AJCE

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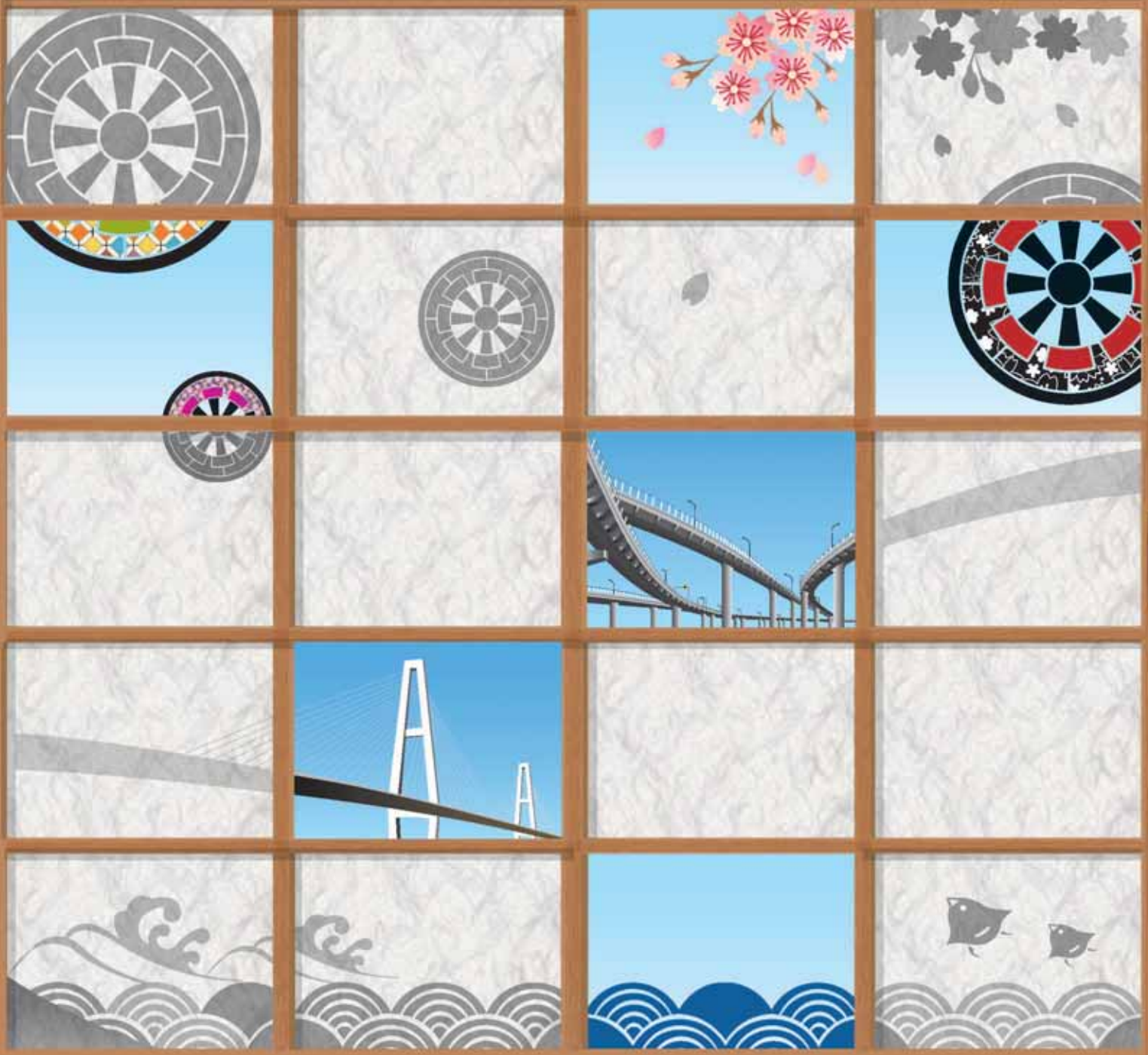

AJCE

ASSOCIATION OF JAPANESE CONSULTING ENGINEERS

(FIDIC Member Association)

About AJCE

The Association of Japanese Consulting Engineers (AJCE) was established in 1974, and was approved by the Science and Technology agency of Japan (currently, Ministry of Education, Culture, Sports, Science and Technology) as a legal entity in 1977. Representing Japanese consulting engineers, AJCE is a member of the International Federation of Consulting Engineers (FIDIC).

AJCE strives to enhance the status and competence of private consulting engineers (CEs) who are independent and impartial of manufacturers, contractors and others. By doing so, AJCE contributes towards the advancement of science and technology, development of industry, sustainable considerations in built-environment, as well as the enhancement of human safety and welfare.

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AJCE and its Activities

Noriaki HIROSE
President, AJCE
President NIPPON KOEI CO., LTD

First of all, I would like to express my sincere gratitude for sending heartfelt and encouraging messages to AJCE on the tragedy occurred on March 11. We thankfully received sympathy and condolence from FIDIC president, ASPAC chair, FIDIC Member Associations and friends of FIDIC families from all over the world.

Though we are very much heartbroken by the loss of lives and destruction, Consulting engineers have started forceful restoration works and are continuing to endeavor technical supports.

In this News Letter, we included special articles on East Japan Disasters to deliver messages on how our member firms are contributing to the restoration of the disaster areas and to support for community needs.

In the subsequent sections, firstly I would like to review world trend surrounding our industry. To respond the world trend, mission and role of consulting engineers are briefly addressed. Following this context, Activities of AJCE in 2010 and Future Activities of consulting engineers, role of AJCE in particular, are reported.

World Trend

As a consequence of the profound climate change observed in recent years, many people have suffered from either large scale flooding or serious drought in many places around the world. We had heavy snowfall this winter in Japan and it paralyzed transportation in the cities and affected the lives of many people. It is certain that we are living in a time of sea change in world weather, although it is not only attributable to the issue of CO_2 emission. We, the consulting engineers, should gear up for natural disasters through our daily activities. In particular, Japan has a lot of experience which can be used to combat the various types of natural disasters and it is recognized that we have to contribute to the world society by sharing and utilizing our effective technology and accumulated knowledge.

Our Mission

On the other hand, the demand for infrastructure development is booming and is backed by very strong economic activities in emerging countries including those in Asia. The infrastructure development in developing countries is realized with the assistance of various funds provided by multilateral development banks, bilateral corporation agencies and private investment. Needless to say, project implementation based on international rules and practice is very important if projects are to be completed smoothly and successfully. FIDIC and its member firms are taking key roles in this area. In Japan, the Japan International Cooperation

Agency (JICA) extends technical and financial assistance to developing countries as well as to emerging countries for infrastructure development. JICA encourages the loan recipient countries to use FIDIC conditions of contract for construction of the projects financed by JICA. AJCE has been promoting FIDIC contracts in collaboration with JICA for many years. Last December, JICA organized training workshops and assessment workshops for Dispute Board Adjudicator with the support from FIDIC. Based on the outcome of these workshops, AJCE is contemplating the creation of National List of Japanese adjudicators in May this year. AJCE is willing to share our experience with those countries, especially in Asia, where. demand for National List is expected to grow.

Activities of AJCE in 2010

● **FIDIC Annual Conference**

Last September AJCE sent 40 people comprising AJCE members and their families to the FIDIC annual conference in New Delhi. The delegates provided presentations in several workshops, introduced, via our exhibition stand, leading-edge technologies developed in Japan and enhanced relationships with other member associations of FIDIC. During the conference period, AJCE participated in the General Assembly Meeting of the Asia-Pacific Region of FIDIC (ASPAC).

● **AJCE Annual Seminar**

AJCE held its annual seminar last July and focused on the development of the international market for Japanese consulting engineers. The participants, not only from consulting firms but also from the public sector and mass media, held active discussions concerning business challenges, technical issues and inherent risks.

● **Young Professional Exchange Program (YPEP)**

AJCE and Consult Australia (formerly ACEA) have maintained a Young Professionals Exchange Program since 1996. In 2010, six young Japanese engineers visited Australia and were provided with on-the-job training in Australian consulting firms for 3 weeks. After completing this program successfully, they held a briefing session in Tokyo in November.

● **FIDIC Contract Seminar**

JICA organized seminars on "Contract Management for International Construction" based on FIDIC contracts in Tokyo, Jakarta and Hanoi. Contract specialists of AJCE member firms supported the operation of these seminars. The seminars significantly contributed to capacity building of staff in developing countries that are engaged in public procurement and contract administration, and assisted in the smooth implementation of Japanese ODA loan projects. In all, about 220 people from 30 countries participated in these seminars.

Future Activities

The investment for new social infrastructure has slowed down in Japan due to financial constraints, even though the real demand is still high. It is not certain whether the government can allocate enough budgets even for the necessary maintenance and renewal of existing infrastructure. Under such circumstances, we have to pass on our accumulated technology and experience to the next generation and reinforce systems with which our technological assets can be improved, in order to cope with looming natural disasters and to enable the enhancement of economic and social systems. I fully expect that AJCE will take an active role in the cultivation of human resources not only in Japan but also in the world.

East Japan Disaster- Preliminary Report

Association of Japanese Consulting Engineers (AJCE)

1. Introduction

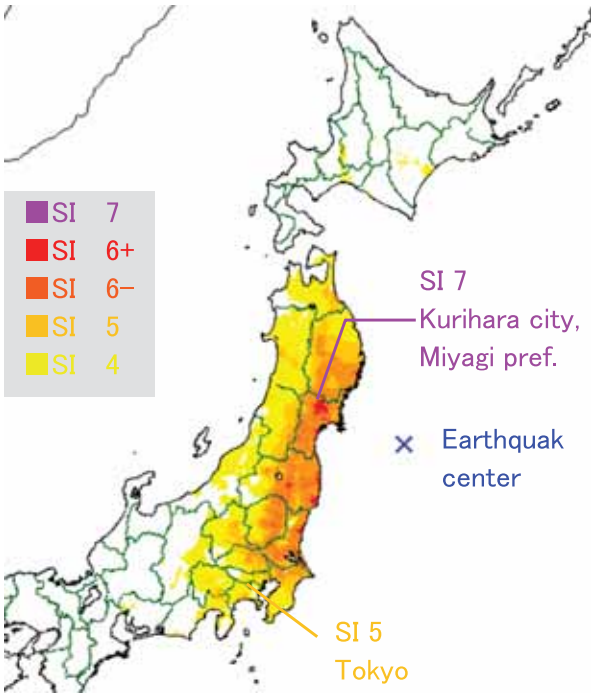
At 14:46 March 11, 2011,
It started with slight shakes. Japan has a lot of earthquakes. There are about 10 earthquakes that we physically feel significant shakes. Therefore, at the outset, we felt it was one of these earthquakes. However, the shakes did not cease but grew larger. It turned into the large magnitude that we couldn't stand up. Creaking sound surrounded over the office.
Fortunately, there were no damages in the AJCE secretariat. We swiftly accessed internet to check real-time earthquake information. Sole information was "strong earthquakes hit north-east of Japan". At this point, people in Tokyo did not know the scale of disasters. People tried to contact with family members by cell-phones to check safety, however, it was not functioning. Cell-phone providers controlled the system against massive calls that may breakdown the entire system. While holding a cell-phone, we kept on watching internet about the progress of information on the scale and magnitude of the earthquake. It started reporting casualties that several hundreds of people were taken away by Tsunami. Growing severity of disasters was reported time to time.
And in the next morning, people in Japan were shocked by watching pictures broadcasted by TV news. "Is this real ?"

【Magnitude】

1960	Chile Earthquake	9.5
2004	Sumatra Is Earthquake	9.2
1964	Alaska Earthquake	9.2
2011	East Japan Earthquake	9.0
～		
1995	Hanshin-Awaji Earthquake	7.5

【Seismic Intensity, SI】
Amplitude of earthquake shake defined by the Japan Meteorological Agency (JMA). SI tends to be larger near earthquake center or near-surface earthquake even at small magnitude. SI is classified in 10 scales (0～7):
SI 0～2 : Do not feel shake
SI 3 : Feel shake
SI 4 : Hanging objects move significantly
SI 5 : Unfixed furniture fell down [Tokyo]
SI 6 : Difficult to stand, buildings may tilt
SI 7 : Wooden house collapsed [Miyagi]

【Distribution of Seismic Intensity in East Japan Earthquake】



[Japan Meteorology Agency]

2. Earthquake

2.1 Scale of Earthquake

Magnitude, scale of earthquake energy, was 9.0. It was the 4th worst in the history of observation. "Seismic Intensity (SI)", unique indicator of earthquake in Japan recorded SI 5 in Tokyo out of maximum SI 7. Areas exceeding SI 4 that people feel strong shakes extended from the Hokkaido (northernmost-island of Japan) to Aichi prefecture (southwest of Japan) affecting a half of Japan.

2.2 Damages by Earthquake

Despite of severe disasters caused by Tsunami as mentioned in the subsequent section, most of roads, railways and buildings could withstand the earthquake of magnitude 9 in the areas that were not afflicted by Tsunami. It is attributable to the newly revised standard of earthquake after Hanshin-Awaji earthquake. Following this revision, anti-seismic reinforcement has implemented

since then.
Tokyo recorded Seismic Intensity of 5. Though there were damages such as fell-down of furniture and cracks in some parts of buildings, major damages to railways, elevated highways, etc did not occur. Railways stopped for a while to secure safety and prevent damages from aftershocks. Some of railways started in operation at 9PM, 6 hours after the earthquake. By midnight, most of railways in Tokyo metropolis areas went into operation except for East Japan Railways.
Though there were cracks and damages within allowable design standards in highways and harbor facilities in the areas where larger earthquake than Tokyo were observed, collapse did not occur. This allowed passage of fire engine, self-defense force, police and vehicles carrying supporting goods to devastated areas. In addition, buildings such as municipal offices, schools used for disaster countermeasures could withstand the earthquake of magnitude 9. These buildings have been serving their role since the earthquake attack.

