

On 4th June 2021, MAA received Distinguished Engineering Award from Chinese Institute of Engineers (CIE) for Turnkey Project for the Redevelopment for Caota Area Sections 1, 3, and 6, at Guanyin District, Taoyuan City.

CHINESE INSTITUTE OF CIVIL AND HYDRAULIC ENGINEERING (CICHE) - APPLICATION OF DIGITAL ENGINEERING INNOVATION AWARD AND CONSTRUCTION BEAUTIFICATION DISTINGUISHED AWARD

On 27th November 2021, MAA won two awards from Chinese Institute of Civil and Hydraulic Engineering (CICHE): the Application of Digital Engineering Innovation Award for Information and Management System for New Taipei City 3D-Smart Utility project and Construction Beautification Distinguished Award for Turnkey Project for Danhai LRT.

GREEN BUILDING LABEL SILVER LEVEL CERTIFICATION

On 27th July 2021, MAA received Green Building Label silver level certification for the research building in the Southern Branch of Academia Sinica from the Ministry of Interior.

INTELLIGENT BUILDING LABEL CERTIFICATION

On 4th August 2021, MAA received Intelligent Building Label certification for the research building in the Southern Branch of Academia Sinica from the Ministry of Interior.

FIABCI-TAIWAN REAL ESTATE EXCELLENCE AWARDS

On 23rd September 2021, MAA received FIABCI-Taiwan Real Estate Excellence Awards for Quality Award for Taipei MRT Xinyi Extension R03 station.

LETTER OF APPRECIATION


國立臺北護理健康大學
National Taipei University of Nursing and Health Sciences

感謝狀

感謝亞新工程顧問股份有限公司協助辦理本校「學思樓暨爾雅樓新建工程」專業營建管理作業，工程品質優良並如期竣工，嘉惠全校師生。

謹致此狀　敬表謝忱

國立臺北護理健康大學

校長 謝楊楨

On 1st July 2021, MAA received a letter of appreciation from National Taipei University of Nursing and Health Sciences for the satisfactory achievement of the project management service.


中華民國環境工程學會
CIEnvE

亞新工程顧問股份有限公司

熱心環境保護工作，贊助本學會
第三十三屆年會之各項活動
特贈獎牌，謹致謝忱。

熱心環保

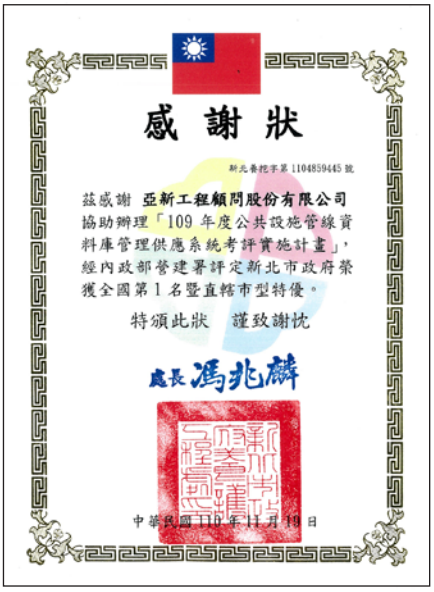
中華民國環境工程學會
理事長 林正芳

中華民國110年11月

In November, MAA received a letter of appreciation from The Chinese Institute of Environmental Engineering for its contributions to the society.

On 15th December 2021, MAA received a letter of appreciation from Chiayi City Government for Chiayi City Sewer System Design Phase I.

In 2021, MAA received 4 letters of appreciation from the Department of Rapid Transit Systems, New Taipei City Government for Construction supervision for Ankeng LRT Project.


感謝狀

新北養挖字第1104859445號

茲感謝 亞新工程顧問股份有限公司協助辦理「109年度公共設施管線資料庫管理供應系統考評實施計畫」，經內政部營建署評定新北市政府榮獲全國第1名暨直轄市型特優。

特頒此狀　謹致謝忱

處長 馮兆麟

中華民國110年11月10日

On 19th November 2021, MAA received a letter of appreciation from New Taipei City Government for 2020 Utilities Database and GIS Management System for New Taipei City.


