



THE NEWSLETTER

OF THE ROAD ENGINEERING ASSOCIATION OF ASIA & AUSTRALASIA

Successful 108th and 109th REAAA Governing Council Meetings



Two REAAA Governing Council meetings were held during 2018.

The 108th Governing Council meeting was held on 1st May 2018 in Brisbane, Australia, in conjunction with the 13th Young Engineers and Professionals (YEP) meeting, the 28th Australian Road Research Board (ARRB) International Conference and the 8th PIARC Symposium on Pavement Surface Characteristics (SURF). Several important decisions were made at the meeting and key proposals were adopted, including the update of the REAAA website, collaboration with the International Road Federation (IRF) and the World Road Association (PIARC), preparation for the 2nd Mino Best Project Award, and the establishment of the Hwang Fund Committee. In addition, council members agreed to invite their members to apply for a Master's Program in Infrastructure Planning & Development (MIPD), which is hosted by Ministry of Land, Infrastructure and Transport in Republic of Korea, as well as to support the REAAA Fellowship Program.

The 109th Governing Council Meeting was held on 30th October 2018 at Petaling Jaya, Malaysia, in conjunction with the 14th YEP Meeting, the 10th Malaysian Road Conference and the PIARC International Seminar on Asset Management. Issues addressed at the meeting included preparation for the 110th Governing Council meeting, the revision of the Terms of Reference for the Hwang Fund, the schedule for the 2nd Mino Best Project Award and the rebranding of the REAAA website.

The 110th Governing Council meeting will be held in Taipei, Taiwan, on 9th-12th April 2019 in conjunction with the 15th YEP meeting, the 7th REAAA Business Forum and a technical visit.

It was also proposed at this meeting that the 111th Governing Council Meeting be jointly hosted by the Ministry of Infrastructure Development in UAE and PIARC in conjunction with the 26th World Road Congress and a PIARC/REAAA Joint Seminar, to be held in Abu Dhabi on 6th-10th October 2019.

The Finance Committee sincerely requests that local Chapters and council members help in the reconciliation of current membership and in the collection and remittance of current and overdue membership subscriptions.

Dr Sunghwan Kim
Chair of REAAA Korean Chapter

The Governing Council for the 16th Council Term: 2017-2021

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Prof Dr Wong Shaw Voon (MIROS, Malaysia)



Message from the President

A Happy New Year to all our members.

2019 promises to be an exciting year and I am looking forward to working with you all – both as individuals and as institutional members. The strength of the team is each individual member. The strength of each member is the team.

As REAAA members, we are proud to be an effective regional organisation, providing members with technology interchange and transfer and services to promote a better future in road-related engineering.

REAAA has an excellent history and it has an excellent future. The REAAA Governing Council will work hard to ensure that we remain the centre of excellence and knowledge for the benefit of member countries. As part of that, we will be focussing on a number of initiatives, including:

- Building on the activities identified as being of great value to members, which keep members up to date with the latest developments (both technical and business) and provide opportunities for professional networking.
- Ensuring that we continue to provide the right platforms to meet the needs of existing members and to attract new members, including the Conference and Business Forums.
- Making sure that REAAA remains a viable service to young engineers and professionals.
- Publishing technical reports, the REAAA Journal and the REAAA Newsletter which provide members with the latest information in terms of best practice and knowledge sharing and keeping our website up to date to ensure the efficient distribution of information to all members.
- Reviewing the function and task of each Committee to ensure that they continue to support, and reflect, our increasingly broadening activities – and to ensure that we are in a position to develop new activities.

I am very proud to be in the privileged position leading REAAA in these important tasks and continuing the excellent achievements of previous Presidents. Expanding on this willingness, and helping more institutional members and professionals to profit from it, is the challenge that I have set myself.

I hope you will all join me in looking forwards to the coming year.

On behalf of the Governing Council members and staff, I wish you and your families Happy Holidays and a Prosperous New Year 2019.

Romeo S Momo
President

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10th Malaysia Road Conference 2018 & PIARC International Seminar on Asset Management

The biennial Malaysia Road Conference (MRC), held since 1994, has emerged as the premier national and regional platform for the presentation of research findings, discussion and the exchanging of ideas on cutting-edge technologies relating to the development, construction, management and maintenance of roads, highways and related infrastructure. The MRC is a much sought-after event for industry players in Malaysia involved with the financing, design, construction, management and maintenance of road infrastructure projects.

The 10th MRC and Exhibition was jointly organised by the Ministry of Works, Malaysia, Public Works Department of Malaysia, Malaysia Highway Authority, World Road Association (PIARC) and the Road Engineering Association of Malaysia (REAM) in collaboration with the Construction Industry Development Board, the Malaysia International Road Federation Global and REAAA. The PIARC International Seminar on Asset Management was held under the auspices of PIARC Technical Committee D.1 (Asset Management).

The theme for the 10th MRC was “Global approaches to advance road asset management”. The theme was selected mainly due to the pivotal role of road infrastructure for sustained economic growth and social progress. These assets are costly, not only to build but also to maintain at an optimum operating level to meet the increasing demands of road users. Increases in traffic volumes, the growing population, an aging asset base and the ever-escalating operating and maintenance costs weigh heavily on the existing road network. Against this backdrop, it is imperative to increase the efficiency and longevity of the existing road infrastructure assets.

The 10th MRC was opened by the Minister of Works Malaysia, YB Baru Bian. The President of PIARC, Mr. Claude Van Rooten, also attended and delivered his speech during the opening ceremony. Two awards were announced during the opening ceremony. The Rawang Bypass Project, which was completed in 2017, received the Best Project award for fulfilling most of the award criteria, including the preservation and protection of the environment and the pioneering use of materials and methods of Malaysian origin. A special award was also conferred to the former Director General of the Public Works Department of Malaysia (JKR) and the first President of REAM, Tan Sri Ir Dr Wan Abdul Rahman bin Yaacob. The award honoured his outstanding contribution to the road engineering community in Malaysia from before the establishment of REAM and until today.

Some 99 local and international papers were presented and discussed at the technical and workshop sessions with one special lecture by an international expert each day. Leading practitioners in road engineering, including from the corporate sector and Government officials presented up-to-date, highly relevant and practical information on the increasingly complex road environment. The technical program, which included the PIARC International Seminar papers, was very flexible with a choice of speaking streams or workshop on each day.

The concurrent events that took place during the 10th MRC were the 14th REAAA Young Engineers meeting, the 109th REAAA Governing Council Meeting and the 6th REAAA Business Forum. These events, which were held on 30th October 2018, were hosted by REAM in conjunction with the 10th MRC 2018 and the PIARC International Seminar on Asset Management, which were held from 29th to 31st October 2018.

The President of REAAA, Mr. Romeo S Momo from the Philippines, chaired the Governing Council Meeting. Mr. Claude Van Rooten also attended as PIARC President to discuss the relationship between PIARC and REAAA. A total of 50 REAAA delegates from the Philippines, Japan, Korea, Indonesia, Taiwan and Malaysia attended these events. The 10th MRC 2018 and the PIARC International Seminar on Asset Management were very successful, with about 1,000 delegates attending. The hard work and teamwork from all the members of the organizing committee in making these events so successful is gratefully acknowledged. The Organizing Committee is looking forward to organizing the 11th MRC in 2020.