【Anti-earthquake design Road bridge】
Two design levels
Level 1 : No recovery is necessary to keep function of structures against several earthquakes that may occur in service life time
Level 2 : Structure do not collapse (some damages allowed) against significantly large earthquakes whose occurrence rates is small. Major important structures such as trunk roads can be repaired in short time

2.3 Liquefaction

Liquefaction occurred in the bed-town areas of Tokyo and caused stoppage of sewage system. This area was developed by landfill and locates in the coastal area of Tokyo bay. Liquefaction was observed not only in the coastal areas but also inland housing areas that were developed by landfill over the past riverbed.

3. Tsunami

The largest disaster ever occurred in the history of Japan is largely attributable to
Tsunami attacks after the earthquake. The Tsunami exceeded the wave height of 8m and maximum run-up of 37.9m in elevation in Iwate prefecture. The maximum wave height of Tsunami were not measured due to destruction

【Liquefaction Damage】

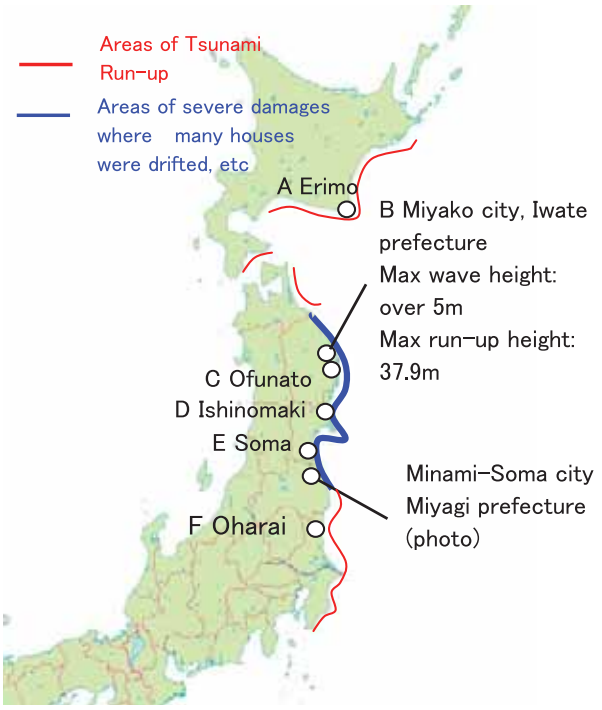
Uplifted manhole by liquefaction
Photo: Nihon Suido Cosultants

Bumped seawall caused by liquefaction
Photo: Chuo Kaihatsu

【Max amplitude of Tsunami】【Max. run-up height】

A Erimo	: 3.5m	B Miyako : 37.9m
B Miyako	: over 5m*	
C Ofunato	: over 8m*	
D Ishinomaki	: over 7.6m*	
E Soma	: over 7.3m*	
F Oharai	: 4.2m	

* Max wave height was not measures as tsunami destroyed titdal gauges.
[Japan Meteorology Agency]



[Quick Estimation by the Association of Japanese Geographers]

of tidal station. Tsunami easily overtopped breakwaters of 8m in height and flew into residential areas. As consequences, it tore down and washed out everything.

【Tsunami Disaster】

Minami-Soma City, 2006

Minami-Soma City, Tsunami induced water reached Inland ©2011 Google, GeoEye

【Tsunami Disaster】

Ship drifted by Tsunami was trapped by bridge pier

Center bridge girder was taken away by Tsunami
Photo: Oriental Consultants

Sewage treatment facility blocked by a heap of rubble

Sewage treatment facility tangled by fish nets
Photo: Nihon Suido Consultants

【Tsunami Disaster】

Site of flooded sewage treatment Facility

Flooded sewage treatment facility
Photo: Tokyo Engineering Consultants

4. Degree of Disasters

Number of death and missing persons is more than 27,000 leading to the most disastrous record. This number far exceeds Hanshin-Awaji earthquake disasters occurred in 1995 in which number of casualties were 6,437. Majority of casualties was caused by Tsunami. Afflicted areas spread over 12 metropolitan, prefectural and municipal governments.

【Damage Overview】

Death	14,013
Missing persons	13,804
Total	27,817

Total collapse/ burnout/ flush out	62,607
Half collapse/ half burnout	25,193

Number of evacuees: predicted over 450,000
[As of 20 April, Police Agency]

Total damage of infrastructure and buildings 16 to 25 trillion Japanese yen
[As of 23 March, Cabinet Office]

5. Power Shortage

In the subject disasters, Fukushima-1 nuclear power stations, large scale thermal power stations in Fukushima and Ibaragi prefectures were affected by Tsunami attacks and electricity generation was stopped. As the result of electricity failure, shortage of electricity supply occurred in Tokyo metropolis. Rotating blackout for about 3 hours was conducted at local municipalities. In April, blackout was ceased due to recovery of some power stations and rise in air temperature leading to less electricity consumption by heating. However, electricity shortage continue to exists and power saving measures has been in operation.

6. Efforts by AJCE Members

Nippon Koei established disaster countermeasure headquarters right after the earthquake lead by president Mr. Hirose. They started confirming safety of staffs and family members by utilizing internal safety check system and emergency communication network. On Monday 14th March, he sent messages to all the firm members. At the same time, other members of AJCE, Oriental Consultants, Pacific Consultants, NJS Consultants, etc have established disaster countermeasure headquarters in the vicinity of afflicted areas to check safety of firm staffs and their family members as well as to investigate damages.

Escalator was stopped for electricity saving.

In subways, some fluorescent bulbs for electricity saving.

【Portable Water Heater】
Jointly developed by Chodai and Pal corporation.

It contains aluminum bag, heat-inducing agent and water. After mixing water and heat-inducing agent in aluminum bag, it generates heat by chemical reactions. It can be used for heating baby bottle, pet bottle or canned drink. Temperature in the afflicted areas in March recorded below 3 degree C. Warm drink was appreciated at the devastated area where no gas and electricity were available.

Member firms distributed foods, water and necessary goods to their firm members and family right after the earthquake as well as to the disaster victims. NJS Consultants donated 120kg of rice, 350 sets of instant foods to the city of Sendai. Chodai offered the following goods to Tohoku University hospital: water, foods, cassette burners, compressed gas cylinders, and portable water heaters that were jointly developed by Chodai and Pal corporation.

And more, AJCE member firms have been contributing for various recovery and supporting activities.

Nihon Suido Consultants is engaging in damage investigation and drafting of recovery plan on entire sewage system such as pump stations, sewage lines, and sewage treatment facilities. They are further contributing to damage survey, geological investigation and designs necessary for recovery of river function.

Photo: Nihon Suido Cosultants

Pacific Consultants have been working for damage investigation of roads, bridges, tunnels, etc. They are further engaging in design and drafting of recovery countermeasures. Currently they are requested to participate in committees in charge of Disaster waste treatment, and Emergent energy measures

Tokyo Engineering Consultants (TEC) conducted flood prediction in Miyagi prefecture in the main sewage lines, incase of increasing sewage discharge in the course of sewage system recovery right after earthquakes. Utilizing the results of prediction, TEC examines vulnerable points that need reinforcement. TEC has further involved in recovery of sewage treatment facilities and sewage networks.

Oriental Consultants have engaged in disaster recovery measures such as damage investigation on national roads and major access roads as well as inspection of bridges, harbor facilities.

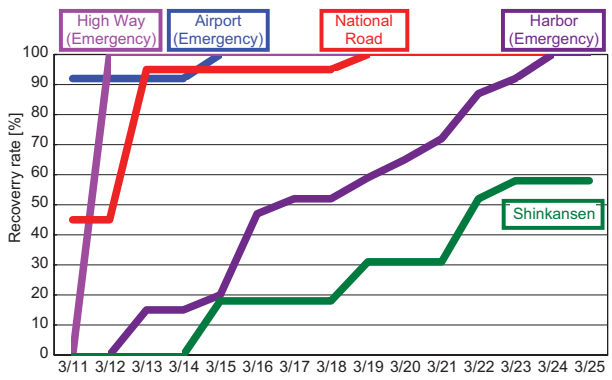
Photo :Oriental Consultants

Chodai is conducting bridges damage inspections. Chuo Kaihatsu Corporation is working on damage investigation.

7. Transportation Infrastructure Recovering with Greater Urgency

As mentioned in the preceding section, the subject earthquake of magnitude 9 was the forth

【Recovery History of Transportation Infrastructure】



[Ministry of Land, Infrastructure, Transport and Tourism]

worst in the history of observation. Despite of the strong magnitude, infrastructures such as roads, harbors, airports, etc withstood against the earthquake. Owing to exhausting efforts by concerned parties, emergency vehicles were able to pass on highways in the next day. After 2 weeks, on 24th March, regular vehicles were able to pass highways. Fifty percent of harbors resumed operation one week after the earthquake. All of them went in operation after 2 weeks while supporting to deliver goods and people in afflicted areas.

Fifty percent of the Tohoku Shinkansen (bullet train) has recovered its service after 2 weeks of the earthquake except for some areas severely damaged by Tsunami. Sendai Airport flooded by Tsunami resumed its normal operation on 13th April, one month after the Tsunami. Large-scale disasters like we experienced this time, transportation plays a vital lifeline role. Rapid recovery of transportation infrastructure has been contributing significantly in rescuing people and delivering goods to afflicted areas.

【Emergent Earthquake Advance Report】
Alarm warning system of informing prior arrival of earthquake via TV, radio and cell-phone that exceeds magnitude of 5 based on data taken by seismic instruments near the earthquake center. Average time elapsed from preliminary tremor of P wave to alarm warning is about 6.4 seconds. Though lead time before arrival of earthquake is short after the alarm warning, one can stay away from furniture or unstable objects. Railways are synchronized with alarm warning system in such a manner that trains will stop immediately at time of alarm warning to prevent from derailing and overturn. Elevator will stop automatically at the nearest floor to prevent from containment.

[Japan Meteorological Agency]

Emergent earthquake advance report on TV

8. "GANBAROU NIPPONN" (Hang on Japan)

We received heartfelt and encouraging messages from FIDIC president, Gregs Thomopulos and many FIDIC family members. All of these messages were conveyed to AJCE members through e-mails and home page. All of AJCE members are very much cheered up by friends of FIDIC families. We would like to express our sincere thanks to you all.

It is our deep sorrow to have many casualties and countless damages. We are acutely aware how helpless it is in such circumstances.

However, people in Japan never give up. "GANBAROU NIPPONN"(Hang on Japan) as common word, we will surely recover from the devastation. Members of AJCE as consulting engineers will be continuously endeavor to achieve swift recovery and realization of disaster-resistant city in harmony with nature.

Cherry blossom convey spring message
20 April Sendai City

"Liquidated Damages" - Japanese law perspective

Naoki IGUCHI
Affiliate Member, AJCE
Partner, Anderson Mori & Tomotsune

1. Introduction

"Liquidated damages ("LDs")" is one of the most frequently discussed issues in the construction law community. Sometimes, it leads to other important issues like the "principle of prevention," "time at large," etc. However, discussions in connection with LDs differ in civil law and common law. In civil law jurisdictions, once the parties to the FIDIC contracts agree for the governing law to be the local law, issues become different from what is normally discussed, and the parties need to prepare their arguments from a different legal perspective. As Japan has been applying "civil law" since 1898, the Japanese perspective may help in understanding how other Asian civil law jurisdictions apply or will interpret and apply LDs to actual cases.

2. Civil Code

Article 420, entitled "liquidated damages," sets forth:

(1) [T]he parties may agree on the amount of the liquidated damages with respect to the failure to perform the obligation. In such case, the court may not increase or decrease the amount thereof;
(2) [T]he liquidated damages shall not preclude the demand for performance or the exercise of the cancellation right;
(3) [A]ny penalty is presumed to constitute liquidated damages.

As can be seen, LDs are clearly legal under Japanese law. The court is prohibited against increasing or decreasing the amount. Unlike common law jurisdictions, a party's usage of the word/concept "penalty" does not influence the validity of the clause. Furthermore, a contractual penalty (*iyaku-batsu*) is valid in Japan. If parties use the word "penalty" in their contract, it is likely the court will interpret it as a contractual penalty, not LDs. In this case, an aggrieved party may claim actual damages as well as a contractual penalty.

On the other hand, it should be noted that a LDs clause may be triggered only if a contractor is liable for its breach of the contract. An advantage of the LDs clause to the employer is limited to the amount of damages.

3. Case law of common law and Japanese law

In common law, an employer cannot insist on the performance of a contractual obligation by a contractor if it is itself the cause of the non-performance ("prevention principle").

If the employer wishes to recover liquidated damages for failure by the contractor to complete on time in spite of the fact that some of the delay is due to the employer's own fault or breach of the contract, then the extension of time clause should provide, expressly or by necessary inference, for an extension on account of such fault or breach on the part of the employer (*Peak Construction (Liverpool) v McKinney Foundations Ltd*).