感謝狀
Certificate of Appreciation

This certificate is awarded to
致 亞新工程顧問股份有限公司

熱心參與及贊助本協會活動，鼎力玉成，貢獻良多，圓滿功成，特贈此狀，以致謝忱。

This certificate is presented with appreciation to in recognition of dedication and sponsorship

Awarded by　Chairman

中華民國地下管道技術協會
理事長 王義峰

In December, MAA received a letter of appreciation from Chinese Taipei Society for Trenchless Technology for its contribution to the annual meeting.

SEMINARS AND CONFERENCES

THE 25TH SYMPOSIUM ON CONSTRUCTION ENGINEERING AND MANAGEMENT

Zoom screenshot of the symposium

The 25th Symposium on Construction Engineering and Management (SCEM) took place at National Taiwan University (NTU) from 16th July 2021 to 17th July 2021. The Construction Engineering and Management Division of the Civil Engineering Department at NTU was the organizer of the event. MAA's Chairman Richard Moh, Vice Chairman Chung-Cheng Kao, and President Chen-Hui Hsieh attended the symposium via Zoom. The objectives of the symposium were: for experts to share their research and work experiences in the construction industry; promote opportunities for industry-academia cooperation, technology up-gradation, boost the quality of research in Taiwan's construction field; increase Taiwan's international visibility.

MAA's Chairman Richard Moh (right 2) and Vice Chairman Chung-Cheng Kao (right 1) attended the New Taipei City MRT Five Year Milestone Seminar

NEW TAIPEI CITY MRT - FIVE-YEAR MILESTONE SEMINAR

The Department of Rapid Transit Systems of New Taipei City Government was established in 2013 to manage all metro developments in New Taipei City. The masterplan, "三環六線", aims to create a comprehensive green transportation system throughout New Taipei City to provide convenient transportation and stimulate both rail and urban developments. The total length of "三環六線" plans to be 235km and include up to206 stations.

MAA's Vice Chairman Chung-Cheng Kao (left) and Laboratory Chief I-Chou Hu (right)

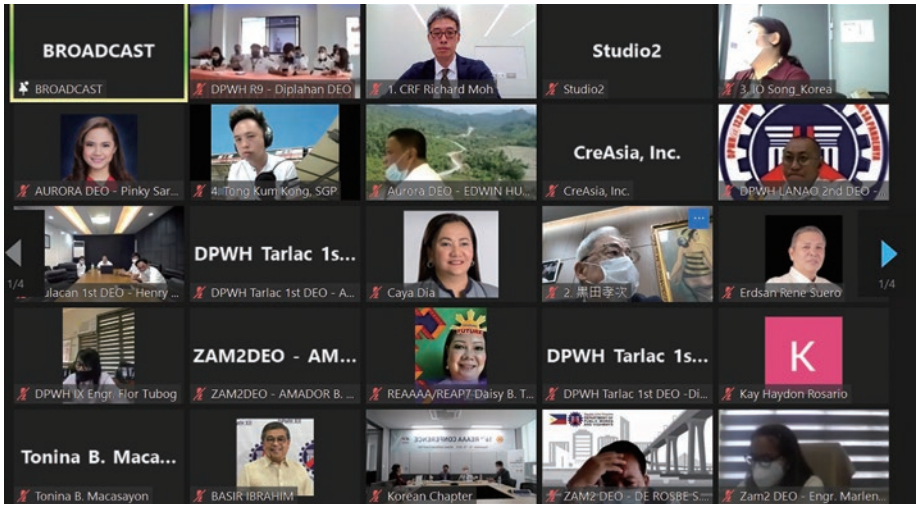
On 27th September 2021, the Department of Rapid Transit Systems of New Taipei City hosted a seminar, both virtually and in person, to share technical skills, experiences, achievements that New Taipei City MRT has made to date. MAA's Chairman Richard Moh and Vice Chairman Chung-Cheng Kao attended the opening ceremony. MAA's Laboratory Chief I-Chou Hu was one of the speakers for the event and gave a speech on "Sangying Line: Implementation of Lateral Displacement Method for Precast U Drain".

