

AJCE Activity 2007

AJCE/ACEA Young Professionals Exchange Programme 2008 -unique experiences for young engineers-



Keiichi KANAI
Chairman

Professional Development Promotion Sub-Committee, AJCE

Young Professionals Exchange Programme (YPEP) was established in 1996 to develop good relationships and friendships between Japanese and Australian young consulting engineers through mutual visit and stay with member firms of AJCE and its Australian counterpart, ACEA (Association of Consulting Engineers Australia). In the past decade, more than 90 young engineers participated in the programme, and it has been noted in the FIDIC society as a good example of international capacity building effort.

Last year, AJCE and its member companies hosted six young professionals from Australia's leading consulting firms for three weeks in October. The programme consisted of internship at host companies and various official events offered by AJCE, such as Young Summit Forum and Weekend Trip to Kyoto & Nara. While I believe everybody fully enjoyed and appreciated the programme in Japan, I would like to emphasize the importance of the new component

YPEP2007 Schedule of Program

Date		Event
Pre-visit dialogue	June 13 th Wed	Kick off
	Until Sep. 30 th Sun	Studying Japanese culture and mind with a book AJCE provided and submission a report on each to AJCE before September 30 th . Communication with Japanese hosts and mentors on topics to learn in Japan.
Staying in Japan	Oct. 11 th Thu	All trainees arrive at Tokyo
	Oct. 12 th Fri	Orientation Meeting (14:00-15:15) Welcome Party (17:30-19:00) Unofficial late night drinks (19:30-whenever)
	Oct. 15 th Mon	Training Program at each host company starts
	Oct. 27 th Sat	Tour to Kyoto & Nara, ancient towns
	Oct. 28 th Sun	
	Nov. 2 nd Fri	Submission a report of the program to AJCE. Young Summit (13:30-17:30)
	Nov. 3 rd Sat	Farewell Party (18:00-20:00) Departure for each destination
Following up dialogue	Until Dec.24 th Mon	Submission of a short report about Young Summit to AJCE by communicating with each mentor.



Welcome Party

List of companies and exchanges of YPEP 2007

No.	Company in Australia Name	NAME	Host company in Japan
1	Arup	David Murchland	CTI Engineering Co., Ltd.
2	Costin Roe Consulting Pty Ltd	Mark Wilson	IDEA Consultants ,Inc.
3	Costin Roe Consulting Pty Ltd	James Disher	Oriental Consultants Co., Ltd.
4	Maunsell Australia	Katherine Alexander	Oriental Consultants Co., Ltd.
5	QANTEC McWILLIAM	Nathan Scott	Chodai Co., Ltd.
6	Simpson Kotsman Pty Ltd.	Robert Spenceley	P.T. Morimura & Associates, Ltd

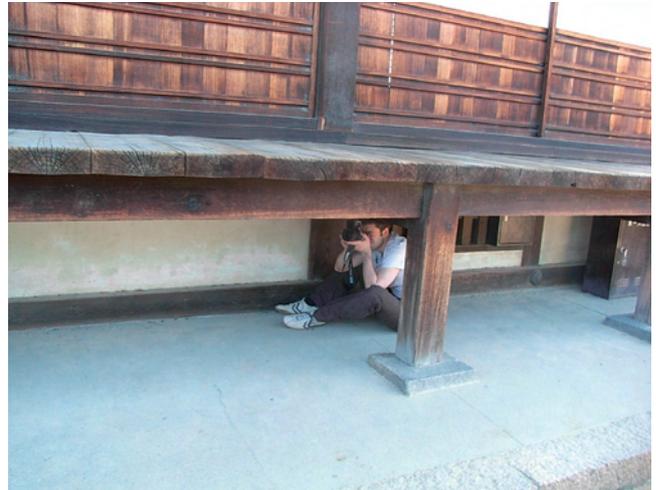
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added to the programme last year, which is pre-visit "dialogue" between a participant and his/her mentor from the host company. The "dialogue" was introduced to YPEP as a result of intensive discussions between AJCE and ACEA toward improvement and revitalization of the 10 year old programme. It was intended to help a participant and a mentor know each other in advance so that the programme could be started more readily and effectively. This worked as well as we had expected. Despite some difficulties in communication experienced in the early weeks, the engineers on both sides introduced themselves and exchanged such information as their technical background, their firms' business lines and their points of interest. By the time the programme started, they had become somewhat familiar with each other, and the opening session on October 12 turned out to be the most lively and effective one in the YPEP history.

The contents of internship programmes were left to each host company, so it could be structured to meet a participant's interest and utilize a host company's area of expertise. Generally, they included discussions with young Japanese engineers, working on actual projects with mentors, project site visits and meeting with clients, and I am sure that they also included many Japanese-style dinner parties, of course.