Japan does not have exact precedents similar to Peak. In stead of relying on "prevention principle," Japanese mainstream legal theory provides that, regardless of a LDs clause, a contractor may be able to deny LDs if he can prove that the delay was caused by the employer's fault. Furthermore,

even thought a LDs clause is triggered, the Supreme Court of Japan upheld a High Court's decision to reduce 30% of the amount of LDs under the "comparative negligence" theory (*Furuya v Sugiyama Construction,* 172 Minshu 379). Some scholars are quite against the Supreme Court's approach in this case because it undermines the function of LDs, although it did not directly interfere with the application of LDs. However, the Supreme Court's position is well-established. It is not sure that this position is based on or influenced by positions of other civil law country (France, Germany, etc.) where the court may interfere to deny or reduce the amount of LDs.

4. Practice

It is fairly common in Japan to insert a LDs clause into commercial contracts. Article 30 of the "General Conditions of Construction Contract (2010)," (the "General Conditions", which have been predominantly used in domestic construction contracts) provides:

> (1) [I]f the Contactor fails to deliver the permanent Work within the Contract Time due to reasons attributable to the Contractor, the Owner may, unless otherwise provided in the Contract, for each calendar day of delay, make a claim for liquidated damages against the Contractor at the rate of four-ten thousandths (4/10,000) of the amount deducting from the Contract Sum an amount equivalent to the portion of the Contract Sum that is for the executed portion of the Work and the inspected materials and building equipment.

These General Conditions correspond with the mainstream legal theory in Japan that LDs may not be triggered if an employer contributed to the delay; because an employer needs to prove that the delay is "attributable to the Contractor." In other words, where the completion of work is prevented by an employer, delay should be attributed to the employer and LDs shall not be triggered. This logic appears to work similarly to the common law "prevention principle."

5. What's Next?

Japanese major players in the construction business have adapted themselves to international construction law practices, which had been mainly ruled by the common law. They noted the difference between common law and civil law, and separated their legal teams for international projects from those for domestic projects. However, with more projects in newly developed countries throughout the world, i.e., Vietnam, Indonesia, Cambodia, and other countries in South America and Africa, a "new" problem with handling LDs in civil law jurisdictions has arisen. It is now time for us to see how they differ from the common law and other civil law jurisdictions.

FIDIC Red book 1999 will be applied to public work projects in Japan

Dr. Shunji KUSAYANAGI
Affiliate member, AJCE
Professor, Kochi University of Technology

At present, approximately 70 Japanese consulting firms and more than 100 construction companies are expanding their business in the international construction market places. Japanese consulting firms keep about US$ 600 million turnover in international markets, which is about 10% of the volume of the domestic business. Construction companies, on the other hand, handle approximately US$ 400 billion worth per year in domestic markets, but get only US$ 10 billion turnover in international markets. It is only 2% of the business volume of the domestic. The problem is that the share of business in the international market, both in consulting services and construction projects have been on the same level since mid 1980s. It means that they did not increase their competitiveness in the international market over the past 25 years. Why were they reluctant in keeping international competitiveness although they have well advanced design and construction technologies?

It may be attributable not having appropriate project management capabilities that are required for the international construction market. Most of people who work in the international projects feel that their weakness in the project management is connected to the management of Contract Administration. Despite of their long experience in the international market, why are they so incompetent? The basic reason may be attributable to the characteristics of contract systems in the domestic market. The Construction Business Act in Japan says that the Owner and the Contractor shall bona fide (face free and honestly) execute the contract. The industry has 2 Standard Conditions of Contracts, one for public work projects and the other for private projects. However, both of them are based on Lump-sum contract. It means that the industry has only one type of contract that is Lump-sum contract, no other types.

It is an essential understanding that the Lump-sum type contract will be applied to Design-Build projects. In Japan, however, it is a common way that the Lump-sum type contract will be applied to the design-bid-build projects. Moreover the Standard Conditions of Contract for public projects is based on the 2 Parties Execution System. It has no third party involvement like "the Engineer" in FIDIC conditions of contracts.

The situation has changed now. The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) has decided to apply FIDIC Red book 1999 on the domestic public work projects. Pilot projects will be implemented starting from the beginning of April 2011. This application will be a significant issue that will motivate the Mother market of consulting firms and construction companies for introducing international business practice. As the consequences, it can be expected that international competitiveness of consulting firms and construction companies will increase.

The Mission that we consulting engineers have to achieve is not only raising our competitiveness in the international market, but also to increase our visibility through the fairness, and transparency in the practice of domestic contracts. It is expected that the members of AJCE would initiate this Mission.

Conditions of Contract for Construction [Red book]
First Edition 1999
Left: English Right: Japanese

Forty Years, As Sanitary Engineer

Masafumi MIYAMOTO
Vice President, AJCE
Vice President, Tokyo Engineering Consultants Co. Ltd.

More than forty years ago, when I graduated from Tokyo University, and joined Tokyo Engineering Consultants, I had never dreamed that I would work for a single company throughout my career. At the very last stage of my working days, my chance to move out from the present company is said to be despairingly scarce. However, I rather appreciate my services for the company.

More than forty years of my services are clearly divided into four phases, i) 1969 to 1980, 11 years, for domestic division, ii) 1981 to 1995, 14 years, for overseas division, iii) 1995 to 2005, 11 years, management for domestic and administration divisions, and iv) 2005 to present, 5 years management for overseas division. Approximately half of my professional career has been devoted for domestic projects and the remaining for overseas projects. Throughout my career, even during managing administration work, I have been working as a sanitary engineer specialized in sewerage, wastewater treatment and water pollution analysis.

When I was involved in domestic projects at early stage of my career, I was given chances to visit many cities and regions all over Japan. Most of the projects in which I was involved were located in Tokyo Metropolis and in its neighboring prefectures. Besides, I visited Nagasaki and Saga Prefectures in Kyusyu Island, Tottori Prefecture in Tyugoku Region, Toyama and Ishikawa Prefectures in Hokuriku Region and Mie Prefecture in Kinki Region. Sewerage projects were progressively promoted by the central government at early 1970s', and a new master planning methodology was introduced to enhance implementation of sewerage projects. Learning a new idea or methodology is a task for young engineer, and I could enjoy hopping around many places.

Getting to be involved in overseas projects was my long desire. This was realized in 1976 when I was given an opportunity to join the Japan International Cooperation Agency (JICA)'s mission to Malaysia. This was the first JICA's sewerage project. It was really a great opportunity to tap the interesting challenges of overseas projects. Luckily, I was seconded temporary to the other consulting firm to carry out master planning of the project. A few years later, in 1980, overseas division was created in our company to seek overseas projects funded by JICA. Luckily again, our firm was successful to get an overseas project, and I could be a member of the project team. Since then I was involved in several overseas sewerage projects funded by JICA. I was also engaged in Cairo wastewater treatment plant project funded by Overseas Economic Cooperation Fund (OECF, now merged with JICA). I was staying in Cairo with my family for two years and half to complete detailed design of a huge wastewater treatment plant. Unfortunately, Japanese Yen Loan was not realized for the construction of the plant, I could not stay for the next phase of the project. It was a good chance not only for me but also all of my family, three young children in particular, to acquaint with foreign culture.

I have been a board member of our firm for approximately 15 years now. Nevertheless, I still enjoy being a member of the overseas project team as a sanitary engineer.

Railway as a Sustainably Developing Industry

Dr. Hiroshi TANAKA
Director, AJCE
President, Tanaka Hiroshi Consulting Engineer Office

1. Introduction

At the opening ceremony of "FIDIC 2009 London Conference", the Princess Royal Ann provided international greeting. She said. "In the middle of 18th century the Industrial Revolution including railway had started from England, and now in the 21st century engineering consultants' innovation to sustainable development is starting here."

In the subsequent sections, I would like to introduce sustainability and innovation of railway with its short historical guidance.

Princess Royal Ann at FIDIC-2009

2. Progress of Railway

After James Watt invented the steam engine in 1769, George Stephenson used a new engine on the steam-locomotive and his passenger-train began to serve between Liverpool and Manchester in 1830.

In the Industrial Revolution age, stem-locomotive trains ran in the Europe and North America.

In the half of 20th century, the more industrialization developed, the more highways and airlines spreaded over the world. Environmental concerns by exhaust gas became global problem. In this circumstance, the electrical railway has progressed in two categories. The first category is urban train such as subway, LRT (Light Rail Transport) and MRT (Massive Rail Transit). They operate mainly in the metropolitan area. The second category is high speed train connecting large cities such as "Shinkansen" in Japan, TGV in France, ICE in Germany, Euro-train between England and France.

3. Main Technical Concepts of High Speed Train in case of Shinkansen

Recently high speed railway projects are under contemplation in India, Brazil, Russia, and USA, etc.

Regarding this recent trend on high speed railway, it is worth re-examine main technical concepts which were imposed on construction of the first Shinkansen that ran between Tokyo and Osaka.

Chief project engineer was Hideo SHIMA, director of Japanese National Railways. His supreme principle was to secure absolute safety beforehand, no-existence of train-collision in design, construction and operation stages.

The main technical concepts were as follows:

- Construction of truck is on the viaduct or in the tunnel, therefore any railway crossing do not exist.
- The train is composed of electric multiple units.
- The motor mounted in each wheel-shaft is used as driving power and as braking power.
- The train operation is controlled by ATC (Automatic train control).
- Comprehensive traffic control system is operated by CTC (Center of traffic control).
- The diagram of train is designed like parallel line of velocity so as to increase number of trains.
- Trains operate from 6 to 23 o'clock while keeping maintenance time from 23 to 6 o'clock.

After 5 years of Shinkansen operation, Hideo SHIMA was awarded "the international prize of James Watt" in 1969. It was the 200th year anniversary of Watt's invention of the steam engine. This honorable prize is now called as Engineer's Nobel prize.

4. Progress of Shinkansen

In the recent years, Shinkansen has further improved as followings:

- Body of vehicle is made of aluminum to make body lighter weight while keeping required strength.
- Electric motor is upgraded from direct current motor to asynchronous motor connecting with electronic control system of large capacity semi-conductors.
- Automatic inclination of body at the curve zone retains train velocity.
- Earthquake prediction and disaster prevention system is introduced to stop the train before the earthquake hit the train.
- Structure of viaduct is reinforced against strong earthquake in the horizontal direction.
- To further reduce noise, noise protection wall at both sides of truck and new type of pantograph are used.

These continuous improvements maintain the record of zero accident of the travelers since the first day of Shinkansen operation in1964. Now the same technology is introduced in high speed trains in England, in China, etc.

Shinkansen at Tokyo Station 2011/02/17

Present State of Consultant Selection in Japan
-Trend of Procurement in Japanese Government-

Eiji KAWAKAMI
Chair, Quality Based Selection Sub-committee, AJCE
CTI Engineering Co., Ltd

1. Background

With the collaboration of FIDIC, AJCE has been promoting QBS in procurement of public works in Japan. This endeavor contributed significantly for the establishment of Quality Assurance Act, enacted April 2005. This Act became the basis to introducing selection of consultants by technical proposal (QBS).

Despite of this trend of QBS development, recent economic down-turn and harmonization among Multi-lateral Development Banks (MDB) influenced Japanese Government and ODA executing entity (JICA) to expand the project delivery including QCBS.

This article reports recent trend of consultants' selection, as to why QCBS was introduced and how we cope with such development in Japan.

The World Bank initiated procurement by QCBS in 1997. The Asian Development Bank (ADB) also followed QCBS and this trend expanded in many multi-lateral and bi-lateral development banks.

However, FIDIC has been emphasizing QBS to be the best procurement method continuously for a long time. In particular, Quality Based Selection for the procurement and consulting services (1997) and the FIDIC Guidelines for the Selection of Consultants (2003) show the reasons why QBS should be used in the selection of consultants.

In Japan, with the support of FIDIC, consulting firms and related associations have been continuously pressuring governments to select consultants for their infrastructure projects by technical ability.

As a result, selection of consultant by technical proposal (QBS) was adopted in 2000 and this selection method for the procurement of consulting service in infrastructure projects has been implemented mainly by the Ministry of Land , Infrastructure, Transport and Tourism (MLIT), Government of Japan.

This led the establishment of new law "Act for Ensuring the Quality of Public Works" (Quality Assurance Act) April 1, 2005. The law emphasized that the quality of the project should be assured by selecting a contractor or consultant primarily by quality (qualification and technical proposal).

Recent economic down-turn and harmonization among MDBs have influenced the public works procurement as well as Quality Assurance Act in Japan that a bid is evaluated both in Quality and Cost (QCBS) with due consideration to other relevant factors. The cost factor came into the selection process.

2. Initiative of MLIT after enforcement of Quality Assurance Act

Following the modification of the Quality Assurance Act, number of projects adopting the QCBS has increased rapidly. Though QCBS is not a favorable method, it is still a better option than CBS which has been introduced for a long time.

As the consequences of the modified Quality Assurance Act, selection method has shifted from traditional CBS to QCBS. In the followings are histories of government initiatives after enforcement of the Quality Assurance Act:

2005.4 Enforcement of Quality Assurance Act
Trial implementation of both QBS and QCBS started.
QCBS: Ratio of Quality (T): Cost (C) = 1:1, 2:1 and 3:1

2007.4 Low-bid investigation after contract.
The investigation was to check how many contract winners bid lower than 70% of the predetermined estimate of government and to prevent from low price competition.