16TH REAAA CONFERENCE - SHAPING THE FUTURE OF ROAD ENGINEERING WITH ADVANCED TECHNOLOGIES

REAAA is a regional body whose focus is to promote and advance the science and practices for road engineering and related professions. REAAA was established in June 1973 with its current secretariat in Malaysia. Regional cooperation and technical harmony are the underlying principles of the Association. REAAA currently has more than 1,400 members in over 24 countries and holds regular events including triennial international conferences, technical visits and study tours, trade exhibitions, seminars, forums, and workshops. Due to COIVD-19, the 16th Road Engineering Association of Asia and Australia (REAAA) Council Meeting was held on Zoom from September 13 to 15, 2021. MAA's Chairman Richard Moh gave a welcoming speech at the opening ceremony. The 16th conference focuses on topics on how advanced technology assists planning, design, efficiency, information recording, and storage in transportation and engineering.

MAA's Chairman Richard Moh received a certification from REAAA

MAA's Chairman Richard Moh gave a welcoming speech at the opening ceremony



Zoom screenshot of the conference

CIE - YOUNG ENGINEERING ALLIANCE COMMITTEE (YEAC) NETWORKING EVENT

CIE is one of the oldest established and largest multimodal professional organizations in Taiwan and consists of more than 18,000 members from a variety of engineering disciplines across the industry, the public sector, relevant organizations, and academic institutions. MAA's Chairman Richard Moh founded the Young Engineer Committee under the Chinese Institute of Engineers (CIE) in January 2017. In April 2021, the Young Engineer Committee was renamed to the Young Engineering Alliance Committee (YEAC). Following the success of last year's networking event at National Taiwan University, the committee organized the third networking event.

Group photo on Zoom

Due to COVID-19, this year's event was hosted on Zoom. This year, the event attracted more than 60 attendees. MAA's engineer Yuan-Sheng Lin was the host of the event. Five individuals were awarded the 2021 Outstanding Young Engineer Award. Two speakers, Young-Siang Chen and Yi-Xin Wu, spoke on the integration and application of optomechatronics and the use of computer science and information engineering in organizations respectively.