As a main social event, AJCE organized a weekend trip to the famous historic cities of Kyoto and Nara, where all the participants and mentors enjoyed beautiful temples, shrines and gardens in a pleasant autumn setting. They stayed at a traditional Ryokan (Japanese-style hotel); perfect accommodation for a group of young people with its casual tatami-room banquet (Enkai) that went on well into midnight.

One of the highlights was Young Summit Forum, held on the last day to summarize and conclude the three-week programme. All participants made presentation on what they had seen, felt and learned in the programme. They found many differences between two countries, of course, in terms of nature, culture, customs, work environment & practice and ways of running companies or projects. In the meantime, however, as one participant pointed out, it was also confirmed that there are many things we



Trip to Kyoto & Nara

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have in common as consulting engineers who strive to create and maintain better environment and infrastructure for the people. Young Summit Forum offered another opportunity for the participants to discuss two selected issues; (1) Human Resources & Capacity Building, and (2) Living in multi-cultural world. Through active group discussions and presentations, the participants exchanged and shared their experiences and opinions on these interesting topics. Everybody appreciated the opportunity so much that it was recommended by them to include more time for discussions in the future programmes, to which I totally agree.

When YPEP started 12 years ago, it was expected that this programme would help CE firms in two countries develop close business relationships and eventually work together in the international consulting field. So far the outcome in this context is limited, due to the change in business environment. However, now that good partnering in the international market is becoming essential, the network built up through YPEP will surely be a big asset for any Australian or Japanese CE firms that are contemplating further expansion into the ever-growing Asian-Pacific region. In order to make sure this will happen, every participant in YPEP has to recognize the value of the obtained network and keep an effort to maintain and develop it in the future. AJCE will enthusiastically support their effort to do so.

This year YPEP will take place in Australia. We would like to encourage young professionals in both countries to have interest and participate in YPEP, and hope this outstanding programme will contribute to further development of the productive relationship between Australian and Japanese CE industries.



Young Summit Forum



Farewell party

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Young Professionals Exchange Program (YPEP)



David Murchland
Arup

Outline

The YPEP actually began in July via pre-training dialogue with my host company (CTI Engineering), a very valuable preparation. Once in Tokyo, an AJCE orientation session helped get me settled. Just in time! In the next 3 weeks there was no time to spare, from a day with CTI's



Ito-san & Wada-san of CTI's RESCO division



Izawa Dam, thanks to Kaburaki-san, Yamashita-san

Research Centre for Sustainable Communities, to a visit to the Tohoku region; technical exchanges with the Road & Water Divisions, to an AJCE tour to Kyoto/Nara and the Young Summit to wrap it all up.

Site Visits

Many site visits were kindly arranged by CTI, including to Izawa Dam; to numerous transport infrastructure (Yurikamome, Metropolitan & Gaikan expressways, Umihotaru & the Tokyo Wan Aqua Line, Nissoku Tunnel, and Iroha-zaka); and to CTI's Tsukuba hydraulics laboratory and the Arakawa MLIT centre. Unfortunately a typhoon filled the Metropolitan outer area discharge channel so that I couldn't see it (but at least it worked!).

Technical Exchange

I learnt a lot about roads (both in Japan and Australia!) through the exchange, but it was time with CTI's Water Management & Research Division that really got technical. Four days of presentations from me and CTI covered company and national characteristics/issues, flood forecasting, distributed hydraulic models, environmental flows, water quality improvement, Australian drought characteristics and strategy, natural hazard risk management in Japan, CTIMike11, coupled

river-sewer modeling, real time sewer control systems, hydrological circulation models with GIS, insurance, privatisation, energy strategy & sustainability tools.

Culture

The AJCE group tour to Kyoto and Nara was a wonderful opportunity to understand Japanese history and culture.

Friendship

Thanks especially to Sasaki-san (CTI), and to AJCE for making my time in Japan so memorable!



Kinkaku-ji, thanks to AJCE



Road & Transport Division, thanks to Maeda-san, and Katsuki-san especially



Water Management & Research Division, thanks to Fujiwara-san, Yagami-san ... & everyone else!

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YPEP 2007 REPORT



Mark Wilson
Costin Roe Consulting

Where to start? The task of condensing the experience of spending three weeks in Japan into a single page is a particularly difficult one. First I would like to express my thanks to The AJCE and The ACEA for giving me this great opportunity and secondly to the people at my host company, IDEA consultants, in particular to Terashima-san, Ogawasan, Hashitani-san and Kobayashi-san, all of who have made my time in Japan both enjoyable on a social level and rewarding in my capacity as a professional engineer.