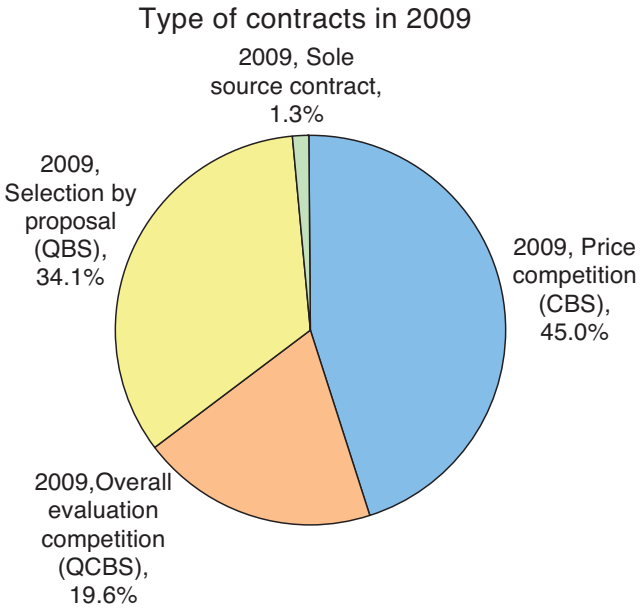
2009.3 Guideline for QBS and QCBS was drafted.

2010.4 Enforcement of Quality Assurance Act to prevent low-price bidding.

As low-price bidding continued, government strengthened pre-evaluation before contract. If evidence arises as a result of low-price investigation, technical score is reduced.

3. QBS and QCBS Update

CBS : decreasing, QCBS: increasing, QBS: decreasing
(refer to the Table and Figure below)



4. Challenges and Prospect

After introduction of Quality Assurance Act, the number of projects by CBS has reduced. Results of the investigation on QCBS shows that quality of projects by QCBS is better than that of CBS. Though a large number of local governments are implementing CBS, some of them have started introducing QCBS gradually. We consider that this trend reflect good results of enforcing the Quality Assurance Act.

However, challenges exist in the following subjects, so we endeavor to continue dialogues with government for improvement of consultant selection.

1. Public Works Projects: QCBS has introduced in place of CBS, however, QBS should be used more in Public Works Projects. We have to consult with our client continuously that QBS is the best option for quality assurance and should not be replaced by QCBS.
2. Proper application of consultant selection method: Application of selection method differs by each local office. Therefore some guidelines are necessary for consistent selection method.
3. Selection by technical evaluation: In many cases, best technical proposal can not win a project as the cost factor is relatively high (refer to the Table below). A project that requires safety, expertise, long-life operation, etc should be encouraged to introduce QBS.

		Price competition (CBS)	Overall evaluation competition (QCBS)	Selection by proposal (QBS)	Sole source contract	Total
2007	No. of contracts	8,910	23	5,112	3,266	17,311
	Percentage	51.5%	0.1%	29.5%	18.9%	100%
2008	No. of contracts	7,578	381	6,970	619	15,548
	Percentage	48.7%	2.5%	44.8%	4.0%	100%
2009	No. of contracts	7,823	3,405	5,936	230	17,394
	Percentage	45.0%	19.6%	34.1%	1.3%	100%

Table Type of Contract, 2009

AJCE Activity 2010 at a glance

January

AJCE New Year Celebration Party

July

AJCE Annual Seminar 【see p33】
- Challenge of Consulting Engineers in the World Market-

October

Presentation, FIDIC 2010 New Delhi Conference

AJCE/CA Young Professionals Exchange Program YPEP【see p20】

The reporting workshop on YPEP2010 【see p19】

September

"Yakai", Social Networking Event
【see p19】

FIDIC 2010 New Delhi Conference
- Managing Innovation - The Way Forward

December

Introduction of CE Industry to University Students【see p19】

Expanding Overseas Business for Consulting Firms and Outline of FIDIC Red Book
- Role and Practice of "The Engineer" -
【see p35】

Professional Career Development Seminar

AJCE Activity 2010

Activity of Young Professionals in 2010

Kazutoshi AKASAKA
Chair, Young Professionals Sub-Committee, AJCE
Nihon Suido Consultants Co.,Ltd.

One year has passed since the Young Professionals (YP) sub-committee (SC) was established. The YP SC has 3 functions as shown in figure-1 in which the YP activities in 2010 are shown in red circles.

Topic 1: Activities of YP sub-committee

The YP activities include:

- Support training and networking of young engineers through the participation to FIDIC/ASPAC activities
- Promote young consulting engineers' skills to be competent in the international market
- Promote the participation of young engineers in Consulting Industry including students.

Topic 2: YPEP (Young Professionals Exchange Program)

The YPEP continues to grow. It has been operating for more than 10 years between Japan and Australia. The trainees from YPEP are now taking major roles in the YP Sub-Committee. The reporting workshop on YPEP2010 was initiated by the YP sub-committee in October 2010. The workshop was very informative.

Topic 3: "Yakai", Social Networking Event

On 3 September 2010, a YP social networking event was organized and hosted by AJCE YP SC. About 40 YPs from several companies participated and enjoyed communication among them. This event provided opportunity to know activity of AJCE YPs.

Topic 4: Contribution to FIDIC YPF and ASPAC YPF

A member of AJCE YP SC joined to FIDIC YPF SC and ASPAC YPF SC. We would like to continue positive contribution to FIDIC YPF activities by sending representative from AJCE. Mr. Nakajima completed a three-year term. And Mr. Kitano is serving as the present SC member since last Sept.

Topic5: Introduction of CE Industry to University Students

YP SC conducted lectures on CE industry and role of consultants for University Students.

The lectures were held in Tokyo metropolitan university on 1 December 2010 and Shibaura Institute of Technology on 7 December 2010. Students participated in the lectures were about 100 and 20 respectively.

Seven of YP SC members lectured on specialized field of practice. This event will be carried out continuously.

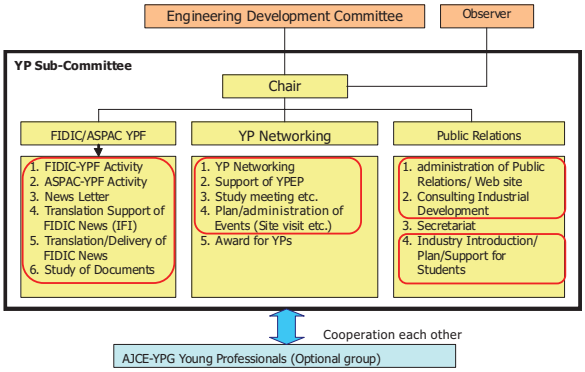


Figure-1 Function and Organization of YP Sub-Committee

AJCE Activity 2010

Young Professionals Exchange Programme (YPEP) 2010

-A bridge of friendship connecting Australia and Japan-

Keiichi KANAI
Chair, Professional Development Promotion Sub-Committee, AJCE
CTI Engineering Co., Ltd.

Young Professionals Exchange Programme (YPEP) was established in 1996 according to the Memorandum of Understanding between AJCE and ACEA (present Consult Australia) to promote good relationship and friendship between Japanese and Australian young consulting engineers, in view of possible future collaboration among participating firms. In the past 15 years, more than 100 young engineers from Australia, New Zealand and Japan attended this programme, and it has been attracting attention of other organizations like FIDIC, as a good example of successful overseas training program. In 2006, after a decade of active and meaningful exchanges, we added an important component, "Pre-visit Dialogue", to the programme, which requires trainees to communicate with host firms' personnel for several months before the visit on various issues; technical, cultural or personal.

Signing Ceremony of MOU in 1995

The "Pre-visit Dialogue" helps the participants to understand each other well in advance and thus enables the actual training to start much easier.
Last year, 6 Japanese young engineers from 5 consulting firms visited 5 Australian firms in 4 cities for 3 weeks.
In the post-training meeting held by the 6 trainees to share their experiences with AJCE's young professionals, they reported that they had very stimulating and fruitful 3weeks, full of technical exchange, discussion, site-visits, seminars and entertainment after work, of course. They also reported that they were really impressed by the difference between two countries on work environment, work habit and work-life balance.
I hope that all 6 young professionals will continue to develop their skills further, capitalizing on the precious experience, and maintain the network with the Australian engineers, which will be their valuable asset in the future.

This year AJCE and its member firms will be welcoming Australian young professionals in October. I have no doubt that this year's programme will be a big success again, and add a new page to YPEP's long outstanding history.

Trainees of YPEP 2010

NO.	Company	Name	Host Company	Office
1	P.T.Morimura & Associates, Ltd.	Takamune Nagata	Steensen Varming	North Sydney
2	CTI Engineering Co., Ltd.	Hidenori Hanahara	Opus International Consultants	Brisbane
3	Oriental Consultants Company Limited	Takayuki Sato	BG&E Pty Limited	Perth
4	CHODAI CO.,LTD	Sumihiro Sawabe	Kellogg Brown & Root Pty Ltd	Brisbane
5	Nihon Suido Consultants Co., Ltd	Kazuhiro Kishi	Arup	Adelaide Melbourne
6	CTI Engineering Co., Ltd.	Asuka Ukese	Arup	Adelaide Brisbane

AJCE Activity 2010

YPEP 2010 Report

Takamune NAGATA
YPEP2010 Trainee
P.T.Morimura & Associates, LTD.

1. Host Company

Steensen Varming (SV), my host company is originally a Danish building services engineering firm. SV is based in Australia ever since SV involved in the building services design of Sydney Opera House in the 1960's. Around 30 staffs work at the main office in Sydney.

The main office in Sydney

2. Pre-visit Training

After the first meeting at AJCE, I sent an e-mail to Barry who was my mentor. I told that I am interested in the differences in the ways of business operation between Australia and Japan. It was very difficult to write e-mails in English as it was my first experience in communicating English through e-mail. Despite of this, I thought we could get to know each other well through the pre-visit training.

3. Visit Training

At SV, I learned various practical matters, the Australian standards in particular. I compared the energy standards of Australia with that of Japan. It was surprising to know that the internal heat loads such as man-made lighting load, etc. are much lower than those in Japan. It was also remarkable that Green Star, the Australian green building rating system is used in about 80% of the recent projects completed by SV . Although we have a similar system called CASBEE in Japan, its application is much less.

On 13th October, I went to Canberra. The National Gallery of Australia has a huge air handling unit I had never seen before.

The huge AHU at NGA

4. Acknowledgment

Despite of my inexperienced English, I could pursue the trainings with satisfaction. I owe much thanks to Steensen Varming for their kindness and hospitality. I would like to extend thanks to CA, AJCE and PTM. for giving me a precious opportunity.

Engineers of Steensen Varming

AJCE Activity 2010

YPEP REPORT in 2010

Hidenori Hanahara
YPEP2010 Trainee
CTI Engineering Co., Ltd.

1 Work-Life Balance

What do you think about engineers who have 10 years career? In general, they are called as young professional engineers. I have been working for 10 years in my firm. When it comes to my specialized field of disaster mitigation planning, I can advise young engineers. But not engineers' lifestyle. Through this exchange program, I wanted to learn not only the knowledge about professional work, but also Australian lifestyle.

2 Overview of Exchange Program

(1) Host Company
Opus International Consultants

(2) Program

Table1. Schedule of exchange program

Date	Contents
6 Oct. 8 Oct.2010	Guidance Arrangements(program details) Blue dog training[a)]
10 Oct. 15 Oct.2010	Site survey[b)] (Christchurch in New Zealand)
18 Oct. 21Oct.2010	Site survey at South Bank[c)] Interview(Disaster management, director of QD) Presentation and discussion(in Opus)[d)]

a) Safety Training: Learned safety at construction sites such as BULE DOG TRAINING.

b) Site Survey: On September 4th, an earthquake of magnitude 7.1 hit Christchurch, NZ. I joined disaster response team in Opus and went to site survey.

Fig1. Damaged Heritage (need to demolish)

c) Site Visit: South Bank is located in the right bank of Brisbane river. As you know, South Bank is the venue of EXPO88. Now this Area is redeveloped.

Fig2. Kaiapoi Town (north of Christchurch)

Fig3. Site Survey in South Bank

d) Presentation: Through three weeks of training, I learned the difference between Japanese and Australian ways of work-life style. This issue was presented and discussed

Fig4. Presentation of Exchange Program

3 Conclusion

I had valuable experience in work-life balance in Australia and was encouraged to further nurture and enhance relationship with my family, colleagues and our clients. Many thanks to Opus, CTIE, CA and AJCE for providing me a valuable opportunity and support.

AJCE Activity 2010

YPEP 2010 REPORT

Takayuki SATOH
YPEP2010 Trainee
Oriental Consultants Company Limited

1. Introduction

I had an opportunity to stay at BG&E for three weeks in October 2010. This report is on visit-training and pre-visit training in YPEP 2010.

2. Pre-visit Training

Before the visit to Australia, Pre-visit training took place for smooth implementation of the exchange program. Via E-mail, the training started from self -introduction, then to specialized subjects and scheduling of visit-training between host company and trainee.

3. Visit Training

3-1 About My Host Company

My host company "BG&E Pty Limited" is a highly skilled group of consulting engineers that is supported by expert structural and civil engineers. I visited Perth head office for the exchange program. Perth is beautiful city with mixture of traditional and new buildings.

The office which was rebuilt from a warehouse is very "cool". In addition, office space is very large and comfortable, which made me envious.

Perth office

3-2 Training Program

1) Working Style

Standard working hours are between 8:30am - 5:30pm. However, employees can choose work hours as long as the total work hour per week is satisfied. Office becomes empty at around 6pm. I felt the working environment is very different from Japan.

