Where the roads meet

2006 International Consulting Engineering Conference

Budapest, 24-27 September 2006

PRESENTATIONS

ABSTRACTS

SUMMARIES

www.consulting2006.org

Introduction

The International Federation of Consulting Engineers (FIDIC) and the European Federation of Engineering Consultancy Associations (EFCA) have joined with their Member Association for Hungary, the Association of Hungarian Consulting Engineers and Architects (AHCEA), to organize the 2006 International Consulting Engineering Conference.

The conference will focus on the role played by consulting engineers and their professional colleagues in providing the all-important connection between vision and reality, between client and customer, and between the built and natural environment.

Keynote addresses and plenary forums with participants from industry, non-governmental organizations, government and the political arena will review today's achievements as well as tomorrow's challenges in the era of globalization, with its consolidation of major trading blocs in Europe, Asia and the Americas. That this assessment of the industry takes place in Budapest is truly appropriate.

The conference theme also reflects on Hungary's role – the "crossroads where the roads meet" – in providing a window onto the fast-developing East and Central European regions, and beyond to Asia, another rapidly growing market for consulting services.

As the capital of Hungary, Budapest is also among Europe's most popular destinations, and has long been recognized as one of the world's most fascinating cities. In addition to exceptional facilities, it offers a remarkable collection of cultural and historic sites, which attest to its rich past and vibrant future.
The conference's workshops and roundtables will build upon the spirit of dialogue that pervades the city: there will be ample opportunity for everyone to share experience and to build upon best practice.
Throughout the conference there is a lively and entertaining series of optional events and tours, and a full programme is offered for accompanying persons.

This handbook gives the summaries and of the Forum presentations and Workshop introductions.

Full texts will be made available on the conference website, www.consulting2006.org.

Programme summary

Exploring the who, what and how of the consulting engineering business today, and tomorrow

Streams

A. *Project implementation*

What tools deliver quality projects?

How can partnering and alliancing offer greater value? What are the opportunities from DBO, or PPPs?. How are changing relationships between client, contractor and consultant evolving to provide better solutions? How do we manage the new risks? What is the impact of procurement on pulling projects together?

The circle is completed by linking again into the role of the trusted advisor, and the various forms that this can take, but all lead to the best outcome - a high quality, sustainable outcome.

B. *Best practice procurement*

How are professional services acquired, and acquired for the best results?

How does a client obtain the best advice? What do firms need in order to be able to define their capabilities, attract and retain talent, etc. Are firms adapting quickly enough? How are they adapting? What are the (new) critical success factors?

This review will include the results of the scoping project (a new, common approach to evaluating consultants), the impact of European Union (EU) policies on local versus international providers (including the use of FIDIC contracts), a comparison of EU, World Bank, Asian Development Bank, etc. procurement policies (the case for harmonisation and for capacity building, for both consultants and clients). Quality Procurement will be defined – for clients; for consultants; for contractors; and for communities.

C. *Emerging issues*

Who are we and where are we going?

Consulting engineers are at the cross roads between commodity providers and trusted advisors. This provides an opportunity to redefine who we are and what role we play (emerging issues) - as advisor to clients, to communities, to financiers, to executing agencies, etc. What do these key players all seek? How are they the same (or different)? Is there still a role for the traditional consulting engineer? What do the new ownership and management models look like? How can our associations be more inclusive of all professional disciplines?

Participants will find out from a range of clients how they view these emerging issues. Young Professional consultants will be a key to the discussions.

The common thread at the centre of all this debate is the trusted advisor, connecting to all the other players: clients, communities, financiers, etc. The consultant is the broker, the facilitator, the enabler, the project relationship manager, the innovator, the visionary, etc.

MONDAY, 25 SEPTEMBER 2006

Opening Forum

Moderator: Anna Olin, *Sweden*

Prof. Endre Dudich, *Hungary* 9
Prehistory and history of the Carpathian Basin

Prof. László Somlyódy, *Hungary* 13
Hungarian engineering – roads and challenges

Prof. Roger Flanagan, *UK* 15
A global perspective on drivers and issues shaping business in the future

Dominique Louis, *Assystem, France* 17
The new territories of engineering

Forums

Moderator: Anna Olin, *Sweden*

The afternoon Forums on Monday, 25 September 2006, will cover:

- Project implementation
- Best practice procurement
- Emerging issues

They will pick up the issues identified at the end of the Monday morning forums under each stream.

During the afternoon forums, the moderator will direct questions collected from participants after the Monday morning forums, and also seek comment and questions from the floor.

FORUM 1: Project implementation **21**

Roland Jurecka, *Strabag, Austria* 21
Peter Mitka, *PricewaterhouseCoopers, Czech Republic* 23

Key issues

- There is currently an important debate over traditional project delivery models (e.g., design/bid/build) and new models (e.g., design/build/operate). Where do you see this going?
- How do you view the newer role of advisor to the client (or contractor) as opposed to the Engineer to the Contract?
- Will the demand for more private finance produce newer project delivery models? What will these look like?
- There is much talk about partnering and alliances – how do you see this working for the benefit of all parties?
- Is risk management and insurance going to be an important driver for change to project implementation?

Keywords

- Delivery of projects
- Partnering
- 3D & 4D design

- New financial models
- Project set up and definition
- Shared responsibility
- New contract forms
- Contractor selection
- Project management

FORUM 2: Best practice procurement **25**

Jiang Yingshi, *Shanghai Municipal Development & Reform Commission* 25
Dilek Macit, *EBRD* 29

Key issues

- Cost-based procurement is clearly failing worldwide. How soon before Quality based procurement becomes standard practice?
- Corruption is now openly discussed as a root cause of poor selection and implementation. Is proper training the solution, or more fundamental changes to the way in which societies operate?
- What can the consulting industry do to help?
- What advantages do you see in team selection, rather than consultant, contractor, sub-consultants, sub-contractors, etc?
- Do clients, especially those in the public sector, still need more education on what is being procured before we address the "how"?

Keywords

- Quality
- Guarantees
- QBS/QCBS/CBS
- International cooperation
- New criteria (e.g., integrity, quality, sustainability)
- Tendering procedures
- Terms and conditions (risk sharing, liability, etc.)
- What is being procured

FORUM 3: Emerging issues

Prof. Roger Flanagan, *UK*
Dominique Louis, *Assystem, France*
Prof. László Somlyódy, *Hungary*

Key issues

- What are the key fundamental changes impacting on the relationship between clients and consultants?
- How can we shift the focus from time-based design services to added value professional advice?
- There is now a world wide shortage of professionals. Why does supply and demand economics not work better in this industry?
- Will large firms continue to grow, to offer larger clients with bigger packages of services?
- What key skill sets do you see emerging in the near future? What impact will this have on design services and technical skills?
- How do you see consulting firms coping with the new demands of recruiting and retaining intellectual knowledge?

Keywords

- Security of projects
- Technology changes
- Outsourcing
- R&D
- Young professionals and sustainability of industry
- Knowledge management
- New skills and services
- Supply and demand; large versus small (firms)
- Client expectations
- New challenges (e.g., climate change, energy efficiency, sustainable development)

TUESDAY, 26 SEPTEMBER 2006

Seminars and Workshops

A. Emerging issues

Workshop 1: The consulting engineering firm of tomorrow **45**

Chair: Dr Martin Güldner, Germany
Facilitators: Kok King Min, Singapore; Richard Stump, USA

Ownership structures, firm size, range of skills, professional development, involvement of young professionals, and succession planning are all critical to the consulting firm.

- What will the average consulting firm look like in 2020?
- Will mega-firms continue to grow or specialise into smaller units.
- Will there continue to be a role for smaller "routine" or specialist consulting services?
- Will special teaming arrangements such as joint ventures be more or less prevalent?

Workshop 4: Business opportunities- new markets **61**

Chair: Péter Heil, *National Development Office, Hungary*
Facilitators: Patrick Batumbya, *Uganda*; Dusan Samudovsky, *Slovakia*

Examples will be provided of new opportunities in emerging markets in Europe, Asia and Africa. The power of effective networking will be demonstrated. This workshop will explore further how joint ventures, alliances and similar partnering tools can be effective. Examples of new areas of consulting opportunity will be shared.

What effective role can associations play in brokering or facilitating business networking will also be a key point for discussion.

Workshop 6: The role of consultants tomorrow **71**

Chair: William Howard, *CDM, USA*
Facilitators: Andrzej Michalowski, *Poland*; Han Lin Toh, *Singapore*

- Will the role of consultants change fundamentally?
- Should independent advisors be engaged and, if so, under what circumstances?

- What will consultants do differently in the future, and why?
- Will consultants have to use engineers differently to meet global needs?
- Is project management an integral part or independent service from consulting engineering firms?

B. Quality project implementation

Workshop 2: Project mechanisms **47**

Chair: Wilhelm Reismann, *iC consulenten, Austria* 47
Facilitators: Aki Hirotani, *Japan* 55
Flemming Pedersen, *Denmark* 57

What are the new financing options and the opportunities to be gained from them?

An outline of PPPs and the task group findings of FIDIC and EFCA will be provided – examples of the pros and cons – experiences from around the world, and views on the role of the consulting engineer.

Seminar 1: DBO Contract **33**

Chair: Michael Mortimer-Hawkins, UK
Panel: Axel Jaeger, *Germany*; Des Barry; I*reland*; Christophe Theune, *Germany*; Erica Lund, *Ireland*

The latest tool from FIDIC's Contracts Committee offers a new approach to projects. A FIDIC seminar on the new DBO contract and how it will work in practice.

Seminar 2: Risks and responsibilities in infrastructure development **37**

Chair: John Roberts, *CDM, USA*
Panel: Ewan MacGregor, *UK*; Michel Ray, *France*

In an increasingly complex array of implementation options, risks are often unclear or misdirected.

- In the end, who actually carries the project risk?
- What risks should remain with the owner?
- What is the role of insurers and in risk management?
- Should FIDIC/EFCA have a position on "uninsurable professional liability"?
- Should the engineer accept guarantees, warranties, liquidated damages and other similar contract provisions?