In my time with IDEA Consultants I have been exposed to many areas of civil engineering and environmental monitoring that I have not before been privy to. These areas include road and river planning, environmental testing and monitoring, meteorological studies, mapping for flood prevention, overseas aid projects through Japans ODA Charter, disaster planning and many others. And although not all that I have learned while in Japan can be directly related to the work I perform in Australia it has all been valuable and interesting information for me to add to my knowledge base. I also believe that the aim of the YPEP 2007 is to obtain an appreciation for not only the technical aspects of the Japanese consulting engineer but also the cultural and social.

It has been great to get an understanding of the constraints and challenges Japanese engineers face when performing design. These may be in the form of natural occurrences such as the consistently occurring earthquakes, typhoons, floods, global warming and even volcanic eruption. Other challenges may come from human activities like a lack of usable space caused by urban buildup or to a lack of natural resources. But these constraints do not appear to limit the scope of the projects that have been performed in the past or those that are currently being constructed. On the contrary these constraints appear to be a catalyst for innovative design in large-scale projects.

The nearly completed New Tomeii Expressway in Shizuoka Prefecture, which I observed during my stay here, is a good example of this point. Through mountainous terrain this expressway, with a design speed of 140km/hr, comprises 40% bridges, 20% tunnels and 40% earthworks over a 400km length. A number of these bridges, which are in the order of 1km in length, have been constructed using composite steel and concrete systems as opposed to conventional concrete box girder systems. Unconventional construction staging has been used to good effect in order to overcome constraints on space and also to reduce costs for both materials and labour.

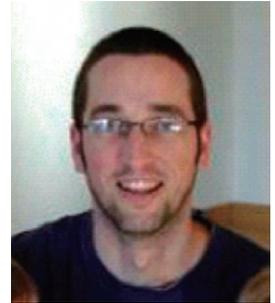
I have enjoyed seeing and learning about the history and culture of Japan and also seeing the natural beauty of the mountain areas, the temples, shrines and the bright lights of the cities, Tokyo in particular. I think that in my three weeks here I have only just begun to scratch the surface of what is a very rich and diverse country. All of these things been highlights of my time in Japan but I think that overall it is the people I have met that have made my time here a memorable experience.

Again I thank all the people for the hospitality shown to me and look forward to returning to Japan sometime in the near future.



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Summary of YPEP 2007



James Disher
Costin Roe Consulting

The two and a half weeks spent at the Kansai office of Oriental Consultants in Osaka was a fantastic opportunity to experience some of the best of Japanese culture and also provided wonderful opportunities for sightseeing. The time spent in the Kansai office of Oriental Consultants also provided an opportunity to observe Japanese Engineering and learn many things from the experience.

During the time at the Kansai office there were four projects that I participated in. The subject of each of these projects was different, but the process and goals were similar, to research and survey the different topics in order to provide background information for future projects that the company was planning.

The four projects I worked on the Kansai office consisted of sourcing information on Light Rail Transit systems from around the world, various Architects and designers and their body of works, different "Barrier Free" laws and initiatives around the world, and also research into how tourism could be generated in rural areas by using old road systems to attract visitors to the area. Each of these projects highlighted one common aspect of Japanese Engineering which was that Japanese Engineers are very aware of the latest technical developments internationally and not only use these initiatives but also like to build on them and develop the ideas further.

My time spent working in the transportation department in Osaka and the generosity of the people working there gave me a wonderful insight into Japanese culture. The Osaka area is well known throughout the nation as being the "Kitchen of Japan" and the food and drink from the area were amazing. Many traditional foods I had not tried before and simply aren't available in Australia. The local specialties of Takoyaki and Okonomoyaki were

particular favourites of mine. Conducting English lessons during my time in the office was also another highlight. Discussion at these informal lessons included topics like language, cultural identity, sports, popular culture and the like. They allowed an insight into Japanese culture that I don't think would have been possible for a tourist visiting Japan and not interacting with the people as closely.

Osaka also provided an opportunity to travel to some fascinating sightseeing areas. I was fortunate enough to be able to visit places such as Kobe, Himeji, Hiroshima, Miyajima, Takamatsu and Shikoku, as well as Kyoto, Nara and Tokyo. These places, full of both natural beauty and history were different to anything I had experienced before.

My time in Osaka was incredible and I would like to thank all of the people that contributed to making it such a wonderful time. I will never forget the hospitality and openness of the people there. In particular I would like to thank my contact person, Mr Yusuke Kanda and the whole team from the transportation department of Oriental Consultants Kansai office.