FEIAP – YOUTH TALENTS DEVELOPMENT WORKING GROUP (YTDWG) WEBINAR SERIES

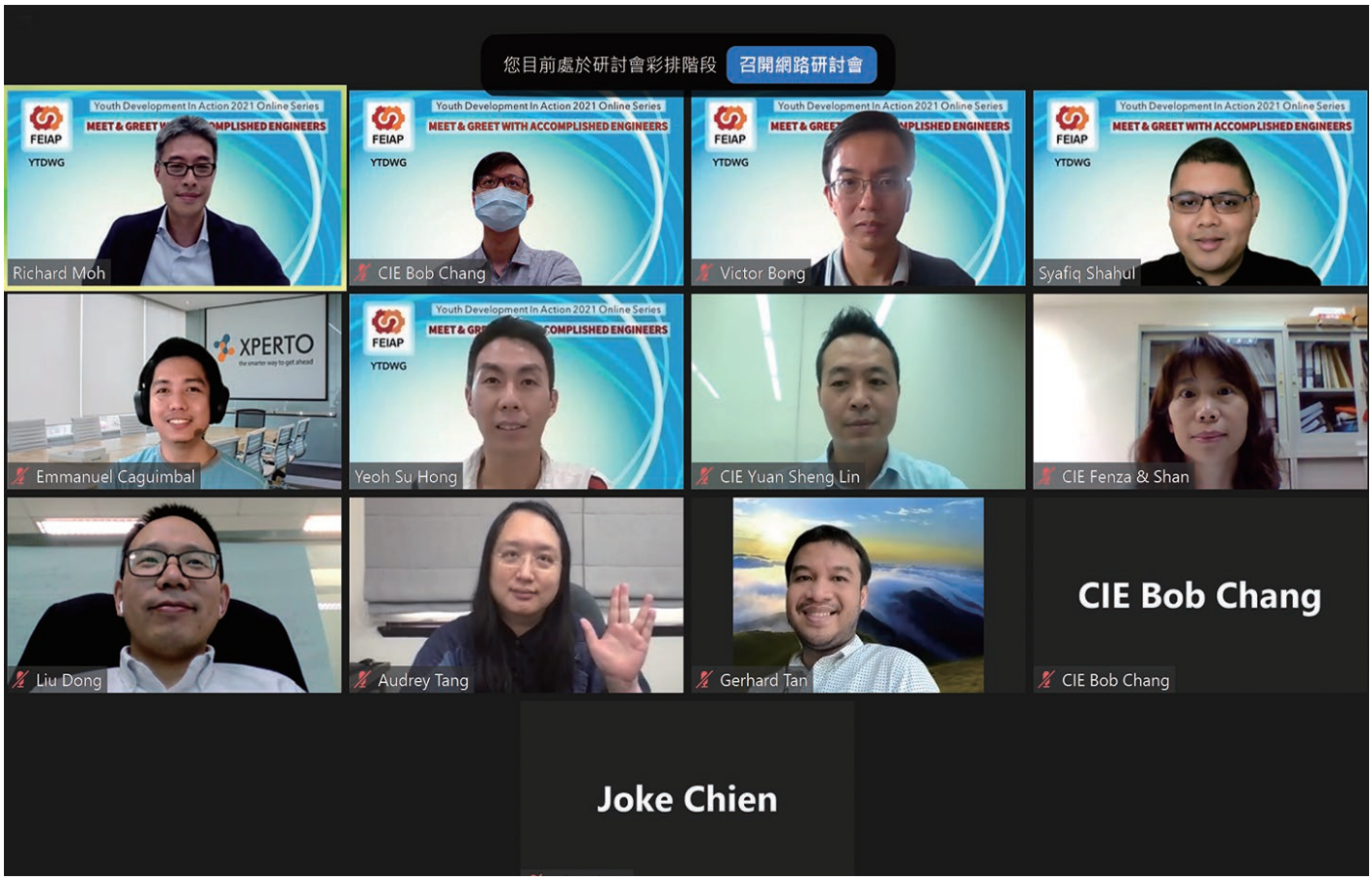
The Federation of Engineering Institutions of Asia and the Pacific (FEIAP) is an international non-profit professional organization founded on 6th July 1978. Its establishment followed an exploratory meeting convened and organized by The Engineering Institute of Thailand under The King's Patronage with the support of the United Nations Educational Scientific and Cultural Organization (UNESCO) on 3rd July 1978 in Chiang Mai. Being an independent umbrella organization for the engineering institutions in the Southeast Asia and the Pacific region, the objectives of FEIAP are to encourage the application of technical progress to economic and social advancement throughout the world; to advance engineering as a profession in the interest of all people; and to foster peace throughout the world. Youth Talents Development Working Group (YTDWG) was established in 2017 by MAA's Chairman Richard Moh and other young engineers in FEIAP and aims to foster international exchange among young engineers.