The workshop will learn of some experiences and understand the pitfalls and advantages.

C: Best practice procurement

Workshop 3: Developing and using skills **59**

Chair: Bayo Adeola, *CPMS, Nigeria*
Facilitators: Subhash Mehrotra, *India*; Andras Rev, *Hungary*

The world demands innovative solutions for increased demands on infrastructure. This requires highly skilled consultants, as well as design experts. The continuous upskilling of consulting engineers and their professional colleagues is essential. Examples of new models being developed will be presented. Learn more about the options and opportunities, both external and internal.

- Do clients really appreciate and value a commitment to capacity building?
- Should a commitment to ongoing training and development be overtly recognised in bid documents?
- How do we best encourage innovation and risk taking?
- Would the development of a FIDIC "certified" consultant facilitate business?

Workshop 5: Liability and Insurance **65**

Chair: Adam Thornton, *New Zealand*
Facilitators: Jacques Robert, *France*; Martin Hohberg, *Switzerland*

The ability of consultants to offer high quality and innovation is threatened, especially by unrealistic liabilities and limited insurance. Case studies on the implementation of best practice risk management, as well as success stories in tackling excessive demands on liability, will be presented. Learn also about the findings to date of the Joint FIDIC/EFCA Task Group.

- What does the reinsurance market really expect?
- Is there value in tackling unlimited liability globally?
- How best to engage in serious dialogue with the insurance industry?
- Should FIDIC/EFCA take a position on uninsurable risk and, if so, what should this position be?

Workshop 7: Quality Procurement **79**

Chair: John Gamble, Canada
Facilitators: Panos Panagopoulos, Greece; Xie Shaozhang, China

The services offered by consulting engineers are vital to our economic, social and environmental quality of life. This is often overlooked by clients who do not recognise that the impact of their procurement decisions can often be felt for many decades, even generations. As a result, procurement policies are often driven by short-term interests (usually cost) at the expense of more significant long-term value, higher quality and sustainability.

- How do fees and schedules affect our ability to act as the "trusted advisor", and to offer high quality service and value?
- How can we demonstrate to clients that consulting engineering is a value-added professional service, and is therefore an investment rather than an expense?
- How do we educate owners on concepts such as life cycle cost and sustainability, and the impact that consulting engineering services have on this?
- What are the tools needed to help owners make informed procurement decisions? Are specific tools needed to educate consultants as well?
- How can these tools help? Such tools include BIMs; Best Practice Selection Guidelines (QBS); Tendering Guides; Common Scope of Works definitions; PSM Guide. FIDIC and EFCA are collaborating on some of these critical tools.
- What knowledge, skills and resources are required by consultant selection panels? Should such panels be populated with engineers (some, most or all)?
- How do we, collectively and individually, deal with incidents of predatory pricing and/or poor quality within our industry?

Prehistory and history of the Carpathian Basin

Endre Dudich
Budapest

Hungary lies in the middle of Europe and of the Carpatian Basin, where roads were crossing already in the past and had a great importance 0n the prehistory and history.

- Black and yellow: The Ancient Roads of Obsidian and Amber
- Development of mining activity: exchange of Iron and Salt.
- Roman Empire extended to the Danube: Roman Military Roads met at Gorsium
- Danube as the longest river of middle Europe: Double-faced Danube: Frontier and Waterway
- The age of the Migration of Peoples: Peoples of the Sunrise and "Drang nach Osten"
- Trade roads in the middle age: Driving Cattle to the North and Rafting Timber to the South.
- Spiritual ways crossing on the board: Destination Heaven: West and East – South and North.
- Hungary defended Middle and West Europe against the Ottoman Empire: Cross and Crescent Crushing
- Railroads Crossing in Budapest : the Orient Express and the Balt-Orient Airway Connections Anyway

E. Dudich

Born in Budapest, Hungary on 27 January 1934, E.Dudich studied Geology (1952-1956), Biology and Chemistry (1956-1961) at L.Eötvös University in Budapest. He obtained a PhD in Palaeontology, geology and Zoology (1959), became a Candidate of Earth Sciences (Hungarian Academy of Sciences, 1978), Titular Leader in Faciology, L.Eötvös University (1983), Associate Professor of Geology, International Academy of Sciences, San Marino (1986), and Titular Professor of the University of Western Hungary (2004). He was successively:

- Assistant Professor of Palaeontology, L.Eötvös University, Budapest, 1956-1961;
- Geologist of the Hungarian Bauxite Exploration Company, Balatonalmádi, 1961-1965;
- Director of the Central Laboratory of the Hungarian Bauxite Exploration Company, ibid.,1965-1968;
- Information Officer at the Geological Institute (Geol. Survey) of Hungary, Budapest, 1968-1970;
- Director of the Department of Information and Documentation of the Geological Institute of Hungary, Budapest, 1970-1975, and Consulting Geologist of GEOMINCO S.A, 1970-1972;
- Senior Scientist and Head of the Organic Geochemistry Group of the Laboratory for Geochemical Research, Hungarian Academy of Sciences, Budapest, 1976-1980;
- Deputy Director (Laboratories and Documentation) of the Geological Institute of Hungary, Budapest, 1981-1986;
- Secretary of the UNESCO / IUGS International Geological Correlation Programme (IGCP), at UNESCO Headquarters, Division of Earth Sciences, Paris, France, 1986-1992;
- Director of the Office for External Relations of the Geological Institute of Hungary, Budapest.

E.Dudich retired in January 1994, and since that year has been lecturing Geology to students of Environmental Engineering and Environmental Science of the University of Western Hungary in Sopron (Faculty of Forestry, Department of Earth Sciences).

E. Dudich also worked in *Canada*, *Cuba*, *Iran* and *Mali*, and visited altogether 70 countries. His publication record comprises 66 scientific papers on Eocene (litho)stratigraphy, bauxite (in particular, bauxite geochemistry), organic geochemistry, information processing. His other publications (history of science, popularization of science, commemorations, book reviews, etc.) are over 200.

He was President of the General Geology Section of the Hungarian Geological Society (1981-1986), Secretary-General of the IUGS-IUHPS International Commission on the History of Geological Sciences (INHIGEO, 1984-1989), Foreign Vice President of the Geological Society of France (1993), President of the Association of European Geological Societies (AEGS, 1993-1995), coleader of IGCP Project 343 (1993-1996), Vice President of the Hungarian Esperanto Association (1994-1998 and 2004-2006), President of the Section for the History of Geology of the Hungarian Geological Society (1997-2003), member of the Editorial Board of several geological journals in Bratislava, Budapest, Ljubljana and Zagreb.

He was Chairman of the Subcommission on Geonomy of the Hungarian Academy of Sciences (1997-2005), First Vice President of the Hungarian Geological Society (2000-2006), Corresponding Member of the Austrian Geological Survey (Geologische Bundesanstalt, Vienna), Honorary Member of the Hungarian Geological Society, of the Hungarian Society for Karst and Cave Research, and of the Serbian Geological Society. In 2003 he was awarded the Count Klebelsberg Prize and in 2004 the ”For Bauxite Mining” Medal.

E.Dudich has active working knowledge of ten European languages (English, French German, Italian, Latin, Russian, Spanish, Bulgarian, Romanian, Esperanto) and passive knowledge of a dozen languages more. His other fields of (active) interest include (the history of) philosophy, science fiction, Central and North American Indian cultures (in particular the Lakota and the Crow), and (Hatha) Yoga.

Prehistory and history of the Carpathian Basin

Endre Dudich
Budapest

1. Black-and-yellow: the Ancient Roads of Obsidian and Amber

Some 5-5 thousand years BP barter-type trade – exchange of wares – was already flourishing. In the Tokaj Hills shining black volcanic glass was being exploited. It was transported westwards as far as what is now Switzerland, as a very much demanded raw material of knives and arrowheads. At the coast of the Baltic or White Sea transparent yellow to brownish orange fossil resin known as amber was collected and transported southwards to the Mediterranean.
The two roads crossed each other at what is now the town of Szombathely (in Roman times: Savaria), near the boundary between Hungary and Austria.

2. Exchange of Iron and Salt

Rock salt has always been needed and appreciated for the diet of all peoples. When the melting of iron ore was invented, and bronze tools and weapons turned obsolete, its occurrences became jealously guarded sites of mining activity. Both salt and iron ore were present in the Northern and North-eastern Carpathians. Iron products were transported southwards along the "Iron Road" (Eisenstrasse), and raw or refined salt westwards. The two roads met somewhere in Transdanubia. To control this trade was one of the good reasons for the Romans to conquer this area from the Celts.

3. Roman Military Roads Meet at Gorsium

For several centuries the second-longest river of Europe, the Ister / Danube, was part of the "Limes", or boundary, of the Roman Empire. In the twin provinces of Pannonia Superior and Inferior a relatively dense network of roads was constructed. The impressive ruins of the main town, Aquincum, can be seen in Budapest itself.
The two main military highways leading from Viundobona (at present: Vienna) and Carnuntum to Aquincum, and from Sirmium to Brigetio, met at Gorsium, near the town of Székesfehérvár. Several centuries later, in the 11th century, the first written Hungarian sentence, recorded in the otherwise Latin-language Deed of Foundation of the Benedictine Abbey of Tihany, still mentions the "military road leading to Fehérvár".

4. Double-faced Danube: Frontier and Waterway

The mighty river was not only a separating line, a natural boundary defended by quite a series of "burgi" (fortified towers). Throughout history it has served also as a major waterway. All kinds of boats and vessels were moving downstream from Central Europe to the Balkans and (much less easily) back. A particularly privileged area was thed Danube Bend, where the eastward-flowing stream abruptly turns southward.
It is there that the center of this type of commerce, Komárom / Komarno, the archiepiscopal see and first residence of the Hungarian Kings, Esztergom, and the spectacular royal castle of Visegrád have developed. Te later was the venue of a regional summit of three kings (those of Poland, Bohemia and Hngary) in 1335.