YB Baru Bian, Minister of Works Malaysia, delivering his opening speech during the opening ceremony of the 10th MRC 2018

Ir Hamzah Hashim
Council member of REAM



6th REAAA Business Forum

The REAAA Business Forum was established to facilitate road sector business-to-business collaborations in road engineering or related sectors and enhance membership of REAAA from business practitioners, institutions or companies.

The vision of the next Business Forum is "to be the center of information of support, facilitation and collaboration among business entities in the road engineering industry between REAAA members and other countries in the region". The mission is "to always encourage and facilitate business-to-business collaboration in the road engineering-related industry, especially in Asia and Australasia".

In order to achieve the vision and mission mentioned above, Business Forums have been conducted since 2014. They are regularly held in conjunction with REAAA Governing Council Meetings or Conferences.

The first three Business Forums were held in Bali in April 2014 (Theme: "Public private partnerships"), Sydney in October 2014 (Theme: "Road technology support and products related to road projects") and Tokyo in November 2016 (Theme: "New technologies on road construction") which included a field visit to the Japan Highway Techno Fair 2016. All of three Business Forums were very successfully held in facilitating business cooperation with about 200 delegates' participation.

The 4th REAAA Business Forum was held in Bali on 23rd March 2017. The theme was "Expanding opportunities for infrastructure investment in developing countries". It featured prominent speakers from many countries. And about 100 delegates attended the Forum.

The 5th REAAA Business Forum was held in Manila, Philippines, on 21st July 2017 to coincide with the 15th REAAA Conference and other associated events, including the 107th Governing Council Meeting. The theme was "Golden era of infrastructure development in Philippines". And about 80 delegates attended the Forum.

The 6th REAAA Business Forum was held in Kuala Lumpur on 30th October 2018. The theme was "Potential partnership for business opportunities in Asia and Australasia". And about 70 delegates attended the Forum.

The program for the 6th Business Forum was as follows:

Opening Remarks:

Datuk Nik Airina Nik Jaffar

Introduction to REAAA Business Forum:

Ms Lydwina Marchiela Wardhani

Keynote Presentation:

Dato' Sri Ir Dr Judin Abdul Karim

Moderator:

Dato' Ir Dr Dennis Ganendra



Speakers:

- Ir. Destiawan Soewardjono M.M
Chairman of International Corporation, Indonesian Road Development Association (IRDA)
- Mr. Atty Arjay Nitural Peralta, Attorney IV
Department of Public Works and Highway Philippines
- Datuk Ir. Hj. Ismail Bin Md Salleh
Chairman of Chartered Institution of Highway and Transportation (CIHT) Malaysia

Hopefully, REAAA Business Forums will be conducted regularly in the future, in line with the continuous growth of the region and assist more collaboration between road-related sector businesses.

The REAAA Business Forum Committee will be formulating a new Business Strategy – including the need for the Business Forum to act as a facilitator or initiator of business opportunities directly related to roads and related investment – for approval by the Governing Council at their next meeting.

The history of the REAAA Business Forums, its vision and mission, as well as information related to the Forums, can be accessed through <http://reaaabusinessforums.org//> and the REAAA website.



01

Opening Remarks



02

Introduction of REAAA Business Forum



03

Key Note Presentation

Nonon Wardhani
REAAA Business Forum Coordinator



Interview with Claude Van Rooten, President of the World Road Association (AIPCR/PIARC)

Claude Van Rooten was elected President of the World Road Association (PIARC) starting from 1st January 2017. He was a member of the Executive Committee from 2005 to 2012 and chair of Communication Commission from 2009 to 2012. He is an honorary member of PIARC since 2013. He attended the 109th REAAA Council Meeting at Petaling Jaya, Malaysia and accepted the request for interview on the spot.

Q1. What brought you to Malaysia this time?

Along with the *109th REAAA Council Meeting*, there are many events held in Malaysia this time. First, I'm here for the *10th Malaysian Road Conference and PIARC International Seminar on Asset Management*. Second, to encourage the participation in the *26th World Road Congress which will be held in Abu Dhabi on October 6th-10th, 2019*.

Since the presidential election in 2017, REAAA invited me many times. And this time, finally I am very glad to fulfill the promise to attend REAAA Council Meeting. Through the meeting, I had a very valuable discussion on the many topics that PIARC and REAAA have in common. It was a great opportunity for me to understand the differences and similarities we have.

Q2. There are many cooperation going on between PIARC and REAAA. Can you explain what are going on and what will be in the future?

There are lots of cooperation works going on between PIARC and REAAA, and we share many member countries. Of course, our organizations are different. REAAA is a regional road organization and has a very close relationship with all its members, and can identify focused topics of immediate relevance. PIARC, as a worldwide organization, can address topics that are important for all road organizations, and can facilitate exchange of best practice between all parts of the world. The important thing between us the quality of cooperation and I can assure you that I am very satisfied. We need *"Collaboration, Cooperation and Complementarity."* In order to achieve these three things, there should be continuous cooperative communication through joint meetings, such as last week in Yokohama, Japan, for the PIARC Council meeting, or this week in Petaling Jaya, Malaysia. I am glad that despite constraints of time and distance, we are able to meet this way. This complement, of course, the extensive work contributed by experts from REAAA member countries to PIARC Technical Committees.

Q3. Can you tell me other regional organizations working with PIARC?

Besides REAAA, PIARC also has active cooperation with all regional road organizations: CEDR in Europe, DIRCAIBEA (Council of Road Directors of Iberia and Ibero America), AGEPAR in French speaking Africa, ASANRA in Southern Africa etc. I think these cooperations are very important and hope to maintain and develop them in the future.

The World Road Association (PIARC) participates actively with other bodies, such as *the International Transport Forum (ITF)* focusing on strategic transport topics. This also indicates that PIARC, which is working on the road sector, is happy to share its ideas and projects with all modes of transport.

Q4. How do you think/evaluate an Asian input to PIARC and PIARC'S input to Asia?

I think the inputs are strong in both ways. In recent years, the role of Asia, such as Malaysia, Japan, South Korea, Australia, China PRC and many others, has notably increased in PIARC. And it is very meaningful and interesting evolution: experts from Asia take part in PIARC Committees, we organize PIARC International seminars in Asia – for example this week, we held a PIARC seminar on Asset Management in the framework of the conference. With the shared goal of balanced and sustainable transport, we should support each other and focus on how to narrow the knowledge gap between countries and regions.

Q5. PIARC has very active Technical Committees. Can you provide some advice for REAAA to facilitate more TC activities?

The World Road Association (PIARC) has worldwide Technical Committees. The most important aspect of TC activity is participation of experts from all Member Countries to ensure good geographic representativeness, open discussions within the Committee and between peers, and focus on objectives such as the preparation of reports. PIARC Committees are very delivery-driven, which is a strength. Through representing their countries, experts can expand opportunity to meet experts and identify value-added outputs, best practices from other parts of the world, that they may then try and adapt for their own needs.

For REAAA, of course it is up to the members of REAAA to decide how they work together and how they want to set up REAAA own committees. As a rule, it seems to me that good geographic representativeness within Committees is essential.