Webinar series posters

FAST, FAIR, FUN: INTERVIEW WITH TAIWAN'S DIGITAL MINISTER AUDREY TANG

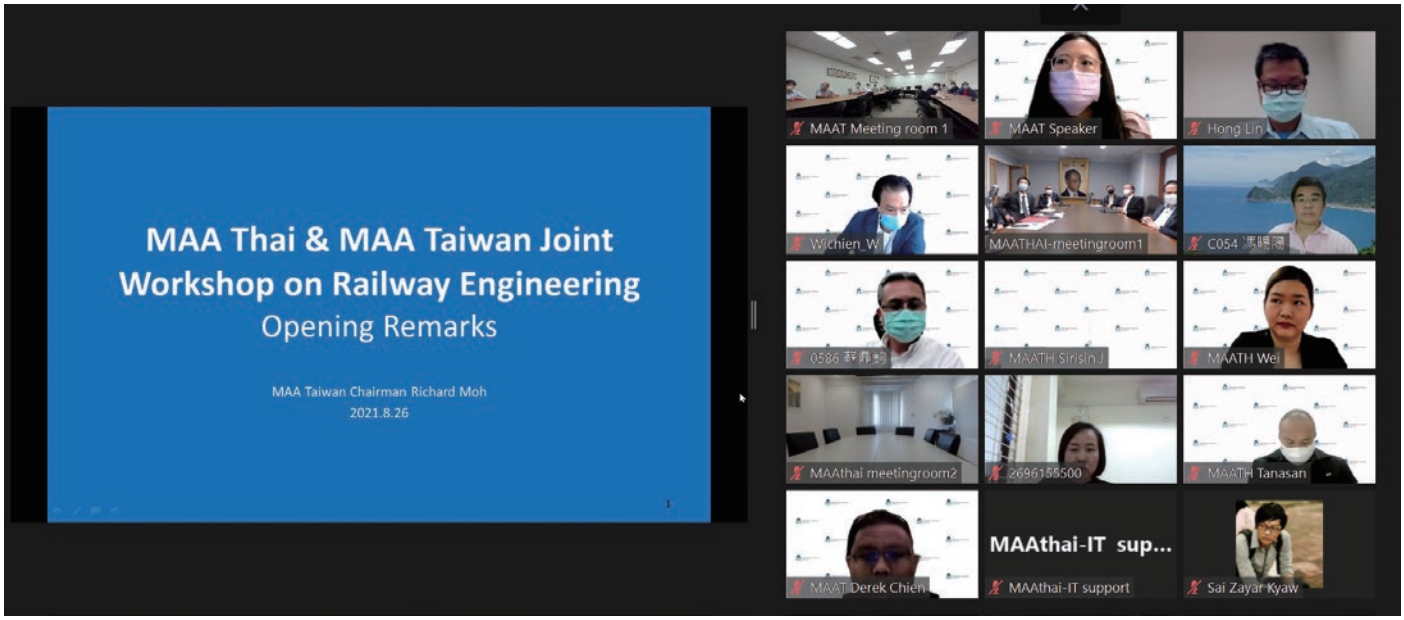
"FEIAP Youth Development in Action 2021 Online Series" is a webinar series that invites accomplished engineers to share their work experiences and provide career advice. On 9th September 2021, Richard Moh interviewed the Digital Minister of Taiwan, Audrey Tang. Audrey rose to fame amid the mask shortage challenges Taiwan faced during the onset of the pandemic in February 2020. The lack of supply and surging demand for masks caused the Taiwan government and local pharmacies to struggle with mask distribution. Audrey was the one who introduced the mask availability digital map, developed by a civic hacker Howard Wu, to the government. The platform shows the number of masks a local pharmacy has in real-time, which gives buyers a prior notice of masks that are available at the nearest local pharmacies. It allowed the appropriate allocation of masks and reduced public anxiety about mask shortages. The most recent digital innovation that the government uses for contact tracing, an SMS-based check-in system, is another COVID-19 digital innovation initiated by her. The above cases are successful social innovation based on the three pillars she believes in, which is fast, fair, and fun.

In the interview, Audrey explained the technology roadmap of the projects in which she has been involved, views on the implementation of digitalization on public affairs and social innovation, merging different perspectives and generations, and capacity building among young professions. The pioneering solutions Audrey provided to the government and the cross-disciplinary collaborations she orchestrated make her the trailblazer in the technology industry.



Group photo on Zoom

MAA TAIWAN & MAA THAILAND JOINT WORKSHOP FOR RAILWAY ENGINEERING



Screenshot of the workshop

The second Joint Workshop for Railway Engineering of MAA Taiwan and MAA Thailand was held on 26th and 27th August 2021. Due to COVID-19 pandemic, the workshop was held in a virtual format. The objectives of this workshop were:

- to share experiences and knowledge and provide feedback for future railway projects;
- to share innovative concepts, methods, tools, and policies for railway design and construction; and,
- to consolidate and maximize the resources of MAA Taiwan and MAA Thailand.