5. Peoples of the Sunrise – and the "Drang nach Osten"

During the great Migration of Peoples successive waves of nomadic tribes coming from the East passed the Carpathians and got confronted with the Roman Empire.Under this constant and steadily growing pressure the Romans withdraw, evacuating Pannonia (and also Dacia). Goths, Huns, Gepids, Slavs, Avars succeded to each other, and – last but not least – the Hungarians (definitively

in the late 9th century). By that time, the Germans have started their stubborn expansion towards the East – the famous "Drang nach Osten".
The collision weas inevitable. The conflict, with short interruptions, lasted for more than thousand years – as a matter of fact, till the end of World War II. It eventually interfered with the step-by-step advance of the Ottoman Turks from the South towards the North. They occupied Buda in 1541, but were eventually stopped at Vienna in 1683.

6. Driving Cattle to the North and Rafting Timber to the South

The long-lasting Turkish occupation has closed some roads but opened others. From the Balkan Peninsula from Bulgria under Turkish rule, huge herds of cattle were regularly driven northwards, as far as to Poland. Having crossed the inhospitable Southern Carpathians, the "cow-boys" (there called *Haiduks*) had a good rest in the town of Kolozsvár / Klausenburg / Cluj, seriously contributing to the prosperity of the biggest town of what then was the Principality of Transylvania. Re-starting and heading North, they had to cross several rivers coming from the Norh-eastern and Northern Carpathians. At the fords they met and traded with the rafters who transported timber downstream to the lowland.

7. Destination Heaven : West and East – South and North

Beside material goods, also spiritual ones met in this region. Even prior to the Great Oriental Schism (1054) the Pope of Rome and the Patriarch of Constantinople (Byzantium) were competing to save the souls of the "pagan" peoples. (Both were backed by a mighty empire very much of this world.)
The Ukrainians, Rumanians, Bulgarians, and Serbs adopted the eastern Orthodoxy, while the Prussians, Poles, Estonians, Latvians, Lithuanians, Czechs, Slovaks, Hungarians and Croatians adhered to western Catholicism. The consequences are seriously felt even in our days: let us refer only to the bloody war between Serbs and Croatians in the 1990s.
The NNE-SSW striking demarcation line is crossed by a W-E orinted one. It came into being in the 16th-17th centuries, with the Reformation and the ensuing Counter-reformation, separating Catholicism in the South from Protestantism in the North.
It is remarkable that the junction may be pointed out exactly: it is the Black Church in the town of Brassó / Braşov / Kronstadt .—the last Gothic and Protestant (Lutheran) church in Europe towards the SE. No wonder that it was in the mixed-religion Transylvania that, for the first time in Europe, religious freedom was proclaimed (by the National Assembly held at Torda in 1568).

8. Cross and Crescent Crushing

The Ottoman Turks brought along a different language and an oriental-type culture, including thermal and steam baths, but also a different religion. It happened to be a rather militant one, the Islam. The tide was advancing until 1683, the ensuing ebb until as late as 1920. It may aptly be symbolized by the bells ringing daily at noon – ordered by the Pope in 1456, on the occasion that Hungarians and their allies succeeded in defending Nándorfehérvár / Belgrade against the Turks.

9. Railroad Crossing in Budapest

Railroads represented a real revolution in transportation. In Hungary, the first, 40 km long line between Pest and Vác was inaugurated in 1856. The 20th-century development is characterized by the N-S- running Balt-Orient Express and the W-E travelling famous Orient Express. They meet right here in Budapest.

10. Also Airways Are Fair Ways

Flight itineraries are obviously less "stable", very easy to change. We can't pretend that Ferihegy Airport of Budapest is one of the biggest in Europe. Nevertheless it is a junction of airlines from Oslo to Athens and from Moscow to London.
Finally, we are happy that also the roads of all of you have met here. And without collision.
Welcome to Hungary!

Hungarian engineering - roads and challenges

László Somlyódy
Budapest

Engineering art from Vitruvius to von Karman: science, knowledge, practice, intuition and innovation.

Outstanding Hungarian natural science and engineering schools, and personalities: giants from Bolyai to von Neumann and others. Their contribution to the rise of the country in the 19th and 20th century: late modernization.

Creativity of Hungarian engineers.

Decades of non-sustainable development after the second World War.

The political change: back to Europe and opportunities of the European Union integration process.

Recent trends in engineering:

- shift from closed linear systems to open, large and complex ones;
- integration principles: environment, sustainability, closing material cycles;
- importance of interdisciplinary approaches;
- new opportunities: IT, material sciences and others.

Measuring engineering excellence.

Bottlenecks and barriers: politics and policies, institutions, legislation, decision making and others.

Globalization.

Ethical dilemmas.

Future engineering.

Consulting in Hungary: tremendous needs and a developing business under European/global market conditions.

- Impacts: good and bad.
- Routine versus high quality consulting.
- IT and advanced engineering: benefits, only?
- The role of education.
- Importance of R&D achievements.
- Examples: flood control, material sciences, traffic control, architecture.
- Lessons for a small country.

A global perspective on drivers and issues shaping business in the future

Roger Flanagan
University of Reading, UK

The talk will focus on the global issues and drivers of change shaping consulting and contracting business in the future. What will engineering firms look like 10 years from now? Where will engineering firms place their emphasis? How will projects be different?

The challenge in the future must be to have sustainable, competitive, and profitable engineering and construction firms in the sector.

Roger Flanagan

Roger Flanagan is Professor of Construction Management, School of Construction Management and Engineering, University of Reading, UK.

Member of the Board of Directors of Skanska AB since 1998, the parent company for the Skanska Group

Non-executive member of the Board of Directors of Halcrow Group since 2000.

President of the Chartered Institute of Building (CIOB), a professional institute with 2,000 members in 55 countries.

Currently visiting Professor, Chalmers University of Technology, Gothenburg, Sweden, Chongqing University and Tianjin University, People's Republic of China, University of Cape Town, South Africa, Istanbul Technical University, Turkey, University of New South Wales, Australia, Universiti Teknologi, Malaysia.

The new territories of engineering

Dominique Louis
Assystem, France

Why?

- Time to market
- Internationalization of markets
- Rise of Asia: markets and competition
- The permanent innovation of products (aeroplanes, cars, etc.)

The consequences

- New clients (automotive, aerospace, etc.)
- New business models (offshore; risk sharing)
- New trends
- New competences, and the new behaviour of engineers
- International cultures: language and mobility; cultural differences
- Global vision between companies: evolution on how to manage (or to deal with) the client as well as the project.

A European opportunity?

- The emergence of global players in Europe owing to the consolidation of national players?
- Size, cultural and "bio-diversity" assets

Dominique Louis

Dominique Louis graduated from a French engineering university in 1974 (ENSEM, Nancy), then from a business management university (CPA, Lyon) in 1985. He started work at ATEM (1974-81), a French engineering services company, as consultant. Then in 1982 started his own engineering services company (R'DATA). In 1989, R'DATA took over ATEM and Dominique Louis became Chairman and shareholder at 50%. In 1994, R'DATA merged with a nuclear subsidiary into Assystem.

Dominique Louis is now the Chairman of the Management Board of Assystem and a shareholder at 16%. He was also very much involved as a "business angel" with his company *Entreprises et Croissances* and he won the Leonardo Business Angel Price in 1998.

Budapest 2006

The new domains of Engineering

Quick overview about myself:

⇨ **30 years of experience in the same company**

Quick overview about Assystem:

⇨ **Throughout these past 30 years, one goal:**
« How to stay alive »

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

What caused these transformations ?

The conquest of the Product Engineering Market

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

Why ?

New customers ?

New business models ?

New competitors ?

New engineers ?

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

Why ?

'Key factors we all know'
The talk of the town

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

Time to Market

'Getting the biggest piece of the pie'

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

Globalisation

For Product Engineering,
the 'Global Village' is very much a reality

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

The Asian 'big bang'

New clients…
but at the same time…
…new competitors

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

Cutting Edge Innovation

« Ever increasing speed »

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

What consequences ?

Product Engineering is 'bullish'

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

New Customers ?

The product engineering report to the marketing

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

New Business Models

The main competitor is the customer

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

New Competitors

Strong Consolidation is inevitable

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

New Engineers

'From Skill to Behaviour'

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

The new domains of Engineering

European Opportunity

'Europe as a domestic market'

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Thank You for your attention

ASSYSTEM

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Partnership models

Phasing of partnership models

Advantages of partnership models for the employer

Conclusion: cooperation, mutual trust, common objectives

Roland Jurecka
Strabag, Austria

Studied at University of Aachen and Munich, Faculty of Civil Eng. Graduated Engineer (Diploma) in 1969. Studied Law at Cologne University. First State Examination in 1974.

09/1969	Joined STRABAG AG, Cologne
09/1969 – 09/1972	Civil Engineer in the Structural Dept. of Head Office in Cologne
09/1972 – 10/1974	Legal Dept. of Head Office, responsible for the legal affairs of a subsidiary
10/1974 - 1976	Project Manager for the Construction of International Trade Fair Hall 14, Cologne, Germany
1976 - 1977	Project Manager for the Construction of the International Congress Centre, Berlin, Germany
1978 - 1979	Project Manager for final design and construction of turnkey hangars at International Cologne-Bonn Airport, Germany
1979 - 1981	Project Manager for the Construction of the Brunsbüttel High Level Bridge / Germany crossing the Baltic Sea Canal used by ocean going vessels
1982 - 1991	STRABAG Österreich AG, Linz Manager of the Overseas Division and Head of the Special Engineering Department (Building and Civil Engineering)
1991 - 1997	Member of the Executive Board of STRABAG Österreich AG Member of Advisory Board for several BOT (Concession) projects and subsidiaries

1991 – 1997	Member of the Board of Austria's Concrete Association
1995 - 1997	President of Austria's Concrete Association
1997 - 1999	Member of the Executive Board STRABAG AG, Cologne Responsible for Building and Civil Engineering and all Overseas Activities
Since 1999	STRABAG SE, Vienna Member of the Executive Board

Privatisation and PPP

Péter Mitka
Pricewaterhouse Coopers, Czech Republic

A PwC consortium advised the Slovak government on the privatisation of Slovenske Elektrarne, a transaction which had started in 2002 and was financially closed in 2006. It was one of the most important and most complicated privatisation transactions in the history of privatisations in Slovakia and in Central and Eastern Europe.