Staffs' drinking hour is provided in most Friday afternoon from 5pm. Majority of staffs participate and exchange opinions. I felt that we need to follow such a good practice.

Drinking hour in the office

2) Projects

During my training, I joined two big projects. One is GERI (Great Eastern Highway / Roe Highway Interchange) project. Another one is Gateway Vision project. GERI project is on the design of new interchange, and the Gateway Vision project is on planning and design of new road link for Perth airport. I joined site visit, attended meetings, and made calculation for traffic analysis.

4. Life in Australia

In the off time, I enjoyed Australia's life with BG&E staff everyday. I enjoyed dinner at staff's home, drinking hour, climbing, sailing, bike ride, surfing, Fremantle visit and more. It was a precious experience for me to touch Australia's unique culture and lifestyle, and to watch Japan from another aspect.

Dinner at staff's home

5. Acknowledgments

Thanks to everyone in BG&E and CA and AJCE, I got a great experience and had many fun times. I hope this program will continue and more engineers experience this valuable training.

AJCE Activity 2010

YPEP2010 Report - My experience in Australia -

Sumihiro Sawabe
YPEP2010 Trainee
CHODAI CO.,LTD

1. Introduction

I had training at KBR as YPEP2010 trainee in their Brisbane office, Civil Group.
I have given various opportunities and was able to exchange knowledge through the work in office, site visit and home stay with David's family.

2. Work Experience

I had training in Civil Group of the Brisbane office, where I assisted the plan of drainage facilities, and checked the drawings of the LRT design project in the Gold Coast city. Though I was not used to make drawings in my work in Japan, a young engineer in KBR, Trung helped my drawings. So I could accomplish assignments. It was a valuable experience.
I was also able to visit Clem7 Tunnel Control Center, Brisbane Metropolitan Transport Management Center (BMTMC) and construction site of water pipeline (Pringle Hill Tunnel) in Sunshine Coast. We were able to exchange ITS technology in Australia and that in Japan. I recognized the importance of water engineering in Australia through the site visit.

3. Cultural Experience

I enjoyed visiting pub and Japanese restaurant with young engineers in KBR and friends after work. It was a memorable experience visiting Koala Garden and whale watching in Gold Coast. Surely it was one of the Australia's greatest weekends. Friendly relationship with KBR's staffs was splendid experience for me.
I stayed in David's house in the second weekend of my training. During this home-stay, I could explain Japanese culture and custom while enjoying Australian food.
I cooked myself sometimes as the apartment is equipped with a small kitchen Steaks I bought in a neighboring supermarket were large in size, tasty and reasonable price as well in comparison with those in Japanese market.

4. Summary

During YPEP2010 Program, I had much precious and valuable experience with KBR and made a lot of friends.
I thank CA, AJCE, Anna san, David san Leon san and engineers in KBR Brisbane Office for their heartfelt hospitality.

Civil Group at KBR Brisbane office

David's family

AJCE Activity 2010

Training Report of YPEP

Kazuhiro KISHI
YPEP2010 Trainee
Nihon Suido Consultants Co.,Ltd

1. Introduction

I heard about the Young Professionals Exchange Program in the past, but I was aware that I wouldn't have a chance to participate in this program because of my ability in English. Despite of these difficulties, I decided to challenge in this exchange program because I thought it may be my last chance to participate in YPEP.

It was quite fortunate that I was selected as a trainee. I thought it would provide me a golden opportunity.

In this report, I present pre-visit training and visit training in Australia and what I learned in this exchange program.

2. Pre-visit Training

In pre-visit training, I exchanged E-mail with Hilary-san in ARUP. (She was a trainee in YPEP2009.). As I didn't have much experience in English E-mail, I studied a book on English E-mail. This was a valuable experience.

I received reports on water issues in Australia, covering shortage of water and water recycling. So I could understand outline of water issues in Australia before visit training.

3. Training in Australia

(1)Schedule

Oct 5th; Introduction CA, Sydney
Oct 6th-11th; ARUP, Adelaide
Oct 12nd - 21st; ARUP, Melbourne
Oct 22nd; Young summit, CA, Sydney

(2) ARUP Adelaide

I had a training at ARUP, Adelaide office. ARUP is a very big international engineering company whose head office locates in London.

Together with Asuka from CTIE, our training in Adelaide office was about 1 week.

Adelaide is a state capital in South Australia. There are many parks covered by grass. It was a very memorable city for me.

The training in Adelaide was composed of many sight-visits. We visited Glnelg wastewater treatment plant. It introduces membrane, UV and chlorine water treatment system. We visited South Australia Water, and Adelaide zoo that employs rain water recycle system. Further, we visited Coorong Park by a cruise.

When we visited SA Water, we were lucky to meet with four staffs in SA Water and we talked about shortage of water in SA and its countermeasures. In SA one must pay a fine if he uses sprinkling water beyond the limit.

Muray movable dam

Dinner with Adelaide staffs

(3) ARUP Melbourne
Melbourne is a big city in Australia, and it is well known to Japanese .
In Melbourne office, there are 15 staffs who worked for water group. It is a very big office with many working groups. My training was about two weeks. My host was Rhys-san who has worked for ARUP for two years.

Rhys-san and Melbourne office that was very large

After we talked about experience in Adelaide, we discussed about my training plans.
In Melbourne we had many sight-visits, too. We visited Western Water Treatment Plant (WTP) (very large WTP, the area of WTP is 11,000ha!), Eastern WTP (standard WTP having a recycling water system.), and tennis parks where they built a membrane plant.
I learned a difference in sludge process between Japan and Australia. In Japan we use many processes and try to reduce volume of sludge. However in Australia their final process is drying under sunlight and do not reduce volume of sludge. Sludge drying sites are very large. As sludge is stable due to digestion process, so its smell isn't bad.
Australian water recycling guideline describes various items in detail than that of Japanese. Perhaps they intend to use wastewater for drinking in the future. But many Australian don't agree to use wastewater for drinking now.
On last day in Melbourne I had a chance to present my outcome in the training. I introduced Japanese wastewater technology to water-group's staffs in Melbourne. I felt they were interested in Japanese technology such as two-story settling tank.

Area of drying sludge in Western WTP

4. What I Learnt in YPEP2010

Through my training, I learnt a difference in work/life balance between Japanese and Australian engineers. I think this issue is very hard for Japanese young engineers.
I felt office in Australian firms was very composedly. They surprised of our long working hours. They advised that I should be working normal during my stay in Australia. I think they place priority in spending time with their family. Further, they try to take long vacation. This may keep good motivation for work, so they seem not tired.
I was impressed by their friendly culture. Like shaking hands saying "Nice to meet You!" and calling colleagues with first name. In Japan our style is bowing and exchange name cards and calling each other by family name.
I think Australian young engineer stands on equal position with their client due to their friendly culture. This is very important practice for pursuing business smoothly.
In the office they talk about various topics. In Melbourne they have two coffee breaks each day. They communicate naturally even in short time, so I thought coffee breaks were very wonderful custom.

5. Acknowledgment

I thank ARUP staffs, particularly Hilary-san and Rhys-san. I owe many thanks to them. I would like to extend my thanks to AJCE, CA, our company and my family.
I hope to contribute in promotion of the YPEP between Japan and Australia by making use of my experience in YPEP2010.

AJCE Activity 2010

YPEP2010 REPORT

Asuka Ukese
YPEP2010 Trainee
CTI Engineering Co.,Ltd.

1. Introduction.

In YPEP2009, CTI Engineering (CTIE) hosted a young engineer from ARUP, Australia. This year, I participated in YPEP2010.

My host firm, ARUP is an international consulting company, whose head office locates in the United Kingdom(UK). About 10,000 employees are working in 37 countries in the world. As they have offices all over the world, they can carry out projects easily in overseas. In the Australia office, many employees come from various countries such as UK, Spain, India, China and so on as well as Australia.

In this year, I had training from 5th to 22nd October at Adelaide and Brisbane offices of Arup.

Picture.1: At ARUP Adelaide office

2. Pre-visit Training.

Hilary was the person in charge of my training who came to CTIE for YPEP2009 last year. She belongs to Water Group where I had training. The Group implements projects in water supply, waste water treatment, etc.

In the pre-visit dialogue for two months, I communicated with Hilary about travel schedule in Australia, accommodation, training program, etc. by e-mail. ARUP gave me assignments on the water shortage in Murray River and its countermeasures. Water shortage is serious problems in Australia. My work was to compare water problems between Australia and Fukuoka city, Japan.

3. Visit Training in ARUP

①. Work Experience

During my training, I visited various project site such as the Murray River Mouth, wastewater treatment plant, water desalination plant , zoo, etc. The most interesting project for me was the water recycling system in Adelaide.

Adelaide has been facing water shortage as it has scarce rainfall (about 500mm/yr). It is very important to use recycled water efficiency. Treated wastewater is delivered to many buildings, houses through the pipelines which are distributed throughout the city of Adelaide. This water is used for non-drinking purpose, toilet, park, garden, car wash, etc. South Australia Water is the government entity that manages utilization of water. They check whether people use water properly or not every day. I felt the importance of proper utilization of water. In Japan, as we have sufficient rainfall, we don't usually pay much attention on this matter.

Picture.2: Glenelg Wastewater Treatment Plant

②. The Life and Water Problems Concerning the Murray River.

During my stay in Australia, I watched the TV news everyday for studying English. Especially, I was interested in the Murray River problems. The Murray River is an important resource of water in Queensland and South Australia. Recently, inflow of water is reduced because of less rainfall, increase of water usage by irrigation, increase of water utilization due to population growth. As the result, water shortage occured in the Murray River. Some wetlands nearby the River dry up. As a countermeasure, the government of Queensland has imposed plan to control the usage of water drawn from the Murray River. As a result, the plan will cut 800 jobs. Many farmers oppose this plan. I am anxious to know how the government solves these problems.

Picture.3: Water problems in Australia.

4. Pre-visit Training

①. Work-Life Balance

Basically, the business hour in ARUP is from 9:00 to 17:00. Some people come to office early morning and go back home early evening. They usually don't work over time. Most of staffs go back home by 18:00. This is quite different from our company. I was impressed that people separate clearly private life from work. People spend their time with their family, friends after working as well as holidays,

I recognized that clients and consultants cooperate well in a project in flexible and efficient manner in the course of project development. In addition, it seems that Engineer's position in Australia is higher than that of Japan

In Japan, it is a challenge for us that while keeping good relationship with client, we have to overcome pressure about improvement in quality of deliverables. We also need to improve work environment while keeping good motivation, controlling over time, etc. at the same time. . It was good opportunity for me to think about work-life balance in the future.

②. Education of Young Engineers

The rookie employees in ARUP have to take training for two years. The contents are improvement of technical skill communication with client, etc. I observed that this is similar in Japan.

To become a Chartered Engineer(CEng), they have to submit the documents on work experience and undergo an interview. Similarly, it is very difficult to be qualified as a Professional Engineer (PEJp) in Japan. YPEP2010 gave me a good hint and motivation to prepare for PEJp.

5. Lifestyle in Australia.

During my stay in Australia, I rent an apartment near the office. I thought that rental fee is high.

Many people are concerned about their health. They exercise everyday by walking, cycling, boxing, etc. after working.

Picture.4: People exercise near river.

6. Acknowledgement

I would like to appreciate CA, ARUP, AJCE, head office of CTI, river division in Kyusyu branch office of CTI. Without their support and encouragement, I couldn't have rewarding experience. I hope that many young engineers will have same experience through future Young Professionals Exchange Program between Australia and Japan.

Picture.5: At ARUP Brisbane office

AJCE Activity 2010

YPEP2010 Young Summit Report

Asuka Ukese
YPEP2010 Trainee
CTI Engineering Co.,Ltd.

Young Summit was held on the last day of YPEP2010 in which the details are reported below..

1. Agenda of Young Summit

Date : 22nd October, Friday
Venue : Consult Australia National Office
Time : 2:00pm Opening
2:10pm Discussions and Presentations
3:20pm Afternoon Tea
3:35pm Discussions and Presentations
5:00pm Closing

2. Outline of Young Summit

Trainees and young engineers from member firms of CA joined the Young Summit. Trainees reported about their training for three weeks. On the first day of YPEP2010 in Australia, manager of CA asked us what we wanted to learn during our training. We answered that we wanted to learn not only technical aspect but also Work-Life balance, training for engineers and culture in Australia as well. At the Young Summit, we reported about our professional training for three weeks and difference in Work-Life balance , in-house training between Australia and Japan.

Picture1: Presentation by Mr. Sawabe

3. Contents of Young Summit

3-1.Work Style and Work-Life balance

We reported difference and similarity in Work-Life balance between Australia and Japan as described in the followings.

(1) Similarity between Australia and Japan

- Working hours is 9:00~17:00 including lunch.
- Atmosphere of working (Everyone works intensively and quietly).

(2) Difference between Australia and Japan Firms in Australia

- Office space is very large and comfortable.
- Phones don't ring often (Office is very quiet)
- Staffs go back home by 6:00pm (In general , they don't work over time).
- There are many women engineers.
- Overtime work is allocated for additional holiday.
- All the annual vacation and holidays are paid in case they are not taken. Some people return salary for additional holidays. Some people have few months of vacation.
- Many people change firms or go to government entities.
- Position of government staffs and consultants are almost equal.
- Depend on projects, they are allowed for extension of time and additional cost.
- Specifications are much in detail than that of Japan. (I saw spec. of about 200pages).
- Engineers can exchange technical information even if they don't belong to the same company .
- A project scale is large and size of a consulting firm is also large in general.
- They carry out projects in due consideration of environment.
- Depending on the size of a project, JV or Alliance is formed between consultants and

employer. (Alliance is introduced in a big project like construction of rail road, pipe lines, etc.)