I would also like to thank the AJCE for being such gracious hosts of YPEP 2007.



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Young Professional Exchange Program 2007 Report



Kate Alexander
Maunsell Australia

The Young Professionals Exchange Program (YPEP) 2007 provided me with an opportunity to exchange and compare ideas regarding engineering problems, methods and solutions between Japanese and Australian engineers, as well as between different engineering disciplines. Oriental Consultants and Ms Watatsu planned an interesting training program that enabled me to experience many elements of their business. As a young engineer, the YPEP was an invaluable opportunity for me to experience and understand the roles of various engineering disciplines from many senior and knowledgeable professionals.

During the program, I was based in Oriental Consultants' Tokyo Office. I observed infrastructure and projects in areas including transportation, urban environment, urban planning and landscape. Some of the project highlights that I observed included:

- ◆ *Ohashi Junction*: a large intersection under construction in Shibuya, to connect a new tunnel to the metropolitan Route 3 expressway bridge deck. As the intersection is located close to a residential area, noise reduction techniques were required including fully enclosing the intersection, additional noise barriers and noise-reducing pavement.
- ◆ *Itabashi Yamato-Cho intersection*: Approximately 240,000 vehicles pass through this intersection each day. The intersection has two overpasses, was surrounded by buildings, resulting in little air movement and poor air quality. Measures for improving air quality included jet fans (normally used in tunnels) to move air from the intersection upward, planting of vegetation in the road reserve and demolishing one of the buildings to create a vegetated open space and increase air movement.
- ◆ *Shinjuku Water Recycling Plant*: While this is not a project that Oriental Consultants is involved in, they kindly arranged for me to visit the plant information center. The plant treats combined stormwater and

wastewater to a quality for reuse. The recycled water is provided to various Shinjuku buildings by secondary infrastructure for uses such as flushing toilets.

In addition to observing and discussing projects, I was also able to experience working in Oriental Consultants Office. Oriental Consultants requested that I assist with one of their projects by undertaking research into greenhouse gas emission reduction initiatives around the world, and the greenhouse gas emission reduction policies of various governments post the expiry of the current phase of the Kyoto Protocol in 2012. This research enabled me to better understand the issue of greenhouse gas emissions reductions from an international perspective.



AJCE organised a trip to Kyoto and Nara for those involved in the program to visit culturally significant sites and experience traditional Japanese cuisine and accommodation. This visit enabled the Japanese and Australian engineers to exchange ideas and learn more about the similarities and differences between Japanese and Australian culture.

I would like to thank Oriental Consultants, AJCE and ACEA for making this opportunity possible. I believe that this program has enhanced my professional development and has been an invaluable experience. I look forward to sharing my experiences with my company, Maunsell Australia.

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YPEP 2007 REPORT



Nathan Scott
OPUS QANTEC McWILLIAM

Participation in the Young Professional Exchange Program promised opportunity; opportunity to travel to a place I had never been before, to experience a culture I had not known and work in an environment totally foreign to me.

Looking back on my three weeks in Japan, I see that as a result of my involvement I have realised all of these benefits... but I have also benefited in other ways that I would not have anticipated. **As a professional engineer, the most compelling benefit of YPEP07 can be summarised in one word – inspiration.**

Over these past three weeks, I have had opportunity to work alongside a group of engineers who have achieved some remarkable feats of engineering. An example of the calibre of engineers that I had opportunity to meet with is found in the case of the Akashi Strait Bridge. On this project, engineers from my host company **Chodai Co Ltd** designed a bridge with a centre span of 1,991m. This bridge is not only the longest span suspension bridge in the world; it is also the tallest (and most expensive) suspension bridge in the world.

Walking the streets of Tokyo, Nagoya and Kyoto I saw buildings and bridges that stretched my understanding of what I considered possible in the world of structural engineering. Different use



of materials and construction techniques have challenged me to re-evaluate my own perceived limitations and think expansively and more creatively about the way I approach structural design.

The cultural experience afforded by YPEP07 has also been invaluable. Experiencing Japanese life as a member of the local community (albeit temporary) is a rare opportunity. **I have found that the best way to understand a culture is to become a part of it.** While the Japanese culture is very different to the Australian culture, we were able to find much common ground. At all times I found my hosts and the community at large to be extremely welcoming, hospitable, friendly and possessing a great sense of humour.

In addition to experiencing the Japanese culture generally, my time at Chodai Co Ltd gave me opportunity to experience the Japanese working culture. The team at Chodai Co Ltd were highly skilled, dedicated and focussed; something that I understand is a hallmark of Japanese Consulting Engineering firms. As far as the working culture was concerned, I observed that while long hours were routine, the office environment was outwardly stress free and quiet. Office structure reflected a highly organised company divided into a number of specialities with clearly defined responsibilities and hierarchies in place.