As I mentioned earlier, PIARC is happy to work with REAAA, so as to reflect Asian needs and projects fully in the work of our PIARC Committees. This complementarity between our organizations is important, it should be based on a good understanding of regional and local conditions as well as work of high quality.

Q6. What makes a good road?

Any road begins with sub-grade work. If it has wrong sub-grade work, the road will not be okay. In order to make good road, it is very important to study current and future traffic, weather and terrain conditions and identify good funding mechanisms.

Second, road maintenance should be planned right from the start of every project, processes put in place and budgets planned for that. Every day, articles in the press remind us of the importance of road asset management and how to prepare for aging road infrastructure repair.

Q7. Any final comments for REAAA members?

The REAAA Meeting was very friendly and the long day felt short. I was glad to hear that it is planned to hold the 111th REAAA Council Meeting with the 26th World Road Congress in Abu Dhabi. The World Road Congress is an excellent opportunity, as we will present there the conclusion work of our technical committees during the 2016-2019 cycle, and will discuss the details of report contents, Q&As, with Special Strategic Sessions as well as Ministers Session. We encourage participation from everyone interested in roads and transport, national road authorities, road operators, engineering and construction companies from the private sector, research institutes etc.

I wish that all members of REAAA will join us in Abu Dhabi to develop a meaningful and fruitful partnership through the World Road Congress.

IO Song
REAAA Korean Chapter/Korea Road Association



13TH Meeting of REAAA Young Engineers & Professionals

The 13th REAAA YEP meeting was held in Brisbane, Australia, in conjunction with the 108th REAAA Governing Council Meeting, the 28th ARRB Conference and the 8th Symposium on Pavement Surface Characteristics (SURF2018). The 13th edition of the meeting has continued to welcome its current members and new members from Japan, Mr. Koki Mizuhashi, from ARRB itself, Mr. Andrew Beecroft, Mr. Richard Moh and Prof. Yu-Min Su from Taiwan and Mr. Howie Gan representing IRF.

The core members that still contribute towards the meeting are Dr. Jason Ni from Taiwan, Ir Hamzah Hashim from Malaysia, Mr. Insoo Yeo from Korea and Mr. Raymond Delos Santos from Philippines. There was also a new observer from Brunei, Mr. Rafitra Razak, who was attending for the first time. The meeting also welcoming Mr. Garry McGraw from the REAAA New Zealand Chapter.

The most interesting issue discussed at the meeting was the REAAA annual subscription fee. It was agreed that the fee was needed to sustain an organization like REAAA and its local Chapters. REAAA need its members to commit to organising activities in response to member' requests.

The meeting ended with three technical presentations by Mr. Andre Beecroft from Australia, Mr. Koki Mizuhashi from Japan and Mr. Insoo Yeo from Korea. After the meeting has been adjourned, Mr. Kieran Sharp and Mr. Andrew Beecroft organized a tour of the ARRB Queensland office.

The REAAA YEPs wish to thank the Council Members, Dr. Koji Kuroda and Mr. Kieran Sharp, who attended the meeting to show their support of the YEPs. The YEPs also thank the Secretariat, Mdm Zahila, for her work in ensuring REAAA YEP meeting take place.

See you all at 14th REAAA YEP meeting!!

Ir Hamzah Hashim
Council member of REAM



14TH Meeting of REAAA Young Engineers & Professionals

The 14th REAAA YEP Meeting was held in Kuala Lumpur on 30th October 2018. It is been held together with the 109th REAAA Governing Council Meeting. Road Engineering Association of Malaysia (REAM) YEP is proud to host the event. This meeting was held in conjunction with the 10th Malaysia Road Conference 2018 and the PIARC International Seminar on Asset Management.

The 14th edition of the meeting welcome REAAA members from Korea, Philippines, Indonesia, Taiwan and the host country Malaysia. There were also representative from Brunei and Japan. Dr. Koji Kuroda and Mr. Katsuji Hashiba also attended as Council Representatives.

The meeting has discussed two important agendas to be brought to Council Member. First, YEP has discussed and agreed to establish a YEP member database for each country. Each country would have database member in different medium according to each organization constitution. The second agenda item was that the next YEP meeting will take place in Taiwan. Taiwan representatives are planning a special YEP event during the 15 th YEP Meeting and 110 th Governing Council Meeting in Taipei.

The REAAA YEPs wish to thank the attendees for their support towards YEP. YEP also would like to thank the REAAA Secretariat Mdm Zahila for ensuring that the meeting took place.

See you in Taipei 2019!!

Ir Hamzah Hashim
Council member of REAM

Updates on Hwang Fund

The Hwang Fund was established in 2018 by Mr. Kwang-Ung Hwang who is an Honorary Member of the Association and Chairman of Kunhwa Engineering & Consulting in Republic of Korea. Mr. Kwang-Ung Hwang endorsed KRW 100,000,000 to REAAA to encourage the participation of young engineers as well as to strengthen the international road engineering network.

General information on the fund - including the revised Terms of Reference and the organization of the Hwang Fund Committee - was presented at the 109th Governing Council Meeting at Petaling Jaya, Malaysia, by a representative of the Korean Chapter.

After approval of the Terms of References at the 109th Council Meeting, the Hwang Fund Committee will be set up to establish the criteria, call for nominations and judge the entries for the Hwang Fund award. A request of organizing Hwang Fund Committee will be sent to each National Chapter to confirm the members of Hwang Fund Committee before the 110th Council Meeting.

And tentative schedule for the very first Hwang Fund Award is as follows:

2018	October	109th CM – Presentation of the tentative schedule
2019	110th CM	110th CM – Endorsement of the Committee Members
	111th CM	Approval of application documents and judgement rule
2020	January	Call for nomination
	July	Deadline of nomination
	October	Selection of winner
	4th quarter	113th CM – Endorsement of awardee
2021	2nd quarter	16th REAAA Conference – Hwang Fund Award Ceremony

Bona Hong
REAAA Korean Chapter/Korea Road Association

REAAA FELLOWSHIP PROGRAM

At the 103rd REAAA Council Meeting, held in Dubai in March 2016, it was agreed that REAAA would establish a Fellowship Program. The objective of the program is to provide financial support to REAAA members from developing countries to attend REAAA events as a speaker.

Benefits

- Development Investment - Industry development investment in the Fellowship Program provides a powerful stimulus for the advancement of the road industry in the region. Companies that compete for business in the region will be among the beneficiaries.
- Tomorrow's Leadership - An investment in the REAAA Fellowship Program ensures that the best and keenest young professionals are supported in their ambitions to become tomorrow's industry leaders.
- Corporate Philanthropy - Many corporate leaders are motivated to support education as a long-term investment in human capital.

Networking Potential

With rapid globalization, the world is getting smaller and companies need to think globally in terms of their responsibilities and opportunities. As a supporter of the REAAA Fellowship Program, companies have an opportunity to develop long-term personal and professional relationships with young industry professionals who will one day be key industry representatives.

The following recent events have been attended by participants in the REAAA Fellowship Program.