In the workshop, ten topics including deep excavation, shield and rock tunneling, vibration & noise control of rail, EIA, and digital application in rail projects were presented. More than 100 engineers from both sides participated in various sessions of the workshop. Chairman Richard Moh of MAA Taiwan and Chairman Wichien Wilaingam of MAA Thailand both delivered opening remarks, sharing project experiences from both sides. As the railway market continues to expand and remain a vital part of MAA's services in the next 20 years, it was agreed to hold the workshops on a regular basis to further share technical issues and solutions experienced in various projects.

MAA's upper management attended the workshop

TECHNICAL **PUBLICATIONS**

MAA'S 2020 TECHNICAL PUBLICATIONS

Balakumar V., Huang, M. J., Oh Erwin, Jayasiri Nilan S., Hwang Richard, Balasubramaniam A. S., (2021), *"Piled Raft on Sandy Soil - An Observational Study"*, Geotechnical Engineering Journal of the SEAGS & AGSSEA, pp.51-66, Vol. 52, No. 3.

Chou, C. R., Chang, J. F., Su, T. C., Moh, Z. C., Mitsui Takashi, (2021), *"A New Milestone of Shield Tunneling Technologies in Taiwan"*, 11th Asian Rock Mechanics Symposium, ISRM International Symposium, Beijing.

Hwang, R. N., Moh, Z. C., (2020), *"Back Analyses of Historical Ground Subsidence Induced by the Lowering of Groundwater Table"*, Geotechnical Engineering Journal of the SEAGS & AGSSEA, pp.200-208, Vol.51, No. 4.

Moh, R., Chang, J. F., Lai, C. W., Lai, Y. F., Chou, C. R., Malaisree P., (2021), *"Design and Construction of Shield Tunnels for the Orange Line of Bangkok MRT, Thailand"*, Sino Geotechnics, pp.75-85, Vol.169. (in Chinese)

Wang, W. C., Xue, J. C., Liu, C. C., Lee, M. G., Chang, H. C., Hoang Trung Hieu Duong, (2021), *"Research on Problems and Strategies of Using Waste Incinerator Incineration Bottom Slag as CLSM Aggregates"*, TCI 2021 Proceedings of Conference on Concrete Engineering, Kaohsiung, A2-083. (in Chinese)

CORPORATE SOCIAL **RESPONSIBILITY** (CSR)

Corporate Social Responsibility (CSR) is a practice that companies adopt to improve the quality of the environment, society, and economy. The United Nations established the Sustainable Development Goals in 2012, which later became the basis of most businesses' CSR framework. Many companies have shared the positive results of CSR, pertaining to employees' and stakeholders' satisfaction, community contribution, and revenue growth. MAA has long been committed to CSR and has practiced it both internally and externally.

On 22nd October 2021, MAA donated eighty thousand NT dollars to Ling Jiou Mountain (LJM). Master Hsin Taois the founder of LJM Society, the Museum of World Religions, and the international non-governmental organization, "Global Family for Love and Peace". His beliefs contain a combination of Zen Buddhism, Theravada Buddhism, and Tibetan Buddhism. To spread Master Hsin Tao's value (an integration of education, love, and peace), temples, conference venues, and bodhim are planned to be constructed for this project. MAA provides professional consultancy and development strategies to assist LJM in achieving its overall facility development needs. The services started in July 2019 and ended in December 2020.

MAA received a letter of appreciation for the donation from Ling Jiou Mountain

DR.MOH'S DONATION TO KAMALAN CULTURE FOUNDATION

Kamalan Bus Inc. started Kamalan Culture Foundation on 19th August 2010. The objectives of the foundation are: (1) Scholarship is available for Ilan residents, with the goal of providing 1,00,000 NT dollars annually to benefit local students. (2) To promote Kamalan culture and develop tourism in Ilan. (3) To advance the local arts and cultural industries. Dr. Moh started making donations in 2020 to support low income students. In 2021, he donated 100,000 NT dollars to the foundation.