3-2. Qualification and Training

(1) Similarity between Australia and Japan

- They need qualification of CPEng (Chartered Professional Engineer) like PEJp (Professional Engineer Japan)
- CPD Program is employed.
- "On the Job Training (OJT)" is exercised.
- Training program for new employees. Training period is longer than that of Japan.

(2) Difference between Australia and Japan Firms in Australia

- Employees need to submit reports about their projects and take an oral examination to become a CPEng.
- In the State of Queensland, if engineers don't have "RPEQ" certificate, they are not qualified for a projects.

Picture2: Presentation at Young Summit

3-3. Response of Young Engineers in Australia

Young engineers in Australia showed interest that Japanese engineers often work over time. When one of the trainees showed Japanese engineer's working hours and life style in a graph, everyone was very surprised. Many Japanese engineers take lunch in a very short time (about 15-30 minutes). In addition, they work for a long time. Engineers in Australia also expressed interest that deadline of a project is confined in February and March in Japan due to disbursement of budget within a fiscal year. Finally, I thought that we could jointly learn about difference in working style between Australia and Japan. Young engineers in Australia told many times that Japanese engineers work too much. I think this is true.

4. Conclusion

Member of CA said that they were very glad to know that we could have good experiences in training for three weeks.

When we started our training in Australia, we were very afraid that we might face various difficulties during our training for three weeks in Australia. But after three weeks of training; we could learn not only Work-Life balance and training of engineers but also had valuable experience in Australian culture and social life. .

Though we couldn't make impressive English presentation, we could convey our spirit and message to young engineers and CA staffs in Australia. When we speak in English, most important thing would be to express what we want, not beautiful speech. Many non-English speaking foreigners know about this point very well. We have to peel off our misconception that "Japanese is shy". We are as competitive as foreign engineers in technical skills. So let's be proactive as international consultants.

Picture3: After Young Summit

AJCE Activity 2010

The report of official event YPEP REPORT in 2010

Hidenori HANAHARA
YPEP2010 Trainee
CTI Engineering Co., Ltd.

1 Outline of YPEP Activity

YPEP is a program that exchanges the young engineers mutually between Consult Australia (CA) and Association of Japanese Consulting Engineers (AJCE). Participants have an opportunity of working at the host firm while learning culture and social life and lots of other things in Australia. It began in 1996, and now over 100 professionals participated in this exchange program. In 2010, 6 Japanese young engineers had training in Australian consulting firms. The visit training period was about three weeks.

2 Pre-visit Training

After selection of trainees, we started pre-visit training. The training was implemented in the followings:

1) Exchange of information about trainees and host firms such as special area of interest.
2) Outline and difference of technological standard between Australia and Japan.
3) Details of training contents and itinerary.
4) Communication (culture, social life,)

fig1. Group photo at Sydney

Fig2. Group photo at CA

3 Farewell Party

After the Young Summit, we had a dinner in the nearby restaurant. Of course, all conversation by the Japanese trainees was in English.
Recently, English is used as an official language in international firms. I am certain that all the trainees will acknowledge this trend.

Fig3. Farewell party in the nearby restaurant

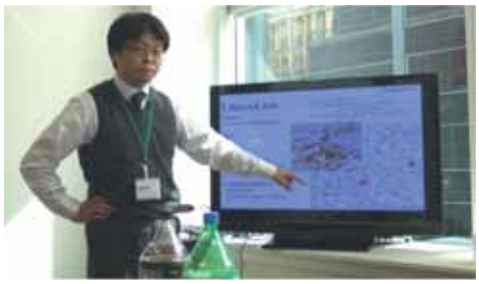
Fig4. KARAOKE

4 Acknowledgements

I would like to thank AJCE, CA, host firms and our firms for giving us with splendid opportunity to participate in YPEP 2010.
Japan is a host country for YPEP 2011. We hope Australian trainees will have a wonderful experience and discovery in Japan as we had in Australia.

My Friend

Aussie Beef



My Baby?

Chinese?

The reporting workshop on YPEP2010

AJCE Activity 2010

AJCE Annual Seminar 2010

-Challenge of Consulting Engineers in the World Market-

Professional Development Committee, AJCE

1. Introduction

AJCE held its annual seminar on 7 July 2010 in Tokyo. The seminar was entitled "Challenge of Consulting Engineers in the World Market", focusing on the way to which Japanese consulting engineers expand business opportunities. The number of participants was approximately 140 that show a high interest on this theme.

2. Summary of Questionnaire

At the outset of AJCE seminar, summary of Questionnaire was conducted prior to the seminar presentation. The Questionnaire was to analyze challenging issues and to find the ways of their countermeasures on the competence of Japanese consulting engineers in the world market The Questionnaire was collected from 17 member firms out of 43.

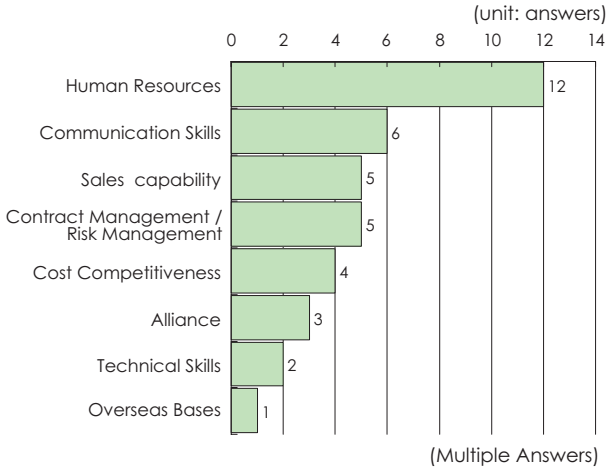
The Figure shown below indicates typical challenges on expanding consulting services in the world market.

3. Presentations

1) Expansion of Overseas Consulting Service (by Mr. Akihiko Hirotani)

The speaker mentioned that approx. 70 % of the top 200 sales are consulting firms in USA and Europe (Engineering News Record), Shares of consulting firms in Asian market is approx. 70%. On the contrary, he commented that share of Japanese firms is just 6 in top 100. He introduced the business model called "Infrastructure Team Japan" in which the government, consultant and contractor form a team and implement overseas projects together. This is a way to accomplish high quality and competence in infrastructure development while sharing risks by the parties

Challenges on Expanding Consulting Service in the World Market



Mr. Akihiko Hirotani

The speaker also suggested the standardization of domestic contract with that of FIDIC to accord with global standard.

2) Japanese Consulting Industry from a Viewpoint of a Foreign Consultant (by Mr. Jean-Pierre Ragaru)

The speaker is the president of a consulting firm whose office locates in Japan. The firm was established after experiences in several countries including France. He pointed out the characteristics of Japanese consultants based on his experience.

According to his understanding, Japanese engineers comply well with standards and codes. However, they tend to lack application of theoretical knowledge to figure out the entire picture. This causes them to remain in groups of specialist. In addition, analyses on legal and insurance aspects are lacking He mentioned that the issues to be solved for Japanese consulting engineers are ambiguity, the slow speed in decision making (where the responsibility lies), and quality control. Language skills are not a prime issue.

Mr. Jean-Pierre Ragaru

3) Contractor's Expectation from Consulting Engineers (by Mr. Takashi Nakayama)

The speaker mentioned that consulting engineers have broad and specialized knowledge from upstream to downstream of projects, and have high potential of developing domestic human resources as well He stressed his expectation that it is important to capacity build many people who are able to manage larger and complex projects from the upstream to the downstream stages. From the view point of contractors, he urged that consulting engineers are expected to take into account of the site conditions, cost estimation reflecting actual market price, and ability of introducing high technology, and impartial determination for smooth implementation of projects.

Mr. Takashi Nakayama

4. Closing Comments

Although the seminar was held in a limited time, it was carried out by full enthusiasm of participants. This shows a high interest of the participants on the theme.

AJCE annual seminar is one of the most important and visible events. In selecting a topic, it always follows the major interest of consulting industry. In the era of globalization, AJCE, the sole member association of FIDIC will continue to be the leading body to enhance the status of Japanese consulting industry.

AJCE Activity 2010

Expanding Overseas Business for Consulting Firms and an Outline of FIDIC Red Book

- Role and Practice of "The Engineer" -

Professional Development Committee, AJCE

1. Introduction

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) in 2010 determined the major policies for driving Japanese economic growth and vitality, to strategically promote overseas businesses of firms in the construction industry. To implement the policy, a pilot scheme of international order systems and contract methods used in domestic projects was examined by the MLIT, as part of the programme to align domestic standards with global standards. Therefore, Japanese consultants have been growing rapidly concerned about the FIDIC Red Book which is the global standard for conducting overseas projects.

In response to strong demand, the AJCE held a special seminar titled "Expanding Overseas Business for Consulting Firms and an Outline of FIDIC Red Book" particularly focused on the Role and Practice of "The Engineer", on 6 December 2010 in Tokyo, with about 130 participants, mainly from the consulting industry.

The AJCE invited three speakers from the public and private sectors. These speakers were: Mr. Yasuhiro Okumura, Director for the International Engineering, Policy Bureau, the MLIT; Mr. Yukinobu Hayashi, vice-chairman of the AJCE professional development committee; and Mr. Hiromi Hoshi, member of the AJCE international activity committee.

2. Presentations

1) Implementation of overseas infrastructure projects by Public-Private Partnerships (by Mr. Yasuhiro Okumura)

Firstly, the speaker explained that the demand for infrastructure development from 2010 to 2020 in Asia is estimated to be over 8 trillion USD and that 30 % of the demand would be in the field of road construction. The size of the Water infrastructure market is also expected to more than double, although it is not expected to be as big as that of road construction. He pointed out that Japanese firms need to enter into these markets in cooperation with the public and private sectors in overseas markets, as firms in Europe and the United States have a lead over Japan. Secondly, the speaker cited the Meeting for Growth Strategy of the MLIT, which is discussing "the internationalization of construction and transport industries". To help Japanese construction and transport industries appeal to and develop a presence in the global market, the MLIT intends to provide the following support:

- "political leadership for sales activities with Public-Private Partnership (PPP)"
- "strengthening of organizations and systems"
- "aligning of standards such as adapting local to global standards"
- "improvement of the financial mechanism".

In addition, it was cited that: "the Overseas Water Infrastructure PPP Association" and "the Overseas Roadway Infrastructure PPP Association" have been established to share information, facilitate the exchange of opinions between the public

and private sectors and support the progress of projects in Vietnam and India. Finally, the support system for overseas development of Japanese firms was explained.

2) An Outline of the FIDIC Red Book and the role of "The Engineer" (by Mr. Yukinobu Hayashi)

The speaker cited the importance of contracts to construction projects. These characteristics are:

1) Complexity and high degrees of uncertainty
2) Long contract periods
3) A tendency for increases in construction costs and delays in process.

To deal with these problems adequately, quickly, and correctly, it is essential that 1) the responsibility and rights of contracting parties are clearly defined in the contract (clarification of risk allocation) and 2) there is detailed documentation of handling processes for when unforeseen events occur. Furthermore, the types and features of typical FIDIC contract conditions, especially the outline and background of the Red Book were explained carefully. Finally, the speaker showed that "The Engineer" in Red Book has two roles: as "an agent of the ordering party" and as "an independent contract manager", and he explained the basic concept of rights of complaint of the contractor in relation to the role of contract manager.

3) Role and Practice of "The Engineer" (by Mr. Hiromi Hoshi)

Firstly, the speaker explained the history and development of "The Engineer" system. The role of "The Engineer" was established in the FIDIC Red Book of 1973. Then, although the responsibility of "The Engineer" for impartial judgment was clearly stated in the 1987 edition, the level of required neutrality and fairness of "The Engineer" had been decreasing. The role of "The Engineer" as an associate arbitrator was weakened in the 1999 edition. Next, the speaker concretely expounded the key roles of "The Engineer" in various positions such as designer and construction manager. In particular, the task of "The Engineer" as an agent of the outsourcer covers not only what is technical but also contract management. He pointed out that this point is significantly different from that of supervisory staff, inspectors of public works, and managers of private work in domestic projects.

3. Conclusion

With the shrinking of public investment in domestic markets, many Japanese consultants have been seeking to expand their overseas business as one of their main business strategies. Therefore, it has been crucial that they understand international contracts, conclude, and manage them properly. Therefore, Japanese consultants have been raising concerns about obtaining a deep understanding of the FIDIC Red Book to sufficiently prepare for the introduction of global standardization into domestic projects.

In these circumstances, the AJCE which is a member of FIDIC strives to widely provide various seminars, in order to meet the demand of member enterprises.