1. The 2nd IRF Asia Regional Congress & Exhibition in Kuala Lumpur, Malaysia, held from 16th-20th October 2016. The Fellow from Cambodia has sponsored by Minconsult Sdn Bhd.
2. The 15th REAAA Conference in Bali, Indonesia held from 22nd-24th March 2017. The fellows from Vietnam and Mongolia were sponsored by Japan Road Association, while the 4th REAAA Business Forum sponsored the fellows from Bangladesh and Pakistan.
3. The 5th REAAA Business Forum in Manila, Philippines, held from 19th-20th July 2017. REAP sponsored the speaker from Myanmar.

Sponsorship

REAAA is seeking contributions of US\$2,000-\$3,000 for each Fellowship from:

- The organisers of Conferences
- Companies which are willing to sponsor members to attend conferences.

Organizations interested in sponsoring Fellows to attend REAAA events should contact the REAAA Secretariat (exec.sec@reaaa.net) for further information.

Eligibility and Criteria

All REAAA members who are currently employed in the roads industry in the region are eligible to apply for a Fellowship. Financial assistance of US\$2,000-\$3,000 will be provided to meet travel and accommodation costs. The criteria for the provision of financial support for attendance at these events are as follows.

- Applicants must confirm their attendance at the event for which they are being sponsored.
- Applicants must confirm that they are giving a presentation at one of the technical sessions or a specialist event such as a workshop or business forum.
- Financial support will be provided on a 'first come-first-serve' basis.

Members wishing to be considered for an REAAA Fellowship should contact the REAAA Secretariat (exec.sec@reaaa.net) and submit:

- A short CV
- Which conference/event the applicant is applying for support
- A letter from the conference/event organizer confirming that the applicant's paper has been accepted for presentation or a letter inviting participation in a workshop or similar event.

Ir Dr Dennis Ganendra
Malaysia

News from the REAAA Technical Committee

REAAA Technical Report TC-10 – Report on FEHRL scanning tour to South Korea and Japan: infrastructure resilience – has recently been lodged on the REAAA website and is available for access by members.

It had previously been agreed that REAAA would no longer chase refereed papers for formal publication in the REAAA Journal because of the lack of resources and the large time delays that can arise whilst trying to assemble a sufficient number of papers to warrant publication. It was agreed at the 108th Governing Council meeting that one approach was to decide on a theme and then invite papers to be submitted which addressed that theme. As a result, members of the Technical Committee have been asked to nominate themes which could be addressed in future issues of the REAAA Journal.

The Technical Committee is in the process of setting-up the following three technical Sub-committees:

- Pavement technology – to be led by Japan
- Climate change resilience and emergency management – to be led by Australia
- Road safety – to be led by Malaysia.

The Terms of Reference (ToR) for the Pavement Technology and the Climate Change Resilience and Emergency Management Committees have been approved by the REAAA Governing Council, whilst the ToR for the Road Safety Committee is currently being finalised. All but one country has nominated members for the Pavement Technology Committee whilst membership of the Climate Change Resilience Committee is being sought so work can proceed as soon as possible.

A feature of these committees is the link to relevant PIARC Committees. Many of the tasks to be performed by the REAAA committees have been deliberately tied in to the tasks being conducted by the PIARC committees. At the same time, other issues are being identified which are of specific interest to the region whilst not necessarily being of major interest to PIARC countries. The advantage of this is that countries in the region which are not currently members of PIARC will have access to the work being conducted by the PIARC committees (and vice versa).

The ToRs will also take account of the fact that the current PIARC cycle is drawing to a close and a new PIARC Strategic Plan 2020-2023 is currently being developed. Work to be conducted by the REAAA committees will take account of the new PIARC Strategic Plan. The Technical Committee was invited to input into the new PIARC Strategic Plan, a reflection of the closer ties being established between the two associations.

Kieran Sharp
Chair, REAAA Technical Committee

In Memorium

We are sad to inform you of the passing of Mr. Garry John McGraw, who passed away on 4th June 2018. Mr. McGraw had been a member of REAAA since 2016. He was a member of the REAAA New Zealand Chapter and Northland Transport. He attended the 108th REAAA Governing Council Meeting in Brisbane in May. His passing is a great loss to REAAA and the REAAA New Zealand Chapter.

We are also sad to inform you of the passing of Ir. Hedyanto W Husaini, who passed away on 25th May 2018. Ir. Husaini had been a member of REAAA since 2011. He was the REAAA Council member representing the Directorate of Public & Highway of the Republic of Indonesia from 2016 until 2017 and the IRDA since 2017. He was the Chairman of IRDA. His passing is a great loss to REAAA and the REAAA Indonesia Chapter.

We pass on our regrets to both families. May they rest in peace.

Romeo S Momo
President

Development & Globalization of the Korean Warm-Mix Asphalt Technology

1. Introduction

The recent global climate changes, such as global warming and temperature anomalies, have caused environmental problems to become an issue with significant social interests. After realizing the significance of climate change through scientific verifications, countries around the world signed the United Nations Framework Convention on Climate Change treaty in 1992 in Rio de Janeiro and ratified the Kyoto Protocol at the Third Session of the Conference of Parties to the UNFCCC (COP3) in 1997 in Kyoto, Japan. As for the follow-on activities, countries introduced policies such as the emissions trading scheme, the joint implementations, and the clean development mechanism to reduce carbon dioxide emissions. The emissions trading scheme is widely exercised in Europe, impacting the economic effects with more than 1 trillion KRW of trading volumes. In addition, 195 countries, including the United States and China, signed the Paris Convention on Climate Change in 2015, and are continuously making the necessary efforts to keep the average global temperature rise to a level that is considerably lower than 2°C.

To address the issue, the asphalt pavement industry developed an environment-friendly pavement construction method called Warm-Mix Asphalt (WMA) technology, which has been implemented in construction sites throughout Europe and the U.S. There are more than 30 types of warm-mix asphalt technologies developed and commercialized around the world.

In South Korea, the Korea Institute of Civil Engineering and Building Technology, hereinafter KICT, initiated and focused on expanding the implementation of the WMA technology in 2009. Due to the effort, there are over 320km of road construction that used the WMA technology in 2015. In addition, the Korean WMA technology has been recognized in 13 countries including the United States, Europe, and Japan, as well as Mongolia and Indonesia throughout the field trials. This article describes the status of developing Korean WMA technology and implementing its expansion overseas.



2. Korean Warm-Mix Asphalt Pavement Technology

The WMA technology is an eco-friendly process that reduces energy consumption and emissions by lowering the production and construction temperatures of asphalt mixture compared to general hot-mix asphalt (HMA) technology. Figure 1 compares the production and construction temperatures of hot-mix and warm-mix asphalt pavements; the WMA pavement process can be done at a temperature approximately 30°C lower than that of the hot-mix asphalt pavement process. Lowering the production and construction temperatures by 30°C has many benefits, including reduced fuel cost to heat the materials and reduced emissions during asphalt mixture production, while improving the compaction of asphalt mixture during winter seasons and reducing traffic opening time after the completion of pavement construction.