The presentation will review considerable experience in managing advisory teams consisting not only of economic advisors, but also lawyers and technical advisors. These teams advised clients on transactions involving transfer of the state property on to private investors. In addition to privatisation projects, there is an increasing number of PPP projects. The experience of aPwC consortium advising the city of Brno on a pilot PPP project in the sporting and leisure sector will illustrate some of the challenges.

Péter Mitka

Education

CITIBANK TRAINING PROGRAMME, ISTANBUL
Advanced Corporate Finance and Valuation

1986 - 1991: UNIVERSITY OF ECONOMICS, BRATISLAVA
MSc Business Administration

Experience

2001 to date: PRICEWATERHOUSECOOPERS, PRAGUE
Director, Infrastructure, government and utilities group. PPP leader for CEE and CIS responsible for coordination of PwC activities across the CEE/CIS region aimed at the business development in the emerging Public Private Partnership area

1999 - 2001: CITIBANK, PRAGUE
Assistant Vice President, Corporate Finance

1997 - 1999: J&T SECURITIES, BRATISLAVA
Head of Equity Research/Member of the Board of Directors

1996 - 1997: EPIC, BRATISLAVA
Investment Manager/Portfolio Manager

1993 - 1996: US GOVERNMENT FUNDED SLOVAK-AMERICAN ENTERPRISE FUND (Venture Fund), BRATISLAVA
Investment Officer and Portfolio Manager. Served as member of the Board of Directors in several investment targets

1991 - 1993: EU FUNDED REGIONAL PRIVATE EQUITY FUND, ZILINA
Assistant Investment Officer

References

2006 to present: CITY OF BRNO, CZECH REPUBLIC

Project Manager: advising the City of Brno on financing of the sport and leisure project

2006 to present: EGAP, CZECH REPUBLIC
Project Manager: advising commercial insurer on sale of 66% to a strategic buyer

200 2- 2006: SLOVAK GOVERNMENT
Project manager: advised the Slovak government on the sale of 66% stake in Slovenske Elektrarne, power generation company to Enel for EUR 839m. Transaction included sale of 2 nuclear, 2 thermal and 30 hydro power plants

2005: English, Welsh and Scottish Railway Holding Ltd., SLOVAKIA
Project Manager: advised potential strategic investor interested in acquisition of the Slovak rail cargo

2005: ABERTIS/TBI/J&T, SLOVAKIA
Project Manager: advised potential strategic investor interested in acquisition of the Bratislava airport

2001: ASSI DOMAIN STUROVO, SLOVAKIA
Project Manager: advised Assi Domain Sturovo, pulp and paper producer, on an outsourcing of the power plant

2001: MINISTRY OF TRANSPORT, CZECH REPUBLIC
Project team member: advised the Czech government – a review of the financing options of D47 motorway

2001: ECKG KLADNO, CZECH REPUBLIC
Team Member: advised ECKG's shareholders on ECKG's financial restructuring

2000: CINERGY CORPORATION/CZECHPOL, CZECH REPUBLIC
Team Member; advised Cinergy on fund raising

2000: CINERGY CORPORATION, CZECH REPUBLIC
Project manager: advised Cinergy on an identification of strategic opportunities in the Czech Republic

1997: TESLA LIPTOVSKY HRADOK, SLOVAKIA
Project manager: advised Tesla LH, producer of telephone switchboards, on financial restructuring and assets disposal. Served as member of the Supervisory Board

Shanghai - a grand platform for the development of the engineering consulting profession

Jiang Yingshi
Shanghai Development and Reform Commission

I'm much honoured to be invited to participate in FIDIC-EFCA-AHCEA 2006 conference, to learn and share our experience with our friends from international engineering consulting profession, and seek for mutual cooperation and development.

FIDIC is a well-known international organization of engineering consulting industry. In recent years, Shanghai has strengthened communication and cooperation with FIDIC. FIDIC current President, Mr. Padilla, Past Presidents, Mr. Bowes, Mr. Pederson, Mr. Kell have successively paid formal visits to Shanghai, met the leaders of Shanghai Municipal Government, and established good relationship with Shanghai. In May 2002, FIDIC, together with China National Association of Engineering Consultants (CNAEC) and Shanghai Municipal Government, successfully held the "International Engineering Consultancy Forum on Sustainable Development of Shanghai", which further enhanced the cooperation between FIDIC and Shanghai.

On this occasion, I'd like to give a brief introduction of Shanghai's urban construction and development, as well as some information about the preparations we made so far for World Expo 2010. I'd also like to give my opinions on "Advancing the Contribution of Engineering Consulting Industry".

I. The Big Achievements in Shanghai Urban Development

Shanghai is a super-metropolis, with an area of 6,340 sq. km and a regular population of 18 million. Since 1990s, the modernization construction of Shanghai has stepped up and achieved big accomplishments.

Firstly, Shanghai's economy keeps a rapid and stable growth.

Since 1992, the GDP of Shanghai has kept a two-digit growth over the last 14 years, and reached US$110 billion (RMB880 billion) in 2005.

Secondly, great progress has been made in urban construction and environmental protection.

In 2005, the international container throughput of the Shanghai Port has reached 18.08 million TEU, and ranked as the third largest container hub port in the world for the past three years successively; the passenger throughput of airports has reached 41.39 million; the rail transit lines have been operating with a total length of 123km and expressway has been working with a total length of 560km; the green ratio for the urban area has reached 37% and the public green space area per capita has reached 11sq.m; the proportion of investment in environment protection to GDP is above 3%.

Thirdly, the quality and conditions of people's life are being continuously improved.

The residential area per capita has reached 25sq.m. People's average expected lifespan has reached 80 yeas old. Many cultural and educational facilities, such as Shanghai Museum, Shanghai Grand Theatre, Science & Technology Museum and Oriental Art Centre, etc, have been built. F1 Car Race, Tennis Master Cup and other cultural festival activities have been successfully held in Shanghai.

Fourthly, the level of opening is much improved.

The number of foreign enterprises in Shanghai now amounts 40,000 with an actual foreign direct investment of US$60 billion. 430 of the Fortune Top 500 Companies have their presence in Shanghai. A series of international conferences, such as APEC Forum, Fortune Global Forum, Global Poverty Reduction Conference and Shanghai Cooperation Organization Summit were successfully held in Shanghai.

II. The Main Experience of Shanghai Urban Development

1. The achievements in Shanghai urban development are the results of particular emphasis of scientific decision & development.

As for development guiding thought, Shanghai always sticks to human-oriented sustainable development, so that citizens share the benefits of economic development and enjoy a better life. We persist in the strategy of functional orientation to be an international economic, financial, trade and shipping center together with co-development in society, economy, culture, environment, population and resources. And for key projects construction, we adhere to scientific decision, high level planning, design and construction, aiming to create elaborate works of projects.

2. The achievements in Shanghai urban development owe to the collective wisdom of domestic and international engineering consulting firms and experts.

Aiming at building an international metropolis, we highly value the role of engineering consulting firms and experts in strategic study, long-term planning, crucial decision and implementation of urban development.

For example, at the beginning of Pudong opening and development, we invited British, French, Japanese, Italian and five domestic designing firms to participate in the planning for Lujiazui Finance & Trade Zone. Thereafter, the landmark projects in Shanghai were all carried out through international bidding, attracting internationally renowned designing & consulting firms. Examples are: Planning for Urban Rail Transit Network, Planning for Comprehensive Development of Riverbanks of Huangpu River, Shanghai Grand Theatre, Shanghai Science & Technology Museum, Pudong International Airport, Oriental Art Center, and Yan'an Road Central Green Space, etc.

More recently, in the course of making the five-year development plan for 2006 to 2010, we conducted investigations and studies on over 60 issues, held more than 60 large strategic consulting seminars, and set up an expert committee to evaluate and demonstrate our plan.

3. The achievements in Shanghai urban development are vivid examples of adopting FIDIC conception.

The conceptions, contracts and methodology of FIDIC are extensively applied to the construction and management of expressways, cross-river projects, environment improvement, airport terminals, electric power plants, ports and other key projects in Shanghai, to better balance and protect the benefits and needs of the owner and contractor.

We pursue strictly owner responsibility system, bidding contract system, contract management system and project supervision system to best allocate and integrate the resources on the basis of fair competition. We carry out the concept of sustainable development, pay much more attention to the economic, environmental and social assessments, establish monitoring and evaluation system in environment, society etc for key projects, thus to try our best to improve people's living environment and life quality.

4. An open market facing the whole world is the prerequisite to healthy growth of engineering consulting profession.

Currently, there are more than 1400 companies, including 200 foreign companies, involved in engineering consulting business in Shanghai, with a staff of some 150 thousand. The business scope covers planning consulting, feasibility study, project evaluation, project management, design, supervision,

cost and bidding, etc. Among these companies, 190 companies are doing investment decision-making and project pre-investment consulting service, with a consulting staff of about 25 thousand, around 600 are designing companies, 570 are doing project management, designing, supervision, cost and tendering service, etc.

Most of the key projects of planning and design are carried out through international bidding. Meanwhile, combining the advantages of Shanghai local engineering consulting companies and international companies, joint tendering is also a trend. Some of the large engineering consulting companies in Shanghai are now capable of taking large international business and join the international competition.

III. Preparation for Shanghai World Expo 2010, China and Urban Development of Shanghai

On December 3rd 2002, Shanghai successfully won the bid for World Expo 2010.
"Better City, Better Life" is the theme of World Expo 2010, which indicates several aspects in meaning: urban multi-culture complex, prosperity of economy, science and technology innovation, harmonious urban communities, and inter-development of city and rural area. Being a theme with clear time mark, "Better City, Better Life" is human-oriented and a positive answer to the problems emerging in urbanization. Shanghai World Expo aims at an objective of attracting 70 million visitors and 200 countries (incl. international organizations) to participate in it, which would be a new record in the history of World Expo.