Mr. Yasuhiro Okumura

Mr. Yukinobu Hayashi

Mr. Hiromi Hoshi

Project Accomplishments by AJCE Members

Saida Coastal Area Wastewater Project

Principal Firm(s) NJS Consultants
NJS Consultants (Nippon Jogesuido Sekkei Co., Ltd) International Consulting Engineers

Project Site Saida in the Republic of Lebanon

Client Council for Development and Reconstruction (CDR)

Finance Japanese ODA Loan

Period April 2001 - March 2008

Type of Project
- ◆ Planning, Detailed Design and Construction Supervision of Sewers and Wastewater Treatment Plant
- ◆ Project Management Services

Project Outline

There is a severe shortage of wastewater treatment facilities in the project area. This has resulted in the discharge of untreated wastewater into streams, which consequently degrades the environment leading to the groundwater contamination. The Discharge of the untreated wastewater flows to the coast and creates problems in coastal areas that are rich in tourism resources.

The objectives of the Project are: (1) to improve sanitary and environmental conditions for population of about 0.5 million in 2030; (2) to reduce contamination of groundwater and surface water; and (3) to reduce the pollution along the seaside to restore beaches for recreational use.

Details

Planning, detailed design, and construction supervision of sewers and waste water treatment plant (WWTP)

- Trunk Sewers (200mm to 900mm x 124km)
- WWTP
  - • Preliminary treatment facility (screening and sedimentation)
  - • Pumping station for ocean outfall
  - • Ocean Outfall Discharge
  - • Related buildings and facilities to WWTP

Project Management Services

- Coordination with other relevant authorities
- Cost Management
- Schedule Management

Project Accomplishments by AJCE Members

AOMORI NEBUTA HOUSE PROJECT

Principal Firm(s) Molo Design, Canada (Architect)
Frank la Rierie, Architects Inc. (Architect)
D/DT Arch. (Architect)
P.T. Morimura & Associates, Ltd. (M&E Consultant)

Project Site Aomori, Japan

Client Aomori City

Period Design & Construction
2006/9 - 2010/10

Type of Project Scheme & detailed design, Supervision of construction

Project Outline

Nebuta House is named for the Aomori Nebuta Festival, one of the biggest festivals held in Japan. At the centre of Festival activities, it provides an introduction to local traditions, as well as serving as a place where local citizens can participate in daily activities. Its primary function is to enable visitors to experience the unique culture and charms of Aomori, and the facility makes a strong contribution to the building of the Aomori brand.

The famous lantern floats actually used in the Aomori Nebuta Festival are exhibited within, in the main Nebuta Hall. The complex also comprises multipurpose rooms and an Event Hall which can be used by local people for a variety of activities.

The outer appearance is particularly arresting, with 12 meter high ribbons of steel (30cm wide by 9mm thick) forming a screen around the building, each ribbon twisted at a specific angle to create the unique façade.

Details

Building area: 4,339m^2
Total floor area: 6,707m^2
Structure: Steel, Reinforced concrete, Steel reinforced concrete
Number of floor: 1 basement & 3 storeys
Total costs: 5 billion Yen

Exterior ©Shigeo Ogawa

Building entrance

Nebuta Hall ©Shigeo Ogawa

Heatpump Ciller Units

Project Accomplishments by AJCE Members

CONSULTING SERVICES FOR THE PROJECT FOR THE BRIDGE CONSTRUCTION FOR EXPANDED AGRARIAN REFORM COMMUNITIES DEVELOPMENT IN THE REPUBLIC OF THE PHILIPPINES

Principal Firm(s)	CTI Engineering International Co., Ltd. CTI-CRSRI Engineering & Environment Co.,Ltd.
Project Site	Aurora Province, Republic of the Philippines
Client	Department of Agrarian Reform, Republic of the Philippines
Finance	Grant Aid, Japan
Period	July 2009 - November 2010
Type of Project	Construction Supervision

Project Outline

This bridge construction project for expanded ARCs (Agrarian Reform Communities) was conceptualized within the context of government's poverty alleviation, food security and agribusiness development agenda to address the unmet demand of ARBs (Agrarian Reform Beneficiaries) for support services.

Funded by the Grant Aid of Japan's ODA (Official Development Assistance), the Project aims at i) generating incremental income for farmer beneficiaries, ii) establishing agri-enterprises, iii) upgrading the socioeconomic and environmental conditions, iv) improving the mobility of agri-products and living conditions of the people within and outward areas, and v) addressing the isolation and other related disaster problems during heavy rains and typhoon season.

The Project construction started in November 2009 and was completed in November 2010. Final Inspection of the Project has completed on November 14, 2010.

Details

The goal of the Project is to improve the mobility of agri-products and living conditions of the people within ARC and outward area. It aims to attain the following benefits:

- Reduce vehicle cost for market agricultural products;
- Reduce vehicle operating cost for market farm inputs and commercial goods;
- Reduce vehicle operation cost for trips of passenger;
- Increase daily traffic of heavy vehicle;
- Reduce risk to students regularly crossing the river going to school; and
- Enhance faster mobility/assistance during calamity.

The outline of bridge is shown as follows:

Bridge Name :	Bazal Bridge
Bridge Type :	4-span simple PC-I Girder Bridge
Bridge Length :	110.0 (m), 4 @27.500 (m)
Approach Road Length :	182 (m): Malasin side 241 (m): Bazal side
Bridge Width :	5.4 (m)

Inconvenient River Crossing (Before Project)

Convenient/Smooth River Crossing (After Project)

Project Accomplishments by AJCE Members

Consulting Services for Water Environmental and Ecological Plan and Design for the Guangfo Hopsca Project in the People's Republic of China

Principal Firm(s)	CTI Engineering Co., Ltd.
Project Site	Guangdong Province, People's Republic of China
Client	New World China Land Ltd.
Period	January 2010 - May 2010
Type of Project	Feasibility study Basic design

Project Outline

The GuangFo New World Hopsca is the biggest project as well as the flagship project developed by the New World Group in the GuangFo area. Hopsca is defined as an integration of hotels, offices, ecological parks, shopping centers, convention and apartments into a multi-functional, modern and comprehensive city-dimensional space.

Through well-connected plan and unique design, water system that covered 500 acres water surface and 4km long lake coastlines from north to south were reconstructed and updated from the original Dahao Lake system. Water circulation and renewal is fulfilled automatically by taking the advantage of the difference in altitude between each lake. Moreover, natural wetlands, constructed wetlands and floating islands were planned for purification and improvement of lake water quality by planting of reeds and lotus, aiming to form ecological healthy water bodies. Rain water is utilized in an efficient way, and thus satisfied the desired water quantity for golf course irrigation, road sprinkling and ecological water demand ,thus reduced the flood risk for the surrounding area in the rainy season. On the whole, plan and design of the water system could successfully bring significant economical, ecological and social interests.

Details

Wuhan CTI-CRSRI Engineering & Environment in collaboration with CTI Engineering drafted rainwater drainage plan and rainwater use in the development area.

The goal of the Project is to improve the mobility of agri-products and living conditions of the people within ARC and outward area. It aims to attain the following benefits:

- Rainwater drainage plan in consideration to the topography situation;
- Study on methods of groundwater level in consideration to seasonal change of water cycle;
- Basic design of water cycle facilities applied on purification functions of ecosystems;
- Advisory service during construction.

Wuhan CTI-CRSRI Engineering & Environment Co.,Ltd. has been operating since 2008 under joint management of CTI Engineering and Changjiang River Scientific Research Institute, (CRSRI), one of the state non-profit-making scientific research organizations, subordinate to the Changjiang Water Resources Commission of the Ministry of Water Resources in China.

Image of cyclic use of water

Ground-breaking ceremony

During construction

Project Accomplishments by AJCE Members

Second Water Environment Improvement Project of Ho Chi Minh City, Vietnam (2nd WEIP)

Principal Firm(s) Nihon Suido Consultants Co., Ltd.
Nihon Suido Consultants Co., Ltd. (NSC)
Water and Environmental Consultants

Project Site Ho Chi Minh City, Vietnam

Client Project Management Unit of Ho Chi Minh City

Finance JBIC (JICA) loan

Period November 2007 - June 2010 (extended to July 2011)

Type of Project
◆ Detailed Design
◆ Tender Assistance Service

Project Outline

This is the second project of Water Environment Improvement in HCMC. The project is consisted of 5 packages. The designed facilities are extension or additions to the first project. Outline of the project is as followed;

1) Review of basic design
2) Detailed design of urban drainage improvement, sewerage development works
3) Preparation of tender documents
4) Assistance in Pre-Qualification Stage and in Tendering Stage
5) Environment and Resettlement Action Plan monitoring

Details

Based on Basic Design, Detailed Design includes existing combined sewer improvement, pump drainage improvement, canal improvement, installation of interceptor sewer, conveyance sewer, intermediate pumping station, wastewater treatment plant and other facilities.

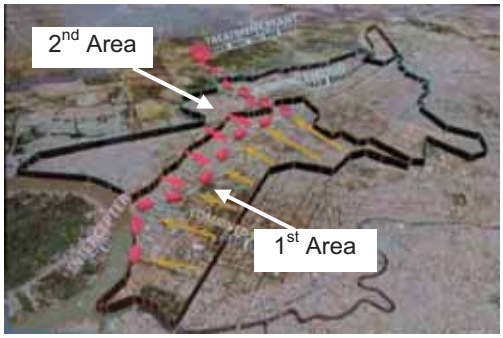
Canal

Table Summary of the project (2nd WEIP)

Facilities, items	Capacity, dimension
The length of Canal improvement	6.0km
Capacities of drainage pumping stations	0.8 m3/s and 1.05 m3/s
Sewerage service area	1,963 ha
Service population in 2010	996,000 people
Interceptor Sewer	27.5km
Combined Sewer	34.3km
Secondary interceptor sewer	8.8 km
Capacity of Intermediate Wastewater Pumping Station	311.1 m3/min
Conveyance Sewer	3.6km
Capacity of Wastewater Treatment Plant (WWTP)	328,000 m3/day

Tendering Assistance

NSC assist the Employer to compile pre-qualification evaluation report, tender evaluation report and contact document for each project package.



Air view of the area

Present condition of open drainage

Project Accomplishments by AJCE Members

Water Quality Improvement Projects in Taiwan by Gravel Oxidation Process (GOP)

Principal Firm(s)	Nihon Suido Consultants Co., Ltd. Nihon Suido Consultants Co., Ltd. (NSC) Water and Environmental Consultants
Project Site	Great Taipei Metropolitan Area in Taiwan
Client	Taipei City and Taipei County
Finance	Local Governmental Budget
Period	2005 - 2010
Type of Project	◆ Basic Design ◆ Detailed Design ◆ Construction Supervision

Project Outline

For the demand on new technology for the river water quality improvement by Taipei City, Nihon Suido Consultants Co.,Ltd. (NSC) participated to the projects first in 2005 and has worked with local partner in Taiwan for the construction of six river water purification facilities since then. Nanhu purification plant project is a commemorative project which started in 2006 and completed in 2007 as a first facility based on Gravel Oxidation Process (GOP) which was originated by NSC almost three decades ago. Those projects are all contributing vast comfort to Taipei people who enjoy the environment with the Danshui River. Furthermore, NSC made an ambitious attempt to apply this GOP technology to treat raw wastewater from residential area located on the outskirts of Taipei. This plant was completed in late 2010 and treating wastewater with high efficiency beyond expectation.

Details

◆ Nanhu purification, the first constructed facility in Taipei, has shown good performance to reduce BOD from 50mg/l to 10mg/l and NH_4-N from 20mg/l to 1mg/l at present.

◆ Following five facilities along the Danshui River, including Chiang-tsui purification facility, the largest treatment facility of 57,000m^3/day, also treat satisfactorily with specified performances within Design Criteria.

◆ Latest challenge has been made at suburb of Taipei to purify raw domestic wastewater of 4,000m^3/day by applying GOP combined with pre-treatment system. This resulted as almost same level of treatment ability as a sewage treatment plant. Advantage lies on extremely lower costs on both initial construction and operation compared with the ordinary sewage treatment plants of activated sludge process.

Purification Facilities Designed by NSC

Purification Facilities at Nanhu

Project Accomplishments by AJCE Members

The Construction of Hinheup Bridge

Principal Firm(s)	Oriental Consultants Co., Ltd. JV with Nippon Koei Co., Ltd.
Project Site	Namlik River, Hinheup District, Vientiane Province, Lao PDR
Client	Ministry of Public Works and Transport
Finance	Japan International Cooperation Agency (JICA) - Japan's Grant Aid
Period	September 2007 - January 2010
Type of Project	◆ Basic Design and Detailed Design ◆ Tender Assistance ◆ Construction Supervision

Project Outline

In Lao PDR, National Route 13 (NR 13) is the nation's most important North-South International Corridor. It extends from the capital city of Vientiane to the Chinese border at the north end and to the Cambodian border at the south end. The old Hinheup Bridge was built in early 1900's during the French colonial era; however the superstructure of the bridge was washed away by a flood in 1981. The bridge was repaired by the Swedish International Development Agency; however, the obsolete bridge constantly needs maintenance and cannot fully function with the recent increase of traffic.

Considering such circumstances, the new Hinheup Bridge was constructed by Japan's Grant Aid Assistance in order to ensure safe crossing of the Namlik River. The new bridge is located about 200 metres downstream from the old Hinheup bridge. The works began in September 2007 and were completed in January 2010. The total length of the bridge is 195 metres with a width of 10 metres and serves both vehicle traffic and pedestrians on both sides. Hinheup District is located about 100 kilometres from Vientiane.