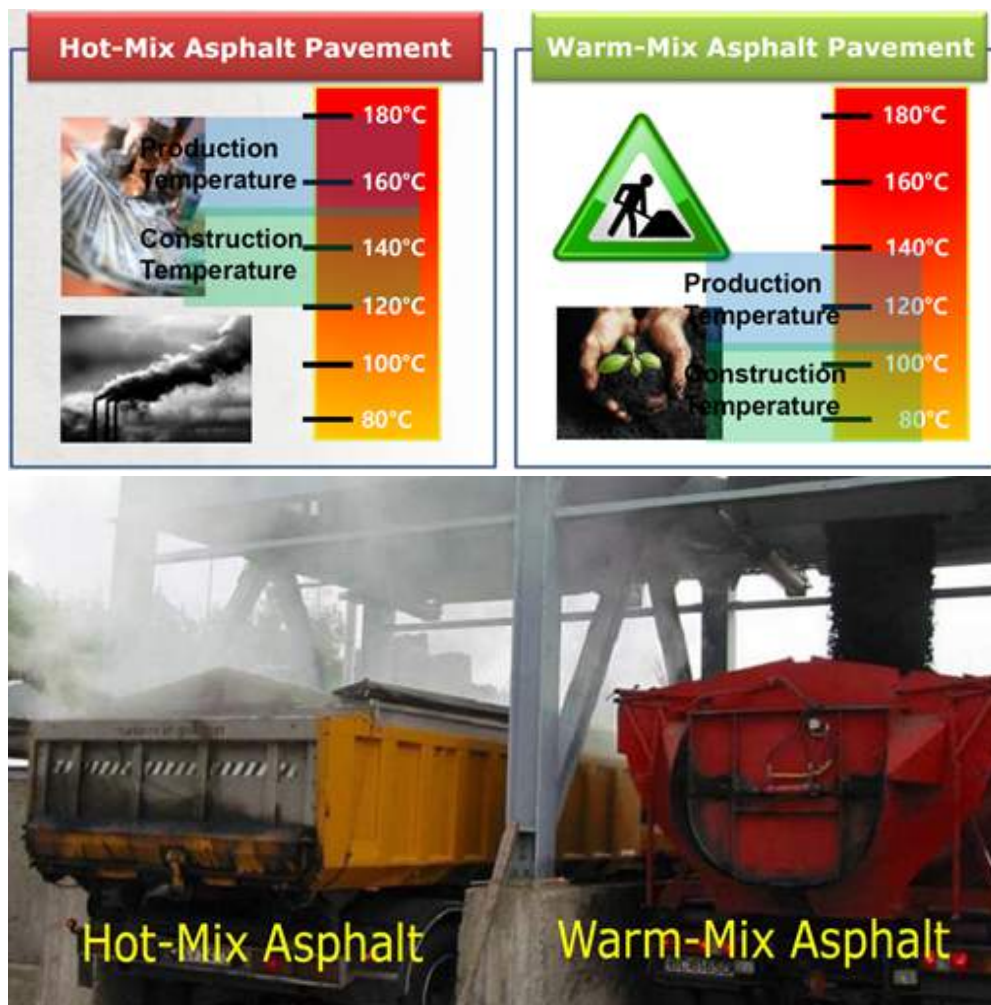


Figure 1. Comparisons of production and construction temperatures of both warm-mix and hot-mix asphalt technologies

In Korea, to adapt to the current trend of developing WMA technology, the research to localize the WMA technology, which can reduce energy consumption and emission, began in 2009. As a result, Korea has a world-class core technology for various WMA processes.

As shown in Figure 2, the WMA developed in Korea is a wax-based additive type technology that enables the production and construction of asphalt mixtures even at temperatures 30°C lower than the conventional HMA technology by decreasing the viscosity of the asphalt binder. In addition, an anti-stripping agent is added to increase moisture resistance. Furthermore, because the wax-based additive has a weak point for the low-temperature cracking due to crystallization, it includes a crystal controller to compensate for such an occurrence.



Figure 2. Composition of Korean warm-mix asphalt technology

Currently, WMA technology, which is commercially available all over the globe, has been developed to be applicable to dense-grade asphalt pavement and has a limited use in special asphalt pavements. To overcome such limitation, the WMA developed in Korea is designed to be used in various functional asphalt pavements. Figure 3 shows the five types of WMA additives that KICT has developed. These are LEADCAP technology to be used for general dense-grade asphalt pavement; SMACAP technology to be used for Stone Mastic Asphalt (SMA) pavement; RAPCAP technology to be used for recycled asphalt pavement; HiPERCAP technology to be used for either permeable or airport runway pavement; liquid ENOVA technology that improves the moisture resistance in common dense-grade asphalt pavement.

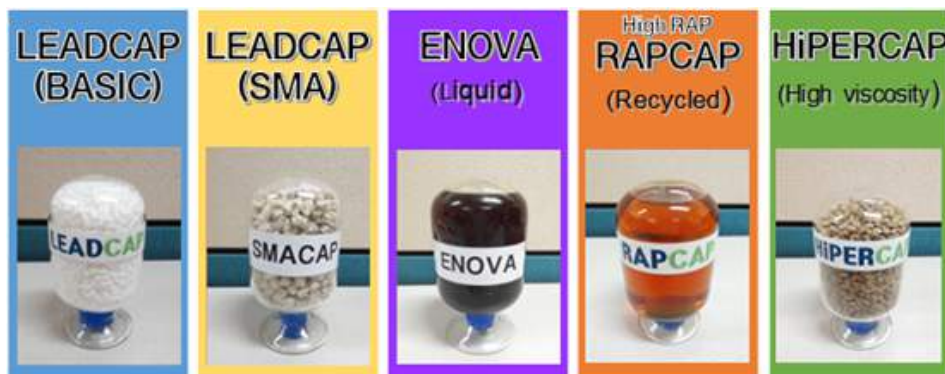


Figure 3. Five different types of Korean warm-mix asphalt technology

The developed Korean WMA technology has lower dosage ratio to help with economics when compared to similar technologies, as shown in Figure 4. It is also proven that the technology increases the resistance to moistures, and the efficacy of the technology does not degrade when used with a recycled asphalt mixture.

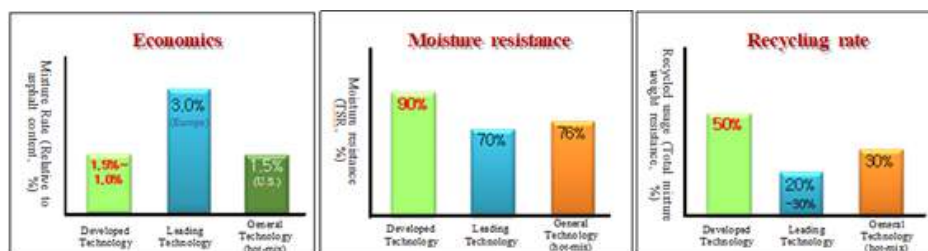


Figure 4. Comparisons of Korean WMA technology to other technologies in economics, moisture resistance and recycling rate

3. Globalization of the Korean WMA Technology

As described above, the Korean WMA technology has the effect of lowering the working temperature, increasing the moisture resistance, and the crack resistance, and these benefits are drawing considerable attention from numerous countries, including the U.S. and Japan. Since 2010, the technology has been validated in eight countries in the field trial sections. More recently, customized WMA technologies were developed in conjunction with government research organizations from Mongolia and Indonesia to incorporate the local weather and traffic conditions to optimize the technology.