Located in the riverfront areas of Huangpu River, mother river of Shanghai, the Expo Park area is not only a key area for old town regeneration and riverbank development, but also a key area for urban space development and service function improvements of Shanghai. The construction land for pavilions and service facilities of Expo is about 5.28sq.km. The relevant national pavilions, comprehensive pavilions, theme pavilions, international conference center and Expo Village will be constructed.

The preparation process for World Expo, 2010 is also the key process for the urban development of Shanghai. Our objective is, to build the basic framework of international economic, financial, trade and shipping center by 2010. First of all, we will keep on construction of an urban infrastructure system in hub model, function model and network model. By 2010, we will establish the position of an international shipping centre and become one of the ports with largest container thruput in the world; and Shanghai Aviation Hub will be completed by then basically. Pudong and Hongqiao Airports will handle 110 million passengers annually; and 11 rail transit lines will be operating with total length of 400km. Secondly, we will enhance environment protection and eco-construction. Aiming at building an eco-city, we will enhance water-treatment, air management, solid waste disposal, industrial pollution control, agricultural pollution control and eco-construction etc, to create beautiful environment of Shanghai. Thirdly, we will highly rate the cultural development. Consider how to combine the protection of historic buildings with old town regeneration, and how to improve the living conditions and environment of people. Priority should be given to increasing more public space and green space in central area, to provide citizens with more beautiful and better living environment.

IV. Shanghai, a Grand Platform for Development of Engineering Consulting Profession

Shanghai always sticks to the idea of sustainable development in the course of Expo bidding, preparation and holding, with a theme of "human-oriented, science & technology innovation, multi-culture, all-benefit cooperation, and facing the future".

Hereon, I'd like to present my three suggestions on how to strengthen the cooperation between Shanghai World Expo and international engineering consulting industry:

We welcome international engineering consulting firms to take part in the planning, design and construction management work of Shanghai World Expo Park. There are ten designing firms (or joint ventures) from U.S, Britain, France, etc participating in the open bidding for "The Planning Scheme Collection for Shanghai World Expo Park". In the near future, with the launching of infrastructure and key pavilions construction of Expo Park, the key pavilions such as national pavilions, theme pavilions, performance center and exposition pavilion, are all going to be carried out through open bidding?

We welcome international engineering consulting firms to take part in the consulting service for exhibition of World Expo 2010 and participating in the exhibition. Shanghai Expo will display the latest science & technology achievements in urban circle planning and construction, city security and disaster-prevention, integrated and intelligentized transportation, eco-environment preservation, sustainable energy technology, information technology, and health & hygiene technology etc. The member firms of FIDIC all over the world are not only well experienced in these areas, but also have advanced conceptions, technologies and methodologies. We welcome you to provide consulting services for Expo. Meanwhile, Shanghai Expo will set up an exhibition area especially for international organizations and corporations. We warmly welcome you consulting firms to come to Shanghai participating in Expo 2010. We welcome international engineering consulting firms to participate in the subsequent development of Shanghai Expo. According to the plan, the Expo Park will be another landmark in the central area of Shanghai in the 21st century, performing the function of an international communication and business service center. It will be the paragon of development and regeneration within central area in super-metropolis. The planning, construction and development for subsequent utilization of Expo Park will keep going on till 2020. In this stage, we still welcome the high quality planning, design and consulting services from all over the world.

In approaching to the overall strategic objective as an international metropolis, Shanghai will provide gigantic market and stage for the development of domestic and foreign engineering consulting firms. We sincerely welcome any concern, participation and support from friends of international engineering consulting industry in the development of Shanghai. I believe that the stage provided by Shanghai Expo 2010 will surely bring opportunities for international engineering consulting industry..

Jiang Yingshi

Mr. Jiang Yingshi was born in Shanghai in December 1949 and graduated from Fudan University with a Master Degree. Professionally, Mr. Jiang is a researcher. From February 1984 to Feburary 1997, Mr. Jiang was nominated consecutively as the Principal of Shanghai Renmin Electric Machine Works, Deputy Director of Technical Renovation Department & Director of Administration Department of Shanghai Economic Committee, Vice Director of Shanghai Chemical Industry Bureau, Vice President of Shanghai Chemical Holdings (Group) Company, Vice President of Shanghai Huayi (Group) Company, and Chairman of the Board of Shanghai Tyre & Rubber Co., Ltd. From February 1997 to August 2003, Mr. Jiang was nominated consecutively as the Deputy Director of Shanghai Municipal Planning Commission, Deputy Director of Shanghai Development Planning Commission and Deputy Director of Shanghai Foreign Investment Committee. Since August 2003, Mr. Jiang has been nominated as the Director of Shanghai Municipal Development & Reform Commission.

Selection and engagement of consultants and the adoption of best practice

Dilek Macit
EBRD, UK

- The importance of consultants
- How to select consultants
- EBRD's Procurement Polices and Rules
- eSelection
- Obtaining good performance
- The role of the consultant must be considered in the framework within which the capital investment of an operation is to be delivered

Dilek Macit

Professional experience

Feb 1997 to date	Director, Consultancy Services Unit, EBRD. Responsible for all consultancy contracts in the Bank funded by the Bank's budget and technical cooperation funds, including selection and engagement of consultants. Responsibilities include operational support and compliance; development of any policies, procedures and systems applicable to consultants' procurement, contracting and evaluation. A member of the Technical Cooperation Review Committee responsible for review, advising, approval and implementation of Technical Cooperation projects. Served as member of various institutional committees of EBRD.
Sept 1992 to Feb 1997	Counsel, Office of General Counsel, EBRD Dealt with institutional and administrative affairs, donor agreements for technical cooperation funds, established cooperation and special funds, consultants contracts, legal matters for Human Resources and Administration Vice Presidency and law reform. Advised on and negotiated the establishment of the Bank's resident offices in 20 countries of operations.
1990-1991	Jacques & Lewis (now Eversheds), London – Firm of Solicitors Solicitor, commercial law/contract
1987 -1990	Malkin Janners, London, solicitors Trainee Solicitor and then Solicitor
1985-1986	MR G.A.H. Mentesh Chambers, Cyprus Commercial Law Chambers Pupillage (trainee Barrister)

Education and Qualifications

1981-1984:	LLB (Hons) University of Westminster, London
1984-1985:	MA in Law, Diploma in Law & Practice, City University, London
1986:	Admitted as Barrister in England and Cyprus
1990:	Admitted as Solicitor in England

Selection and Engagement of Consultants and the Adoption of Best Practice:

EBRD Experience

Dilek Macit
Director of Consultancy Services

FIDIC 2006 Annual Conference

www.ebrd.com

The Presentation:

- The importance of consultants
- How to select consultants
  - EBRD's Procurement Polices and Rules
  - eSelection
- Obtaining good performance

www.ebrd.com

The Project Delivery Strategy (PDS)

- The role of the consultant must be considered in the framework within which the capital investment of an operation is to be delivered

www.ebrd.com

Factors and Influences

EXTERNAL FACTORS

- EBRD's PPR
- Local regulations
- Industry practices
- Market conditions
- Local commercial practices
- Ethics and corruption

PROJECT

INTERNAL FACTORS

- Objectives
- Requirements
- Characteristics
- In-house capability

www.ebrd.com

The Importance and Necessity of the Technical Consultancy Services

Assist the Client with:

- Project Preparation eg. feasibility studies, design, environmental impact assessment
- Project Implementation:
  - capacity building, institutional development, eg. project implementation units – role of a partner
  - project supervision: Independent Engineer – very clearly defined contractual role

www.ebrd.com

The Importance and Necessity of the Technical Consultancy Services..cont'd

Assist the Bank with:

- due diligence
- project monitoring, lenders technical supervisor

www.ebrd.com

Procurement Policies and Rules

- Require economy, efficiency, transparency & fairness
- Detailed rules for public sector operations
  - Open tendering the norm for goods and works
- Private sector operations
  - Normal commercial practices “acceptable to the Bank”
- Consultant Services
  - Quality paramount

www.ebrd.com

Consultant Selection Procedures

- Three types of procedure:
  - below EUR 50,000 - direct contract
  - EUR 50,000 to EUR 200,000 - selection from shortlist
  - EUR 200,000 and over - competitive selection
- Shortlist (3 to 6 qualified firms)
- Evaluation on technical merits first
- Price can sometimes be an additional factor

www.ebrd.com

Consultant Selection Methods

Consultants Selection:

- Quality Based Selection (QBS)
  - Most important criteria technical qualification/ relevant experience

Price as a factor:

- Quality Cost Based Selection (QCBS)
  - 2 Envelope System. The norms are:
  - Technical proposals: weight of 80% and only when technical thresholds are met
  - Financial proposal: weight 20% (similar to the EU)

www.ebrd.com

Consultant Selection Methods...contd

- If cost is more than 20% in weight, this can become cost based selection
- Cost Based Selection: only applied when the ToRs are “routine”
  - not suitable for technical/engineering consultancy
  - not used at the EBRD

www.ebrd.com

The Scope of the Consultancy Services

- Role of the consultant: e.g. as a partner or independent engineer
- Terms of reference – clear
- Use internationally recognised forms of contracts
- Appropriate remuneration
- Professional liability insurance
- Duty of care – loyalty to whom: client or contractor, avoid conflict of interests
- Monitor quality of services

www.ebrd.com

EBRD’s Initiatives to Simplify and Modernise Consultants Selection & Engagement

- Balance between trust and confidence vs detecting fraud and corruption
- Relying on experience and expertise of members of the evaluation panels (know how). Centralised controls
- Provision of advice/administrative assistance
- Transparency of decision making - audit trail

www.ebrd.com

Simplification and Modernisation of Consultants Selection & Engagement

EBRD introduced:

- Evaluation forms as opposed to narrative based memoranda
- Standard forms as worksheets
- For scoring: Simple arithmetic/descriptions, eg. pass/fail or acceptable/good/excellent culminating in aggregated scores
- Procurement plans for each contract, better monitoring (including turnaround) and management

www.ebrd.com

e-Selection for Consultants

This is a web based application intended to provide:

- More transparency
- Wider participation in competition
- Level playing field
- Less time spent on monitoring EBRD's website and therefore, more effective business development

www.ebrd.com

Benefits of e-Selection for Consultants

- Subscription for electronic notification of consultants about new opportunities by sector and country to increase competition
- Maintain their own information (eg. upload cvs)
- Electronic expression of interest and submission of proposals (including financial proposals) by consultants
- Consultants will be able to search for opportunities and view status of an assignment

www.ebrd.com

Performance Evaluation/Consultants Appraisals

Performance evaluation/consultant appraisals to be taken into account in future selection:

- Blacklisting – very rare
- Due process to take place
- Nevertheless – same consultants, similar assignments, therefore the need to be aware of the quality of previous performance

www.ebrd.com

Performance Evaluation/Consultants Appraisals..... cont'd

- Consultant Appraisal reports to be given to Operation Leaders/Selection Panels on a need to know basis
- Information treated with caution due to large number of variants between different assignments, eg. location, experts/composition of team, terms of reference, consultants

www.ebrd.com

End of Presentation

Thank you for your attention

www.ebrd.com

SEMINAR: TUESDAY, 26 SEPTEMBER 2006

DBO CONTRACT

The new Design, Build and Operate form of Contract

Michael Mortimer-Hawkins
FIDIC Contracts Committee and Chairman of DBO Task Group

Purpose and Structure of the Seminar

Oral Presentation with Powerpoint Slides

Background to the new document
How the new document will look and work
Key issues and areas where DBO differs from the other FIDIC forms

Round Table Discussions

Each of the round tables will be asked to consider some of these key issues, and report back with your thoughts on how these key issues should be addressed.

Question and Discussion Session

Your opportunity to put questions to the DBO panel and air your views on the new document.

Background to the DBO Form

The DBO approach to contracting combines design, construction, and long-term operation (and maintenance) of a facility into one single contract awarded to a single contractor (who will usually be a joint venture or consortium representing all the skills called for in a DBO arrangement).

The format of a DBO arrangement can be based on either a 'green field' scenario (D-B-O), or on a 'brown field' scenario (O-D-B). Either is quite common, however the contractual requirements and procedures are quite different.

FIDIC has chosen to produce a document based on the DBO green field scenario, with a Guide containing guidelines on the changes necessary to cover a brown field arrangement.

The other factor we had to consider was the length of the Operation period, since the conditions suitable for long-term operation are not necessarily suitable for a short-term operation. From the experience of the DBO members it was decided that the most useful period to consider was 20 years operation – again giving guidelines if a shorter period was required.

Advantages of DBO

There are many advantages of using the DBO approach.

However, as with all forms of Contract, if one attempts to use the DBO form on projects which are not suitable for this approach – the advantages and benefits will be lost.

The recognized advantages of DBO are:

Time: With possibilities to overlap some design and build actives it will be possible to minimize delays and optimize the smooth flow of construction activities.

Financial	With cost restraints and commitments and other risks being carried by the Contractor, there is less risk of price over-runs.
Quality	With the Contractor responsible for 20 years operation, he has an interest to design and build quality plant with low operation and maintenance costs. Not only will then plant be 'fit for purpose' but it will be built to last.

For the Employer this will optimize the life-cycle costs of the project and provide the most reliable and efficient innovative technology.

The new DBO Document

The format of the new document follows the traditional format and layout of previous FIDIC documents, with 20 clauses, and, where appropriate, using the same terminology and definitions which are found in the other documents.

The document will have General Conditions, Particular Conditions, flow charts and sample forms – just like the other FIDIC documents, and a Guide which will include guidelines on how to change the clauses if it is required to have a document for a 'brown field' situation, or an operation period significantly different to the 20 years we have adopted.

It assumes an organization similar to the Silver Book, with the Employer, the Contractor and the Employer's Representative as being the principal parties.

In many areas it is also necessary to differentiate between the different stages of the project:

- Design and planning
- Build and construction
- Operation and maintenance

Overview

The oral presentation will conclude with a brief run-through of the new document, highlighting the new provisions and terminology as well as the new procedures appropriate for a DBO scenario.

Particular emphasis will be given to issues regarding the changeover from Design-Build to Operation, and risk sharing between the parties.

Key issues will be highlighted, and these will form the basis of topics to be used during the round table discussions.

Suggested topics for discussions

1.	Auditing Body.	The appointment of the Auditing Body and its role during the Operation Service.
2.	Rights of Termination	What rights should each Party have to terminate during the Operation Service? Should each party have the same rights?
3.	Securities	What form of securities should the Employer require during DB and Operation periods?
4.	Procurement Procedures	What key criteria should be included in the Procurement procedures to ensure a 20 year commitment?

Plus any further topics which arise during the Workshop.

Michael Mortimer-Hawkins

Independent Consulting Engineer
Special Adviser, FIDIC (International Federation of Consulting Engineers) Contracts Committee
Guest Professor, Tianjin University School of Management, China

1981 - 97	Working for Swedish consultants in Sweden
1978 - 81	Working for Swedish consultants in Saudi Arabia
1960 - 78	Working for various civil engineering contractors in the UK

Other activities

1999	Organiser and speaker at international seminars in Conditions of Contract and International Procurement for FIDIC, including seminars sponsored by World Bank. Over 150 seminars and workshops held to date in 25 countries.
1993	Appointed by the World Bank to draft a new "Standard Bidding Document for the Supply and Installation of Plant and Equipment".
1993 to present	FIDIC Contracts Committee

Appointments

1999-2000	Chairman of FIDIC Contracts Committee
Since 2000	Included in FIDIC List of Dispute Adjudicators.

Awards

Sept. 2000	The Louis Prangey Award Awarded by FIDIC for “significant service to FIDIC and the profession of independent consulting engineering.”

Expert Witness/Adjudication

Dec. 1997	Appointed by Vägverket (Swedish Road Administration) as Expert Witness.
1998-2005	Appointed by CERN (European Organization for Nuclear Research) as member of 5-man Adjudication Panel for major civil works construction project in Geneva.
2001-2003	Appointed as Adjudicator for the Kafue Gorge Contract TD 92-93 (Zambia).
2004-2005	Adviser to European Agency for Reconstruction – claims dispute in Belgrade

Risk and Responsibilities in Infrastructure Development

John L. Roberts
Executive Vice President
CDM

I. Introduction

- Understanding and properly pricing and managing risks and responsibilities is vital to the success and even survival of any professional organization engaged in infrastructure development.
- This is increasingly the case as many owners are aggressively seeking to transfer risks to professional engineers and others involved in the planning, design, construction, and operation of infrastructure projects.
- At the same time, many owners have elevated expectations of professional performance beyond the legal definition of standard of care and expect design professionals to produce close to perfect deliverables.
- The complexity of the situation has increased because of the many implementation options currently employed, such as:
  - Design-build (DB)
  - Design-build-operate (DBO)
  - Build-own-operate-transfer (BOOT)
- Other types of public private partnerships (PPP)
- The goals of this workshop are to frame some of the issues we all face in dealing with project risk and assignment of responsibilities, and learn from our collective experiences.

II. Risk Allocation Principals

- Certainly all involved in the delivery of an infrastructure project carry some risk.
- Infrastructure project risks belong with those parties who are best able to evaluate, control, bear the cost of, and benefit from the assumption of risks.
- Some risks are best shared.
- Proper allocation of risks among parties involved in an infrastructure project should lower the overall project cost and reduce the potential for disputes and claims.

III. Risk and the Owner

- Owners should accept risks that are within their control since they are best suited to manage them.
- Owners should also accept those risks associated with the project that implementing firms have no ability to control or manage, such as:
  - Property acquisition
  - Hostile acts of terrorism or war
  - Third party interference
  - Unidentified hazardous waste
- Owners should assume risk where they will benefit, such as when an innovative approach is taken with the goal of lowering the project cost or delivering the project more quickly.
- Owners are pushing more guarantees and warrantees to firms that are not covered by professional liability insurance.
- For instance, many owners expect firms to redesign projects at the firm's cost if the bid amount is above the engineer's cost estimate.

- In the United States, some engineers, out of fear of losing assignments, are agreeing to risk transfer terms that they are not able to handle or insure.
- The fundamental fairness concept is sometimes lost on the legal profession representing many owners. No one wins by such lopsided risk shifting attempts by contract.

IV. Role of Insurers in Risk Management

- A fundamental concept in risk management is the transfer of certain risks to insurers.
- Even under the best of circumstances, professionals should be aware that insurance usually provides only a partial transfer of risk.
- The procurement strategy for an infrastructure project affects the insurability of risk.
- Insurance coverages commercially available include:

    - Firmwide coverage and project specific coverages

        1. Firmwide
            a. General liability (called commercial liability in Europe and public liability in Great Britain)
            b. Auto liability
            c. Workers comp
            d. Professional liability ("E&O"; called professional indemnity in Great Britain)
            e. Contractors pollution

        2. Project Specific

            a. Builder's Risk (rare for engineer; common for designer/builder)
            b. Cost cap insurance is in the decline—high price and not sufficient risk transfer
            c. Boiler and machinery insurance (rare for engineer; common for firms providing operations services)

    - Insurers have more and more exceptions and exclusions
    - Insurances are being confused in many arenas:

        1. Cost cap insurance, as an example, does not really limit exposure
        2. E&O coverage for design-build and design-build-operate projects

- Publications are available addressing insurance, liability, and engineering, and they explain where the problems are and what solutions can be found. An example is "Livre Blanc" (White Book) developed by SYNTEC (French association of engineering firms).

V. Approaches to Risk Management for Professional Firms

- Key for all professionals involved in infrastructure projects is becoming aware of risks involved, evaluating these risks, and creating an effective contract for the engagement.
- Candidly discuss the client's responsibilities under the contract.
- Educate clients about potential problems during the project, their associated risks, and options available for managing them.
- Risks can be reduced if all of a firm's technical and managerial responsibilities are approached and executed in a professional manner.
- Insurances and indemnifications provide mechanisms for risk transfer.
- Firms should concentrate their business activities among clients and projects that present minimum risk.
- Be prepared to walk away from a prospective client or project that presents unacceptable risk.
- Insist on an adequate fee that will allow a quality deliverable and provide adequate compensation for the value delivered and risk assumed.