I expect that the full benefit of my three weeks in Japan will be revealed in the coming months and years of my career as a professional engineer. I intend to approach my career with a new perspective as a result of my broader world view. I also hope to maintain the professional and personal contacts that I have established during YPEP07.

As I prepare to return to Australia, I am grateful to my company Opus Qantec McWilliam, my host company Chodai Co Ltd, and to AJCE and ACEA for the opportunity to participate in this program.

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Young Professionals Exchange Programme (YPEP) Tokyo October 2007



Robert Spenceley
Simpson Kotzman

Introduction

The 2007 AJCE/ACEA Young Professionals Exchange Programme began on Friday 12 October 2007, with a welcoming ceremony and presentations/introductions at the offices of Oriental Consultants, Tokyo. I was one of six engineers selected from Australia who participated in this programme. I am employed as a mechanical engineer by Melbourne Australia based consulting engineering practice, Simpson Kotzman Pty. Ltd. My employer specialises in building services, and I was fortunate to be hosted in Tokyo by Morimura Sekkei (also known as P.T. Morimura & Associates (PTM)), who provide virtually the same type of service to clients as we do in Australia. PTM with approximately 80 personnel, are larger than Simpson Kotzman which has approximately 40.

Training

People at PTM were extremely warm and welcoming, and went (often a long way) out of their way to accommodate me, in introducing me to their projects and demonstrating how business was practised at their company. I was fortunate enough

to be shown around many projects both completed and in progress, with services designed by PTM. Site visits included the following:

- ◆ fitout at the new Daimaru building adjacent Tokyo Station for a bank client;
- ◆ refurbishment of mechanical equipment at Kamata Tōkyū Plaza;
- ◆ refurbishment of office building (including specialised communications room services) for a bank client in Ogikubo;
- ◆ completed (but not yet fully operational) slurry thermal storage system at the Kawasaki Azalea Station Building;
- ◆ partly constructed, partially fit out Marunouchi (Mori Trust) Building, also adjacent Tokyo Station;
- ◆ completed ice thermal storage plant at Tōkai University, Isehara;
- ◆ guided tour of Shinjuku District Heating and Cooling Plant (largest in the world, services not by PTM).

Each site visit was preceded by a thorough briefing session in the office whereby I was introduced to the types of systems employed for the project, and shown actual calculation data used to arrive at the solutions.

Various contrasts between Australian and Japanese consulting practices became apparent throughout my stay, though they were certainly subtle in the industry in which I had my training. While in Australia we tend to choose equipment and build systems based on previous projects similar in nature, it seems that PTM place a significant emphasis on the design stage of their projects.

The result of this appears to be system designs that are more closely suited to the application than their Australian equivalents, and systems that are often more energy efficient. It is not to say that we pay no attention to design in Australia; indeed at Simpson



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Kotzman we produce many projects where systems are carefully designed. However, my observations about design suggest a necessity in Japan to consider energy efficiency in a manner that (presumably due to our lower cost of energy) in Australia we are only more recently coming to appreciate. The building industry in Japan certainly seems to suggest that in Australia at present we're playing catch-up with the rest of the world regarding energy consumption.

Based on my limited experience with meetings at PTM, consulting in Japan appears to involve more frequent meetings with clients than we might have at Simpson Kotzman. An upside of this is obviously that projects can be more closely controlled at earlier stages of development, saving potentially costly errors or omissions from discovery later down the track. However the result of this is that staff in the industry are attending meetings during normal working hours, meaning design work takes place outside normal office hours – and once again, this design work is often more detailed than would be standard practice in Australia. Staff at PTM were certainly very hard workers, and their attention to detail really showed through in the quality of their work.

Culture

A homestay was organised for a weekend for me, which my homestay host ensured was both fun and interesting. And PTM staff went to great efforts to make sure I wasn't left to my own resources out

of work hours either, with lunch times, dinners and nomikai all part of the generous hospitality. Part of the programme included a sojourn to Kyoto and Nara on our final full weekend, which meant that fortunately we didn't miss out on seeing (albeit briefly) at least some elements of traditional Japanese culture.

Acknowledgment

I would like to thank all involved with my stay in Japan, for a thoroughly enjoyable and worthwhile experience: staff at ACEA and AJCE ensured our programme ran very smoothly, and I wish to thank PTM for the time and effort they invested in my stay with them. I would especially like to thank the people who went to so much effort helping me understand their projects, and showing me around site, as well as my host for her much appreciated efforts organising both my cultural and technical experience at PTM.