Figure 5. Overseas applications of the Korean WMA

Developing countries are significantly investing the budget in road construction to promote regional economic exchanges and improve the quality of pavement performance life. However, the rapid increase in the number of vehicles and the lack of pavement technology cause premature damage to the asphalt pavements.

In Indonesia, about 96% of all roads are paved with asphalt pavement, and the rainy season, which lasts for nearly six months per year, plus overloaded vehicles and increased traffic volume, cause early deformation, potholes, and aggregate stripping from asphalt pavements. Additionally, asphalt plants in Indonesia are not distributed evenly, causing problems with maintaining the correct temperature of the asphalt mixture while transporting. Low temperature of the asphalt mixtures during construction causes lower compaction rate, which then causes premature damage to the asphalt pavements.

In Mongolia, about 98% of all roads are paved by asphalt pavements. As Mongolia experiences freezing temperatures for five months per year, the low-temperature cracking is caused by the overloaded vehicles combined with the environmental load. In addition, since the winter season is relatively long, only 4 to 5 months are available to build asphalt pavements during the year, which is a serious obstacle to expand road construction.

Considering the local conditions, KICT combined polymer-modified asphalt (PMA) and WMA (PWMA) technologies, to develop the PWMA technology, that meets various local conditions that impact the performance and service life of pavements of Mongolia and Indonesia. The PWMA technology was used to build the trial sections in both countries.

In Indonesia, KICT applied PWMA technology to Subang and Jatibarang in West Java, and it has been operating without any defect after three years.



Figure 6.(a) Indonesia PMA section



Figure 6.(b) Korea PWMA section

In Mongolia, the PWMA technology was applied to the outskirts of Ulaanbaatar City and the new port area of Nubia and proved its superiority, by the absence of low temperature cracking and deformation during the two years of service.



Figure 7. Survey of the field trials section in Ulaanbaatar City

In addition, the WMA technology has been introduced to the Vietnamese Ministry of Transport, "Project for Optimization of Warm-mix Asphalt Technology Used for Vietnamese Road" has been promoted as an Official Development Assistance (ODA) project through cooperation with the Directorate for Roads of Vietnam (DRVN). The ODA project is to optimize Korean WMA technology with the aim of optimizing Vietnamese roads by considering Vietnam's climate and traffic conditions. The project duration will be from August 2018 to December 2020.



4. Conclusion

Warm-mix Asphalt Technology is globally known as an eco-friendly pavement method that can reduce emissions and is being applied actively in advanced countries such as the U.S. and Europe. Korea is also investing in the policy changes and research to stimulate the development and implementation of WMA technology. The superiority of the Korean WMA technology has been applied and proven in both advanced and developing countries, including the U.S., Japan, European countries, Indonesia, and Mongolia. The recent ODA project with Vietnam is another evidence of the globalization of the Korean WMA technology. In the future, the continued promotion of the Korean WMA technology and the New Southern and Northern Policies of the Korean Government will help the technology to expand its footprint in developing countries.

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&

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110th REAAA Council Meeting 7th Business Forum

*Smart, Sustainable and Resilient Roads
with Future Engineer Leadership*

15th REAAA Young Engineers & Professionals Meeting REAAA Technical Committee Meeting

*9th April 2019 to 13th April 2019
Taipei, Taiwan*

Save the Dates

Welcome to Taipei



The China Road Federation (CRF) of the Republic of China (Taiwan) is pleased to host the 110th REAAA Council Meeting, to be held in Taipei from 9th-13th April 2019. The meeting will be held in conjunction with the 7th Business Forum (with the theme of “Smart, Sustainable and Resilient Roads with Future Engineer Leadership”), the 15th Young Engineers and Professionals (YEP) Meeting and the REAAA Technical Committee meeting.

The China Road Federation is a professional organization with an international orientation. It is a non-profit NGO. Its origins can be traced back to 1960, when the Taiwan transportation community commenced the planning and organization of a national organization affiliated to the IRF. The CRF was formally established on 20th March 1961, and it became a member of REAAA in 1973. From the very beginning, the organization was committed to facilitating and enhancing the quality and safety of the nation's roadways through construction and maintenance projects, as well as management of the roadway transportation network – both for the sake of the sustainable development of the nation's roadways and as a first step becoming part of the international roads community.

Roads and highways form the circulatory system of economic development. For more than 50 years, the CRF has taken a leading role in the sharing and exchange of the latest domestic and foreign engineering knowledge and experience, and in cultivating many leading professionals in related fields who then went on to involve themselves in road construction and transportation projects. A comprehensive island-wide road network and a green and safe intelligent transportation system were thus gradually formed. The CRF has not only helped to elevate the nation's transportation infrastructure and software to a world-class level, but also it has joined advanced industrial nations in moving toward energy savings, carbon-emissions reduction, ecological preservation and the adoption of techniques and technologies on the international cutting edge. While promoting economic development, the CRF is also doing its part for the environment.

In addition, because the CRF is active in international road and highway organizations, it has – among institutions connected to roadways and transportation in Taiwan – become an important platform for expanding into international markets. It is thus playing a key role as a mover and shaker. What is more, the contributions that the CRF has made in elevating the quality of the nation's roads have been recognized and affirmed by the international community. This includes the Hsuehshan (Snow Mountain) Tunnel, the 5th longest road tunnel in the world when constructed in 2006: it stretches 13 km from Taipei to Ilan. The Fushing North Road under Song Shan Airport in Taipei, which opened in 2005, was the first tunnel constructed in the world that was directly under the take-off and landing apron. More recently, the Ministry of Transportation and Communication's Taiwan Area National Freeway Bureau's “Program for Transition to Electronic Distance-based Toll Collection on Taiwan's Freeways” was selected by the International Bridge, Tunnel and Turnpike Association (IBTTA) for its 2015 Toll Excellence Award in the category of “Customer Service & Marketing Outreach.” The multilane free-flow Taiwan electronic toll system subsequently won multiple international awards in 2017. Finally, the National Freeway No. 1 Widening Project from Wugu to Yangmei won the IRF 2015 Global Road Achievement Award (GRAA) for design.

China Road Federation (CRF)



Calendar of seminars, conferences, workshops and meetings of the Association: 2019

The programme is updated according to the decisions taken.