Details

The Oriental Consultants' JV provided the engineering services for design and construction supervision of the following facilities:

- ◆ 5 Span Continuous PC Box Girder Bridge
- ◆ Bridge Length: 195 m (35+3x45+35), Width: 10 m
- ◆ Two box type abutments and three RC-wall type piers
- ◆ Approach Roads; 755 m=485+270 (Concrete Pavement)

The PC box girder bridge was erected using the "Incremental Launching Method" which became the "first challenge in Lao PDR". The unique erection with girders pushing out from the fabrication yard is mostly controlled on land, thus minimizing the danger of risky works such as on the pier head. Another advantage is with the lack of human resources in Laos, this erection method requires fewer workers.

Project Accomplishments by AJCE Members

THE ZLETOVICA BASIN WATER UTILIZATION IMPROVEMENT PROJECT

Principal Firm(s) Oriental Consultants Co., Ltd., with J-Power, COB

ORICONSUL

Project Site North East Region of the Former Yugoslav Republic of Macedonia

Client Government of the Republic of Macedonia

Finance Japanese ODA Loan

Period January 2004 - January 2011

Type of Project
- ◆ Detailed Design
- ◆ Tender Assistance
- ◆ Construction Supervision

Project Outline

In order to improve the poor water supply and to make maximum use of the water potential of the Zletovica River, the Zletovica Basin Water Utilization Improvement Project was formulated. This Project was planned to be realized in three phases:

- Phase- I: Construction of dam and related structures, intake structures for water supply, raw water supply, pipelines and other items
- Phase- II: Irrigation System
- Phase- III: Structures for electrical power production

Referring to the current situation, high priority was given to Phase-I of this project.

Details

The Oriental Consultants' JV provided services for the following components:

- ◆ Asphalt Concrete Core Wall Rockfill Dam: 75 m in height and accumulation with a volume of 23,500,000 m^3.
- ◆ Two intake structures in the Zletovica River: Discharge capacity of 0.15 m^3/sec and 3.15 m^3/sec (0.65 m^3/sec for water supply, 2.50 m^3/sec for irrigation), respectively.
- ◆ Raw Water Transmission Pipeline: in total 80 km in length with steel pipes and FRP pipes
- ◆ Access Road: 20 km in length to the dam
- ◆ SCADA Operation System: connected by GPRS and an Optical Fiber Network

Knezevo Dam and Reservoir

Reservoir in Winter

Construction of Asphalt Core

SCADA Centre

Intake Structure

Project Accomplishments by AJCE Members

The Programme for Reconstruction of the Earthquake-Affected Facilities under Japan's Non-Project Grant Aid 2005 for the Islamic Republic of Pakistan

Principal Firm(s) Nippon Koei Co., Ltd.
In association with Binko International Ltd.

NIPPON KOEI
Challenging mind, Changing dynamics

Project Site Battagram District, North-West Frontier Province (NWFP), Islamic Republic of Pakistan

Client Japan International Cooperation System (JICS)

Finance Non-Project Grant Aid of Japan

Period April 2006 - August 2010

Type of Project Engineering Consulting Services for PQ, Tender and Construction Supervision

Project Outline

Large earthquake, with the magnitude of 7.6 on the Richter scale, occurred at 8:50 PST on October 8, 2005, at about 100 km North-Northeast of Islamabad. The earthquake brought about a number of casualties in the eastern Districts of North West Frontier Province (NWFP) and Azad Jammu and Kashmir (AJK).

This Project aims to improve health and educational standards of the people in the Battagram District in the NWFP by way of reconstruction of hospitals, schools, and bridges (120 sites in total), and procurement of various medical equipments.

Details

Scope of the Project for the Consultant is to assist JICS in tendering and construction supervision for the packages as follows:

Contract Package 1 (P-1)
Urgent Reconstruction of Six (6) Primary Schools

Contract Package 2 (P-2):
Construction of Pre-fabricated Operation Theater, District Head Quarter (DHQ) Hospital

Contract Package 3 (P-3):
Reconstruction of District Head Quarter (DHQ) Hospital

Contract Package 4 (P-4):
Reconstruction of Rural Health Center (RHC) in Banna

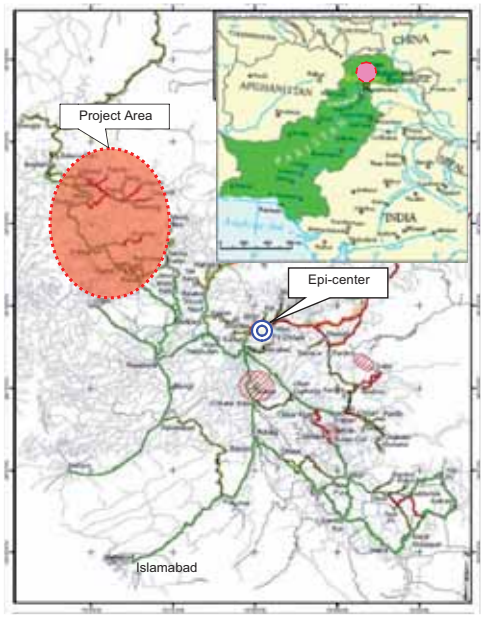
Contract Package 5 (P-5):
Reconstruction of Health Facilities and Schools in Tehsil Battagram
P-5-1: Reconstruction of CH Thakot, 4 BHUs, and 24 Schools in Tehsil Battagram
P-5-2N:Reconstruction of 5 BHU's and 28 Schools in Tehsil Battagram

Contract Package 6 (P-6):
Reconstruction of BHUs and Schools in Tehsil Allai
P-6-1: Reconstruction of 14 Schools in Tehsil Allai
P-6-2: Reconstruction of 13 Schools in Tehsil Allai
P-6-3: Reconstruction of 4 BHUs and 12 Schools in Tehsil Allai

Contract Package 7 (P-7):
Reconstruction of Boys College and High School in Battagram

Contract Package 8 (P-8):
Provision of Medical Equipments

Contract Package 9 (P-9):
Reconstruction of 4 BHUs (called as BHU Plus) in District Battagram
P-9-1: Reconstruction of 4 BHU Plus in District Battagram
P-9-2: Provision of Medical Equipment for BHU Plus



Package 3:
Reconstruction of DHQ Hospital


Before Construction


After Construction

Package 5:
Reconstruction of BHU


Before Construction


After Construction

Package 6:
Reconstruction of Primary School


Before Construction


After Construction

Package 7:
Reconstruction of High School


Before Construction


After Construction

Project Accomplishments by AJCE Members

Tanjung Priok Access Road Construction Project, Phase 1

Principal Firm(s) Joint venture of Nippon Koei Co., Ltd., Yachiyo Engineering and five local firms

NIPPON KOEI
Challenging mind, Changing dynamics

Project Site Fringe of Tanjung Priok Port in Northern Jakarta

Client The Directorate General of Highways (DGH) in the Ministry of Public Work

Finance Japanese ODA Loan

Period 2006 - 2013

Type of Project
- ◆ Detailed Design
- ◆ Tender Assistance
- ◆ Construction Supervision

Project Outline

Jakarta, the capital of Indonesia is one of the most rapidly urbanizing area in the world with a high population growth. However, the rapid progress of motorization accelerated by rapid urbanization causes heavy traffic congestions over the arterial road network. To cope with such situation, Access Road Construction Project to Tanjung Priok Port ,which is the largest port in Indonesia, is one of the priority projects in the area to connect Harbor Road and Jakarta Outer Ring Road (JORR) both under operation

Details

The Project details are as follows:

- Six lane divided toll road of 26.5 m in total width and 12.08 km in total length, subdivided into three sections, namely E-Section (TgPA-E1 and TgPA-E2, 8.05 km), NS-Section (TgPA-NS) to be connected to the N-S Link of the Intra Urban Toll Road (0.38 km) and W Section (TgPA-W1 and TgPA-W2, 3.65km) to Harbor Road .
- Five interchanges
- Installation of Traffic Surveillance System (TSS)

Completed Section E-1

Toll Plaza in Section E-1

Flyover under Construction

Global Consulting for Sustainable Development

Services Provided

Bridges, Roads, Tunnels, Seismic Design, Transportation Planning, Urban and Regional Planning, Environment, Information Technology, Civic Design, Railways, River and Erosion Control, Ports, Airports, Water Supply and Sewerage, PFI, Asset Management, Project Management

ORICONSUL

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The Project for Construction of New Mannar Bridge and Improvement of Causeway,Sri Lanka

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Editor's note

By the time the readers receive this News Letter, Japan will be in full spring. I would like to introduce some of the articles in this editor's note for drawing your interests.

Mr. Noriaki Hirose was elected as the new President of AJCE by succeeding the immediate past president, Mr. Akihiko Hirotani in May last year. Mr. Hirose delivers messages about the earthquake and Tsunami disasters occurred on March 11 in which he expresses sincere gratitude for heartfelt and encouraging messages from FIDIC families. He further introduces mission, activities and the prospect of AJCE.

In the subsequent articles, Prof. Kusayanagi and Mr. Iguchi present the topics and trends that are highly informative and useful in consulting industry. Mr. Miyamoto's long experience as a sanitary engineer and Dr. Tanaka's article on development of high speed train highlight the contribution of engineers to the society's needs.

The "Young Professionals Exchange Program" (YPEP 2010) between AJCE and CA, AJCE Annual Seminar and Special Seminar on "Expanding Overseas Business for Consulting Firms" and consulting selection by quality could be fundamental and challenging issues among consulting industry in Japan as well as in FIDIC MAs.

In response to President Hirose's message, we added special article on East Japan Disasters. The earthquake of M9.0 and Tsunami hit Japan and caused massive destructions. A huge number of people are reported dead and missing. We appreciate rescue crews dispatched from all over the world to the disaster areas, and encouraging messages from FIDIC families. We owe millions of thanks to you all. We will surely recover from this tragedy as we did in the past.

Ichiro Seko, Chair, Publicity and Relations Committee

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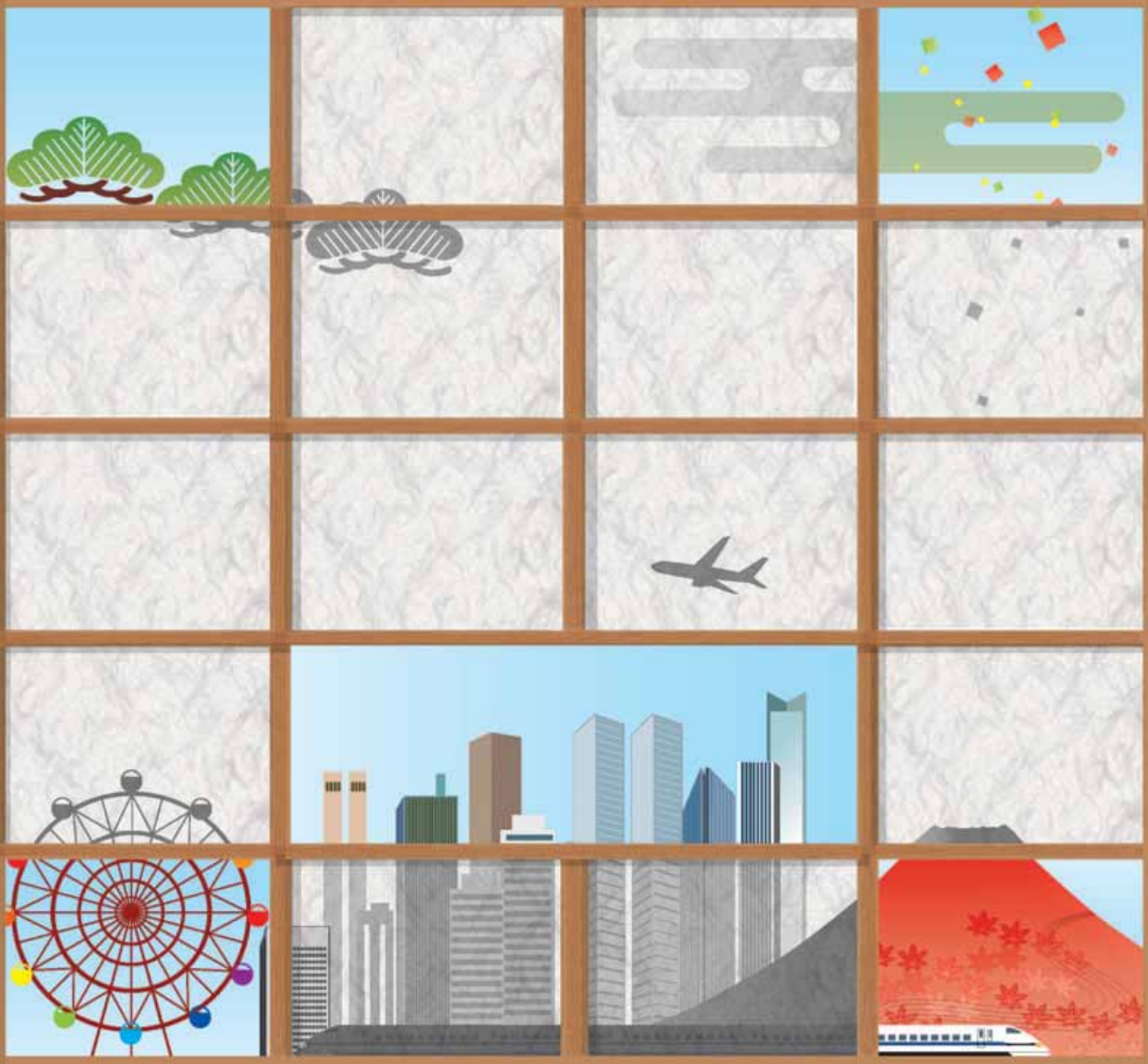

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