Dr.Moh (right) received a memento for his donation to Kamalan Culture Foundation from its Chairman Shi-Yi Chen (left)

DR. ZA LEE MOH'S FOUNDATION

Dr. Za Lee Moh, Cofounder of MAA, has established a "Za Lee and Jeannette Moh Endowment Fund" for international students at school of Civil Engineering, Purdue University, West Lafayette, Indiana, U.S.A. Dr. Moh received his M.S. and Ph.D. from Purdue and was awarded an Honorary Doctorate of Engineering in 2011.

PROFESSIONAL **PROFILES**

MAA is pleased to announce and congratulate the following promotions and new hires in 2021.
The list is as follow (in chronological order):

Gwo-Liang Lee	李 國 良	Senior Engineer and Project Manager of Xin Tai Wen Zi Zun Area Construction Management and Supervision
Gwo-Jenn Liu	劉 國 鎮	Associate Principal Engineer and Deputy Chief Engineer of Building & Facilities Group
Song-Tsang Lin	林 松 蒼	Associate Principal Engineer and Manager of Transportation and Civil Engineering Dept.
Chia-Feng Lu	呂 嘉 峰	Associate Principal Engineer and Manager of Structural Engineering Dept.
Chun-Ming Huang	黃 俊 銘	Associate Principal Engineer and Manager of Construction Supervision Dept.
Chung-Ren Chou	周 忠 仁	Associate Principal Engineer and Manager of Geotechnical Engineering Dept.
Ching-Nan Chang	張 慶 南	Associate Principal Engineer and Manager of Electrical & Mechanical System Eng. Dept.
Hou-Chi Chang	張 厚 起	Associate Principal Engineer and Manager of Southern Taiwan Office
Wei-Hsiu Lang	郎 為 秀	Legal & Insurance Deputy Manager
Fang-Ya Hsueh	薛 方 雅	Accountant Section Chief of Financial Dept.
Chi- Yuan Chang	張 基 源	Senior Engineer
Ya-Ling Chang	張 雅 玲	Manager of Financial Dept.
Kuo-Feng Hsu	徐 國 峯	Senior Civil Engineer

Chih-Chien Liu	劉 志 堅	Senior Civil Engineer
Pin-Hsuan Chang	張 秉 軒	Senior Civil Engineer
Sheng-Wen Lin	林 聖 文	Senior Civil Engineer
Sheng-Wen Lin	葉 琳 玲	Senior Structural Engineer
Wen-Chin Chang	張 文 進	Senior Engineer
Wen-Chun Huang	黃 文 俊	Senior Engineer
Hsin-Wen Wang	王 杏 文	Senior Environmental Engineer
Kuo-Cheng Chang	張 國 柾	Senior Environmental Engineer
Yaw-Huang Tsao	曹 耀 黃	Senior Civil Engineer
Kuo-Fu Kuei	桂 國 福	Senior Civil Engineer
Chia-Wei Liu	劉 家 維	Senior Civil Engineer
Chun-Ming Huang	黃 俊 銘	Associate Principal Engineer and Chief Engineer of Engineering Design Group
Chi-Hung Lin	林 志 宏	Senior Engineer and Manager of Construction Supervision Dept.
Guo-Lun Tzeng	曾 國 倫	Senior Engineer and Project Manager of Taoyuan MRT Green Line Construction Supervision
Yuan-Sheng Lin	林 元 生	Senior Engineer and Deputy Manager of Transportation and Civil Engineering Dept.
Mu-Kuei Chang	張 穆 奎	Deputy Chief Engineer of Structural Engineering Dept.

Yuan-Sheng Lin
林 元 生

Yuan-Sheng Lin was promoted to Deputy Manager of Transportation and Civil Engineering Department in October 2021. Mr. Lin received his bachelor's degree in 2000 and master's degree in 2004 in civil engineering from National Central University. He joined MAA in May 2005 and has been active in the young engineers community, taking an active role in several professional societies and organizations. He is the vice chair of The Young Engineering Alliance Committee (YEAC), a professional association under the Chinese Institute of Engineers (CIE). He actively participates in organizing young professionals networking events and creative competitions for college students.