Date	Event	Place	Domain	Type
1-4 April	International Seminar on Bridges	Kuala Lumpur (Malaysia)	Road Bridges (PIARC CT D.3)	PIARC Seminar
9-13 April	7th REAAA Business Forum 15th YEP Meeting 110th REAAA Governing Council meeting	Taipei (Taiwan)	REAAA	Governing Council Meeting
23-27 April	International Seminar "Safer Roads by Infrastructure Design and Operation" <u>First announcement of the Seminar</u>	Kuala Lumpur (Malaysia)	Road Safety (PIARC CT C.2)	PIARC Seminar
6-10 October	8th REAAA Business Forum 16th YEP Meeting 111th REAAA Governing Council meeting	Abu Dhabi (United Arab Emirates)	REAAA	Governing Council Meeting
6-10 October	<u>26th World Road Congress</u>	Abu Dhabi (United Arab Emirates)	Road policies, Environment, Economic studies, Financing of road systems, Governance of road authorities, Planning, Risk management, Project management, Road safety, Road network operations, Road pavements, Urban Mobility, Freight transport, Design of inter-urban roads, Road assets management, Rural roads, Road bridges, Road earthworks, Road tunnel operations, Terminology	PIARC Congress

Zalilawati Latif
REAAA Secretariat



Dato' Sri Ir. Dr. Judin Bin Abdul Karim CIDB Fellowship Award 2018

REAAA would like to congratulate Dato' Sri Ir. Dr. Judin Bin Abdul Karim, Past President of REAAA, for being conferred the prestigious Construction Industry Development Board Malaysia Fellowship Award 2018 on November 2 2018 in Kuala Lumpur. This award is in recognition for industry role models, key figures and stakeholders who played an active role and contributed to the development and improvement of the construction sector in the past 20 years and in line with the construction industry transformation programme 2016 – 2020 (CITP).

Dato' Sri Ir. Dr. Judin Bin Abdul Karim (P.Eng, FIEM, FIStructE, FSc, Accredited Checker, ACPE) is a highly respected corporate figure who has headed a long list of respected companies and government bodies in Malaysia.

Dato' Sri Ir. Dr. Judin is currently the Executive Vice President Special Projects of Malaysian Resources Corporation Berhad (MRCB) and the Chairman of MRCB Builders Sdn Bhd, which is one of Malaysia's largest construction companies, as well as MRCB-George Kent Sdn Bhd. The latter has been appointed as the Project Delivery Partner for the Light Rail Transit (LRT) 3 project in Malaysia.

He also holds the position of Chairman in CIDB Holdings Sdn Bhd.

[Updates on REAAA member's activities]

BANDAR SERI BEGAWAN, Thursday, August 9.

In honor of the order of His Majesty, the Sultan of Brunei Darussalam, hereby be informed that His Majesty the Sultan of Brunei Darussalam has conferred the Order of Appointment to the Director General, Public Works Department, Ministry of Development, Mr. Haji Amer Hishamuddin bin Pehin Orang Kaya Amar Pahlawan Dato Seri Setia Awang Haji Zakaria appointed to be a Permanent Secretary at the Ministry of Development, Brunei Darussalam. The date of appointment takes effect from Friday, 10th August 2018.

Mr. Haji Amer Hishamuddin has been the Council Member of REAAA, representing Public Works Department, Brunei Darussalam since 2017. He has been actively supporting REAAA since 2011.

2018 REAAA NZ Chapter Roadshow

The theme of the 2018 REAAA New Zealand Chapter Roadshow was “The Transportation Transformation” and the presentations were very well received at the five venues. The seminars commenced in Auckland on 15th August and finished in Dunedin on 21st August.

In 2018, the \$300 cash prize for the winners of the Young Presenter Competition was kindly sponsored by the local Engineering NZ branches at Waikato and Canterbury. The winners were:

Nikhil Vishwanath, Road Science – Auckland seminar

Ann-Elise Reynolds, Whakatane District Council – Rotorua seminar

Zane Davidson, WSP Opus – Wellington seminar

Andrew Bradfield, WSP Opus – Christchurch seminar.

The presentation from international speaker, Koorosh Olyai – “From integrated corridor management (ICM) to integrated journey management (IJM) and successful connected automated vehicles (CAV)” – was a highlight with one attendee noting the roadshow was “very relevant and targeted to the future – most enjoyable and informative”.

It is generally accepted that the Roadshow provides great networking opportunities and brings clients, contractors and consultants together under the one roof. This makes a great forum for the exchange of information and innovative ideas.

Lisa Pallister
Secretary of REAAA New Zealand Chapter

REAAA WELCOMES NEW MEMBERS

The membership of REAAA as at 16 October 2018 was 1,417. The REAAA Council and Chapters have approved the following 192 new members for the period between from 01 July 2017 to 16 October 2018.

Institutional	15
Life	33
Ordinary	144
Total	192

The List of new members approved at 109th REAAA Council Meeting in Sunway Pyramid Convention Centre, Petaling Jaya Selangor, Malaysia on 30 October 2018 is as follow:

Institutional Members

1. Broadspectrum	New Zealand
2. Gore District Council	New Zealand
3. Wairoa District Council	New Zealand
4. Whakatane District Council	New Zealand
5. PT Jakarta Tollroad Development	Indonesia
6. PT. Waskita Karya (Persero) Tbk	Indonesia
7. PT. Wijaya Karya Beton, Tbk	Indonesia
8. PT Adhi Persada Beton	Indonesia
9. PT. Wijaya Karya Serang Panimbang	Indonesia
10. PT. Adhi Karya (Persero) Tbk	Indonesia

Life Members

1. Leonel D. Ceniza	Philippines
2. Robert P. Calma	Philippines
3. Anna Marie L. Tayag	Philippines

Status Changed from Ordinary to Life

1. John Stuart Yerrell	United Kingdom
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Ordinary Members

1. Ir. Awang Abdul Halim Faisal	Malaysia
2. Ismail Saad	Malaysia
3. Muhd Yusrizan Mohd Yusof	Malaysia
4. Abdul Razak Abdul Latip	Malaysia
5. Ts. Muhd Erwan Bin Sanik	Malaysia
6. Akira Iwashita	Japan
7. Tsuyoshi Yamajyuku	Japan
8. Tomohiko Nakamura	Japan
9. Hiroshi Nakashima	Japan
10. Ryouji Takeuchi	Japan
11. Kausei Fujikawa	Japan
12. Mitsunori Mizuishi	Japan
13. Anthony Gourley	Japan

14.	Yutaka Yamahana	Japan
15.	Toru Harita	Japan
16.	Yousef I.F Abujubba	Palestine
17.	Ting Lee Yung	Malaysia
18.	Ir. Abdul Halim Mohd Ghazali	Malaysia
19.	Narayanan Raju	Malaysia
20.	Katherine Chuo Sheau Ning	Malaysia
21.	Cheong Sin Soon	Malaysia
22.	Thirunavukarasu a/l Munusamy	Malaysia
23.	Roziawati Razali	Malaysia
24.	Ghazali Ismail	Malaysia
25.	David Inwood	New Zealand
26.	Nick Schilov	New Zealand
27.	Samuel Poole	New Zealand
28.	Jake Saathof	New Zealand
29.	Matthew Williams	New Zealand
30.	Keith Larson	New Zealand
31.	Ir Seow Wui Giap	Malaysia
32.	Sanjay Grover	India
33.	Stephanie Davy	Australia
34.	Danielle Berry	Australia
35.	Dr. Jenny Trochez	Australia
36.	Samantha Taylor	Australia
37.	Dr. James Grenfell	Australia
38.	Dr. Anna Chevalier	Australia
39.	Selena Ledger	Australia
40.	Graeme Kashmer	Australia
41.	Varshan Ratnanathan	Australia
42.	Francois Finette	Australia
43.	Dr. Elsabe Van Aswegen	Australia
44.	Zia Rice	Australia
45.	Survati Patel	Australia
46.	Lincoln Latter	Australia
47.	Matthew Bereni	Australia
48.	Dr. Jeffrey Lee	Australia
49.	Joe Grobler	Australia
50.	Dr. Hanson Ngo	Australia
51.	Graeme Chalmers	Australia
52.	David Milling	Australia
53.	Georgina Steer	Australia
54.	Scott Young	Australia
55.	Hamdi Namim	Indonesia
56.	Najib Faizal	Indonesia
57.	Agita Widjajanto	Indonesia
58.	Brawijaya	Indonesia
59.	Wida Nurfaida	Indonesia
60.	Rien Marlia	Indonesia
61.	Rahman Taufik	Indonesia
62.	Atyanto Busono	Indonesia
63.	Sasa	Indonesia
64.	Reiza Setiawan	Indonesia
65.	Hardi Siahaan	Indonesia
66.	Hari Suko	Indonesia
67.	Sjofva Rosliansyah	Indonesia
68.	Panji Krisnawardana	Indonesia