- Provide quality control in all aspects of the professional engagement.
- Give careful consideration to properly staffing projects and to the schedule required to perform the work.
- Risks can be minimized if symptoms of problems are recognized and addressed quickly. Example symptoms include:

    - Owner willing to accept more risk to cut project costs
    - Accelerated scheduling
    - Highly unusual or unanticipated conditions
    - Owner's representative issues unreasonable demands

- Maintain proper project documentation
- Hold frequent communications with the client throughout the project

VI. Final Thoughts

- Consulting engineers must continue to learn how to better negotiate, price for, and manage risk.
- The trend toward alternative delivery methods for infrastructure development will continue to blur risks and responsibilities between the traditional consulting engineer and general contractors.
- This creates many challenges, as well as great opportunities, for each of us.

John L. Roberts

Education

M.S. - Civil Engineering, Northeastern University (1989)
B.S. - Civil Engineering, University of Vermont (1975)

Professional Engineer: North Carolina, South Carolina, Georgia, Tennessee, and Massachusetts

Diplomate, American Academy of Environmental Engineers (since 1985)
Recipient of AWWA George Warren Fuller Award (1996)
Water Environment Federation's 5-S Society (1992)

Professional career

Mr. Roberts has spent his entire 31-year professional career with CDM, a global consulting, engineering, construction, and operations firm. Joining the firm in 1975 as an environmental engineer, Mr. Roberts has assumed increasing levels of engineering, management, and leadership responsibility within the firm. Mr. Roberts is currently an Executive Vice President in the Office of the Chairman. In this firmwide role, he works with the executive management team on CDM's operations, business development, and strategic

plans for growth. Mr. Roberts is also a member of CDM's Board of Directors and serves on the board's Executive Committee and Finance Committee.

Mr. Roberts is experienced with a broad range of environmental engineering projects, although his primary focus has been related to drinking water and wastewater. He is experienced in the planning, design, construction, and operation phases of water supply, treatment, and distribution facilities, as well as wastewater collection, treatment, and disposal facilities. Mr. Roberts is also experienced in the preparation of water and wastewater rate studies, stormwater management projects, studies for hazardous waste sites, and solid waste projects. He has served as officer-in-charge, project manager, or project engineer for numerous projects throughout North and South Carolina, Tennessee, Georgia, Virginia, Florida, and New England, as well as Jamaica, the Bahamas, Australia, and Pakistan.

Professional Societies and Activities

American Academy of Environmental Engineers: Member of Excellence in Environmental Engineering Awards Committee

American Water Works Association (AWWA): Past member of the Board of Directors (1997-2000), Finance Committee, and Awards Committee

North Carolina Section of AWWA and Water Environment Association: Past Chairman (1992-1993); Past member of the Board of Directors (1988-1994, 1997-2000); Past Chairman of Finance Committee (1993-1994)

University of Vermont, College of Engineering & Mathematical Sciences: Member, Board of Advisors
Water for People: Member, International Program Committee
Water Environment Federation
American Society of Civil Engineers
National Society of Professional Engineers

STREAM TWO – QUALITY PROJECT IMPLEMENTATION

Risk and Responsibilities in Infrastructure Development

September 26, 2006

Chair:
John L. Roberts, P.E., BCEE
Executive Vice President ~ CDM
Cambridge, Massachusetts, USA

Facilitators:
Ewan A. MacGregor
Director ~ Griffiths & Armour Professional Risks
Hertfordshire, England

Michel Ray
Director for Technical Affairs and Innovation ~ EGIS Group
Guyancourt, France

Risk and Responsibilities in Infrastructure Development

Workshop goals:

1) Frame the issues we face in dealing with project risk
2) Identify the proper assignment of risk responsibilities
3) Outline how professionals can best manage and benefit
4) Learn from our collective experiences

Risk and Responsibilities in Infrastructure Development

- Proper pricing and management of risk is vital to the success of any infrastructure development organization
- Owners seek to transfer risk to those involved in project development
- Owners increasingly expect design professionals to produce “close to perfect” deliverables
- Situation complicated by implementation options:
  - Design-Build
  - Design-Build-Operate
  - Build-Own-Operate-Transfer
  - Public-Private Partnerships

Risk Allocation Principals

- All involved carry some risk
- Risks belong to those best able to evaluate, control, bear the cost of, and benefit from the risks
- Some risks are best shared
- Proper allocation of risks should lower the overall project cost and reduce the potential for disputes and claims

Risk and the Owner

- Accept risks that are within their control
- Accept risks that implementing firms have no ability to manage:
  - Property acquisition
  - Hostile acts of terrorism or war
  - Third-party interference
  - Unidentified hazardous waste
- Assume risk for innovative approaches that lower project cost and accelerate project delivery
- Some U.S. engineers’ attitude: *“Take the risk, win the job!”*

Role of Insurers and Insurance in Risk Management

- Fundamental concept is transfer of certain risks to insurer
- Insurer is a professional risk bearer
- Firmwide coverage:
  - General liability (Europe: commercial liability; U.K.: public liability)
  - Auto liability
  - Workers comp
  - Professional liability (U.K.: professional indemnity)
  - Contractors pollution

Budapest 2006

Role of Insurers and Insurance in Risk Management (cont.)

- Project-specific coverage:
  - Builder's risk (rare for engineers, common for designer-builder)
  - Cost cap insurance
  - Boiler and machinery insurance (rare for engineers, common for operation services)
- Professionals be aware: Insurance usually provides only a partial transfer of risk!
- Procurement strategy affects the insurability of risk

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Risk Management for Professional Engineers

- Become aware of all risks involved with an infrastructure project
- Establish clear corporate guidelines for acceptable project risks and the "Deal Breakers"
- Effective engagement contract is critical
- Must discuss client responsibilities and educate client on potential problems, risks, and options
- Risks can be reduced if technical and managerial responsibilities are approached and executed in a professional manner
- Concentrate business activities on clients and projects that present minimum risk

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Risk Management for Professional Engineers (cont.)

- Concentrate on clients and projects that minimize risk
- Fee should provide adequate compensation to allow quality deliverables and for the value delivered and risk assumed
- Provide quality control
- Consider proper staffing and schedule
- Minimize risk by quickly recognizing and addressing problems
- Maintain proper project documentation
- Be prepared to walk away from a prospective client or project that presents unacceptable risk

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Project Optimization

- Long-term advantage for rules and practices that avoid unnecessary risks for engineers
- Innovation benefits users through better performances and lower life-cycle costs
- Owners want innovation, but not reasonable responsibilities and risks…
- …then take legal actions against designers for defects in innovative projects
- Such behavior suppresses innovative will of engineer
- Environment that encourages owners to innovate and accept responsibility will benefit future owners and society

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Final Thoughts

- Risk is an inherent part of any infrastructure project
- We all have a role to play
- We must understand the risks involved and who is best suited to manage them
- The trend in alternative delivery methods complicates the risk issue
- Failure to manage risk properly may not only affect today's projects, but may stifle the innovative spirit within our profession in the future

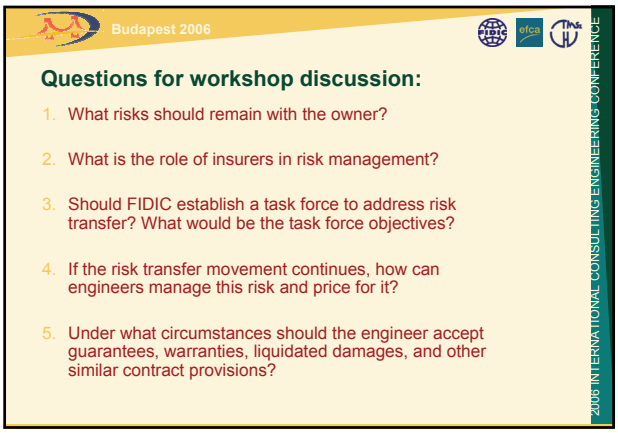
2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Final Thoughts (cont.)

- These issues create challenges, as well as great opportunities, for each of us
- FIDIC has published a series of manuals that address risk management and insurance

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE


Budapest 2006
Questions for workshop discussion:
1. What risks should remain with the owner?
2. What is the role of insurers in risk management?
3. Should FIDIC establish a task force to address risk transfer? What would be the task force objectives?
4. If the risk transfer movement continues, how can engineers manage this risk and price for it?
5. Under what circumstances should the engineer accept guarantees, warranties, liquidated damages, and other similar contract provisions?
2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

The consulting engineering firm of tomorrow: issues for consideration

Dr. Martin Güldner
GOPA-Consultants, Germany

1. International firm expansion

Many large international firms are entering new markets, or strengthening their positions in existing markets, through acquisition and merger.

The implications of the activities of these larger firms are worth consideration. The pool of available consultants, and competition in the smaller marketplaces, will shrink.

Owners are impacted through fewer choices in consultants. Consultant fees could go in one of two directions:

1. Increase due to fewer firms competing for the same work.
2. Decrease, as smaller firms fight to stay in the market against larger competition by cutting fees.

The impact of larger international firms carving up a small market by buying local firms is another interesting consideration. This may be affecting some of the attendees at FIDIC. (I have personally seen more consultants each year with business cards showing ownership/affiliation by large European firms).

As larger firms become more prevalent in markets outside their own country, how do the firms in the "local market" react to the presence of a new, large international company?

2. Firm ownership

Public vs. private ownership can be addressed in the presentation. This is also a consideration of interest where a consulting firm is owned by a parent company that is publicly traded.

How do large, publicly traded companies work differently than smaller companies, or companies that are employee-owned? Do the pressures of quarterly earnings reports and short-term performance have an impact upon the firm's ability to set goals and objectives? Does it affect the types of projects undertaken by the firm?

Do employees feel more loyalty in an employee-owned / privately-held firm, or in a publicly traded firm where they can receive stock options for superior performance?

How are leadership transitions handled within each firm?

3. Leadership transition

This is a critical issue in the consulting engineering industry, as many of the engineers are approaching retirement age.