Chi-Hung Lin
林 志 宏

Chi-Hung Lin was promoted to Manager of Construction Supervision Department in October 2021. Mr. Lin graduated from National Taiwan University of Science and Technology in 1988. He joined MAA in 2001 and has been involved in construction supervision and project management for new communities, parks, high buildings, and villas. Major projects he has participated in include HSR Changhua Station and HSR Miaoli Station. In 2014, he was appointed the representative of MAA Myanmar and had been stationed in Myanmar to manage all construction supervision projects. He has Class C qualified Labor Safety and Health Management training and Public Construction Commission Executive Yuan Quality Control certification.

Wei-Hsiu Lang
郎 為 秀

Wei-Hsiu Lang was promoted to Deputy Manager of Legal & Insurance Department in May 2021. Ms. Lang received her master's degree in law from National Chengchi University in 2018 and EMBA from Feng Chia University in 2012. Ms. Lang joined MAA in 2011. Her duty is to provide advice on all legal affairs. She is a certified Quality Control Engineer.

Fang-Ya Hsueh
薛 方 雅

Fang-Ya Hsueh was promoted to Section Chief of Financial Department in May 2021. Ms. Hsueh received her bachelor's degree in accounting from Fu Jen Catholic University in 2001. She joined MAA in 2014.

Ya-Ling Chang
張 雅 玲

Ya-Ling Chang was promoted to Manager of Financial Department in June 2021.Ms.Chang received her EMBA from Tamkang University in 2020. She joined MAA in May 2021. Her duties are to establish and improve the financial management system; control the daily management, capital budgeting, and capital operation of the financial department; construct budget planning for each department; provide financial analysis to the company and solutions to abnormal activities; review the financial statements and review the operation and budget implementation of each department; prepare and manage business tax, complete the tax declaration and annual audit; supervise income, cost, expenses, and examine the receivables and current accounts.

Hsin-Wen Wang
王 杏 文

Hsin-Wen Wang was promoted to Senior Environmental Engineer in July 2021. Ms.Wang received her bachelor's degree in safety and environment engineering from Ming-Chi University of Technology in 2003. She joined MAA in 2006 and has been involved in EIA and environmental monitoring projects. Some of her major projects are: environmental monitoring for the construction of sibao hydropower plant, monitoring of noise and vibration along southern Taiwan high speed rail, environment impact assessment (EIA) on Highway no. Tai 2geng extension project - phase I, and general consultancy and basic for Taichung MRT-environment impact assessment (EIA).

Wen-Chin Chang
張 文 進

Wen-Chin Chang was promoted to Senior Engineer of Engineering Digitalization Department in July 2021. Mr. Chang received his bachelor's degree in civil engineering from National Pingtung Institute of Science & Technology in 1997. He joined MAA in 2005 and has been involved in the following projects:
New Taipei City 2018 3D-smart utilities query and management system implementation, BIM services for Turnkey Project for Taipei Sanying Line, GIS and public utility for Chiayi City, management system development for New Taipei City roadway map data, and engineering project management system deployment and maintenance planning case in Kinmen.

Chia-Wei Liu
劉 家 維

Chia-Wei Liu was promoted to Senior Civil Engineer of Transportation and Civil Engineering Department in July 2021. Mr. Liu received his bachelor's degree in soil and water conservation from National Chung Hsing University in 2003 and master's degree in bioenvironmental systems engineering from National Taiwan University in 2005. The projects he has involved in include design and construction supervision service for urban land consolidation of Guolin District, Taoyuan City, planning, engineering design service for the Yangon Htantabin Technology Park, turnkey project about urban land consolidation of Caota area part in 1st、3rd、6th in Guanyin District, Taoyuan City.

Integrated Solutions For Global Impact

MAA GROUP

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