69.	Bambang Nurhadi	Indonesia
70.	Monang Saut Pasaribu	Indonesia
71.	Raditya Munggaran	Indonesia
72.	Saga Hayu Suyanto Putra	Indonesia
73.	Dias August Surya Putra	Indonesia
74.	Haning Pangastuty	Indonesia
75.	Florysco Partogi Siahaan	Indonesia
76.	Roy Ardian Darwis	Indonesia
77.	Rudy Hardiansyah	Indonesia
78.	Nixon Sitorus	Indonesia
79.	Vera Kirana	Indonesia
80.	Dominicus Hari Pratama	Indonesia
81.	Adi Prasetyanto	Indonesia
82.	Denny Abdurachman	Indonesia

List of Reinstated Members

1.	Main Roads WA	Australia
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Ordinary Members

1.	Azman Atan	Malaysia
2.	Mohd Aminudin Md Amin	Malaysia
3.	Ting Kee Yuh	Malaysia

The List of new members approved at 108th REAAA Council Meeting in Brisbane, Australia on 01 May 2018 is as follow:

Institutional Members

1.	Dynatest Asia Pacific Sdn Bhd	Malaysia
2.	Queenstown Lakes District Council	New Zealand

Life Members

1.	Melquaides Jacinto	Philippines
2.	Ferdinand Briones	Philippines
3.	Sinclair Lucero	Philippines
4.	Haydee Alunan	Philippines
5.	Marjorie G. Dino	Philippines
6.	Lorna S. Gana	Philippines
7.	Glenn Degal	Philippines
8.	Paz Adlawan	Philippines
9.	Helen Grace Yap	Philippines
10.	Leslie Anthony Molina	Philippines
11.	Johmie S. Torrenueva	Philippines
12.	Martin Junboy Tan	Philippines
13.	Raquez Sumayo	Philippines
14.	Ramon O. Martin	Philippines
15.	Roland Rainier Victorino	Philippines
16.	Perlita A. Salvador	Philippines
17.	Roderick A. Andal	Philippines
18.	Nenita R. Jimenez	Philippines
19.	Rolando M. Romero	Philippines

(Status changed from Ordinary to Life)

1.	Angelina C. Forcadilla	Philippines
2.	Norlela Binti Ismail	Malaysia
3.	Ir Abd Rashid Bin Daud	Malaysia
4.	Surain Kanaparan	Malaysia
5.	Imran Azim Bin Azharuddin	Malaysia
6.	MA Loida F. Bernabe	Philippines
7.	Choi Hyun-Ho	Korea
8.	Ir. Dr. Tee Horng Hean	Malaysia
9.	Ir. Raha Abd Rahman	Malaysia
10.	Ir. Meor Othman Bin Hamzah	Malaysia

Ordinary Members

1.	Syaiful Akhtar Mohd Dzukri	Malaysia
2.	Muhammad As-Shuhaimi Ismail	Malaysia
3.	Mohamad Razmi A. Rahman	Malaysia
4.	Norazim Mohamed Salleh	Malaysia
5.	Faizal Azri Muhamad	Malaysia
6.	Mohd Faizzuddin Mohd Faisal	Malaysia
7.	Muhammad Aizuddin Abdul Hamid	Malaysia
8.	Chan Vui Tze	Malaysia
9.	Richard Martin	New Zealand
10.	Peter Metcalfe	New Zealand
11.	Thorsten Froebel	New Zealand
12.	Anthony Bacon	New Zealand
13.	Susannah Ratahi	New Zealand
14.	Richard Lovell	New Zealand
15.	Mohd Amin Shafii	Malaysia
16.	Dr. Nuryantizpura Mohamad Rais	Malaysia
17.	Datuk Matthew Tee Kai Woon	Malaysia
18.	Januario Sibucan Garde	Philippines
19.	Andrew Beecroft	Australia
20.	Dr. Ester Tseng	Australia
21.	Ranita Sen	Australia
22.	Lory Noya	Australia
23.	Auttopone Karndacharuk	Australia
24.	Nur Fazil Bin Noor Mohamed	Malaysia
25.	Ir. Chen Harn Shean	Malaysia
26.	Noor Zalina Mohamad Sharifuddin	Malaysia
27.	Ir. Alim Bin Makhtar	Malaysia
28.	Tung Sow Hoong	Malaysia
29.	Goh Boon Hoe	Malaysia
30.	Yap Boon Tiong	Malaysia
31.	Kok Ying Chyn	Malaysia
32.	Lim Chi Chon	Malaysia
33.	Tu Yong Eng	Malaysia
34.	Lee Li Keat	Malaysia
35.	Yong Wai Keong	Malaysia
36.	Ir. Tan Ai Ping	Malaysia
37.	Mohd Khizam Md Ali	Malaysia
38.	Seri Ashikin Binti Sofian	Malaysia
39.	Zarina Rahmat	Malaysia
40.	Ir. Ab Rahman Mustafah	Malaysia
41.	Jackson I. Pereira	Malaysia
42.	Lee Kim Hong @ Vincent Lee Hitam	Malaysia

43.	Ir. Ho Chee Siang	Malaysia
44.	Ir. Haji Hamdan Bin Ali	Malaysia
45.	Dirayah Binti Dollah	Malaysia
46.	Abdul Aziz Julkarnain	Malaysia
47.	Ir. Che Bakar Che Soh	Malaysia
48.	Muhammad Solahuddin Misebah	Malaysia
49.	Ravi Shankar R. Ayappan	Malaysia
50.	Mohd Rozi Salleh	Malaysia
51.	Adam Lim	Australia
52.	Graeme Nicholls	Australia

List of Reinstated Members

Institutional Members

1.	Lysaght Marketing Sdn Bhd	Malaysia
2.	Shell Malaysia Trading Sdn Bhd	Malaysia

Ordinary Members

1.	Ir. Lee Shiuh Yeh	Malaysia
2.	Ir. Pooh Yih Fang	Malaysia
3.	Ismail Abdul Hamid	Malaysia
4.	Teo Nguong Leong	Malaysia
5.	Jude Ting Mui Heng	Malaysia
6.	Amminudin Ab Latif	Malaysia
7.	Ir. Alias Bin Haron	Malaysia