What are the different considerations for companies who are facing a leadership transition? Do certain ownership structures allow for greater success in a transition? How do small company owners in emerging markets address this issue…for example, are there any buyers in these markets? How does a sole owner or small group of partners extract their equity from a company they have built? Is sale of the firm to a large international competitor the best option in a local market?

4. Emerging new technologies

What do consultants who are on the forward edge of new technologies and project delivery systems do that makes them different from other consultants? Are they more profitable? Does rapid adoption of new technology require company leadership to consider creating new positions and operational methods?

Sustainable design is a buzzword and growing phenomenon in many national markets. Another trend that may significantly affect the building industry is BIM (Building Information Modeling).

How are firms' existing structures and project teams affected by these trends? How are their relationships with subconsultants and contractors changing? If this change is significant, does it mean that companies have to consider marketing contractors, other consultants, and owners in different ways?

Dr Martin Güldner

Professional Education

1979 - 1985	Darmstadt Technical University, Germany MA Mechanical Engineering and Economics
1987 - 1990	Darmstadt Technical University, Germany Ph.D. in Statistics and Econometrics

Professionnal Activities

1987	Syria German Agency for Technical Co-operation (GTZ) Short-term Expert, Al-Raqqa
1990	Germany Linde AG, Material Handling Division, Aschaffenburg Assistant to the Management
1991	Germany Linde AG, Wiesbaden Financial Group Accounting, Mergers and Acquisitions
1993	Germany Linde Fahrzeugbau GmbH (vehicle construction) Head of Business Administration
03/1994	People s Republic of China Linde Xiamen Forklift Truck Corp. Ltd. Head of Business Administration and Deputy Managing Director
11/1994	Hong Kong Linde Material Handling Ltd. Managing Director

Since 12/1995	Managing Director of GOPA-Consultants, Bad Homburg
Since 06/1999	Chairman of GOPA-Consultants
10/2001 05/2003	Executive Vice-president of VUBIC -Verband Unabhängig Beratender Ingenieure und Consultants e.V., Berlin
05/2002-05/2005	President of EFCA - European Federation of Engineering Consultancy Association, Brussels
05/2006	Vice-Chairman of the Board of VUBIC

Project mechanisms

Wilhelm Reismann
iC consulenten

"Provocative questions in search of Intelligent Answers" (we use "PPP" for all sorts of private finance, concession, etc projects)

Will PPP dominate our infrastructure markets in future or is the future of PPP already past ?

Will the "lessons learnt" be sufficient to make better laws, project structures, contract, teams, design, … for succesful PPP´s in the future?

Do we know practical examples ? Can we recognize a trend ?

PFI, concessions have been successful in the UK, in France, Spain, etc, in the new European Union member states? What about Central Europe? Germany, Austria?

Still too rich? Not enough flexible? Not used to?

Is PPP only an excuse for our governments and national economies: "Build now, pay later" European infrastructure in spite of Maastricht?

What is cheaper – more expensive:

- the often argued "private innovation, drive and efficiency"
- private financing compared to AAA interest rates for public lending
- brainwork, paperwork and negotiations needed to prepare a PPP

Is PPP an excellent tool for "less experienced political systems" to use international expertise and have infrastructure projects ready much earlier (and cheaper) than going the "old fashioned" way?

Or is it especially dangerous for them to deal with such complex systems fully relying on foreign expertise ? Do we know practical examples ?

Is PPP perfectly apt for the fast growing economies in Asia, where everything is needed and seems available at once: Financing, infrastructure, capacity in engineering and construction, …. and soon enough expertise not to need expatriates any more ?

Risk assessment, risk management for a 30 years' term. In the end it is always the public side, the taxpayer who pays. True? Wrong?

Is our legislation (in your country? in the EU?) adequate for PPP ?

Are the laws ruling the procurement procedure sufficient? Too complicated? Unclear?

Can a set of contracts - as thick and good as they may be - ever sort out the problems a 30 years' term will bring ?

Do we not need another way of understanding, agreeing, sharing, partnering?

Can PPP be the occasion to start thinking about simpler contracts?

Or coming back to them after decades making contracts thicker and thicker and ever more complicated ?

The engineers are the professionals who are trained to start projects from scratch, to develop from the green field, to conceive, create, structure, calculate, engineer, shape, design, manage and supervise.

Are we deeply enough involved in the preparation of PPPs?

From the public side? From the private side?

Could PPPs be better, if we were involved more deeply?

Do we have to explain, to demonstrate that the quality of a PPP project does primarily depend on the engineering solutions, before commercial profit, financial viability or contractual conditions can be finally assessed, fixed, agreed.

Tendering a PPP project is a delicate task. The balance between

1. defining to strictly thus limiting the innovative potential of the bidders and
2. providing too much freedom thus provoking high costs (frustrated costs for bidders) and too complex procedures and decisions

is hard to find. Can we find practical examples for problems caused by (1) or (2) ?

Can we give practical examples where the balance has been well managed ?

Wilhelm Reismann

Expert in Project Management and Controlling for building and infrastructure projects. Professional Engineer in Civil Engineering, iC Partner

Education

Diplomingenieur (MSc) in Civil Engineering, TU Vienna
Doctor of Technical Science, TU Vienna University of Technology
Licensed Expert to the Austrian Courts
Honorary professor TU Vienna

Memberships

OeIAV Austrian Society of Engineers and Architects
IABSE Intern. Association for Bridge and Structural Engineering
Austrian Chamber of Architects and Engineering Consultants
HV-SV Association of Licensed Experts to the Austrian Courts

VZOe Association of Austrian professional engineering companies

Other activities

University lectures
- Construction economics, BOKU Vienna, 1993 - 2000
- International construction TU Vienna, since 1984

Vice President of VZOe
EFCA and FIDIC, conferences, task forces, EFCA board 1996-99

Mr. Reismann has profound experiences in the fields of project management and controlling, technical and economic consulting in the framework of engineering projects, project organisation, scheduling, cost management, tendering, award of contracts, contract management. He has managed contracts in the field of buildings, infrastructure, energy and environment. International experience in Europe, Asia, Africa and America.

Typical projects

Austrian railway stations Graz, Klagenfurt, Baden, controlling
EU financed transport project IMONODE, CITY PORTS, SUSTRAIN
Vienna International Airport, piers, aprons, controlling, PM, Austria
Malta International Airport, energy cost saving strategy, Malta
Pascani water supply project, Romania
Drava River Basin Project, Croatia, Hungary
Biolux Biodiesel plant, China
Hydropower Project ESEN II, Turkey
Pavilion shopping centre Prague, Czech Republic

Stream Two - Quality Project Implementation

Workshop Project Mechanisms, PPP

Chairman Wilhelm Reismann (Austria)

Facilitators Aki Hirotani (Japan)
Flemming Pedersen (Denmark)

Stream Two - Quality Project Implementation

Workshop Project Mechanisms, PPP

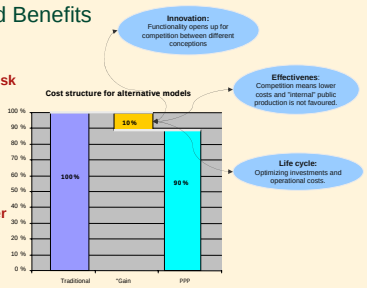
The full presentation:

Part A	Provocative Questions	Wilhelm Reismann (Austria)
Part B	PPP in Austria	Wilhelm Reismann (Austria)
Part C	the Ramboll Experience	Flemming B. Pedersen (Denmark)
Part D	PFI in Japan	Akihiko Hirotani (Japan)

A selection, as a starter for discussion:
Have a look …

PPP – Rationale and Benefits

- **PPP means lower public risk exposure**
- **PPP opens up for user payment => better resources allocation**
- **PPP is an opportunity for earlier start-up of desired public projects.**
- **PPP projects implies better budget control**
- **PPP may give somewhat higher financial costs vs. "traditional" projects**



The Challenge of Co-operation

- PPP is a close, demanding and challenging partnership – not only between public and private sector, but also between the private partners
- There is a need to understand, accept and combine a wider than 'normal' range of interests and professions
- The 'trick' is to make these resources work together as one group for the mutual benefit of all parties. Project Management is therefore crucial

PPP – Lessons Learnt & Focal Points

- **Risk** mapping and management must be very high priority
- **Legal** framework is complicated and mistakes are costly
- **Earlier** and more cost effective completion of publicly prioritised projects
- PPP means **innovation**!
- **Capital expenditure** is less than in ordinary public projects
- PPP 'forces' otherwise conflicting interests to **co-operate**. This is especial beneficial in joint municipal projects (schools, prisons, infrastructure)
- PPP is politically **controversial**. PPP in the health sector (e.g. running hospitals) has not been successful

PPP may not be 100% PPP

- A complete PPP project (Build-Finance-Operate-Transfer) is ***seldom seen*** - but very many public sector projects will benefit from only some stages of the PPP concept.
- Principles of PPP co-operation can be employed in and benefit many other projects as well – legal, organization, finance etc.
- Future "PPP" will be more a ***mix of various ways of innovative co-operation***. The PPP concepts help to better structure 'roles' and having more clear responsibilities.
- Weak public economy will still make PPP a good alternative – however not to the full extent that private parties 'taking over' public responsibilities.

Consequences for Consulting Companies

» An important lesson is that PPP projects give experience in ***handling complex projects*** with higher risks, but also higher profit opportunities.

» There is a need to form ***long-term partnerships*** with preferred specialist partners which in turn will open up new market opportunities and more innovative ways to complete our projects.

» We are moving from specialist design and construction consultants into much broader based ***multifunctional and multi-skilled*** teams

» PPP principles and experiences are a useful ***educational platform*** on which to build new concepts and practical ways to implement large projects

PFI in Japan - Guidelines

» The national government guidelines cover PFI projects that are to be implemented under strong influence of the central government.

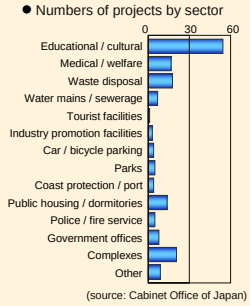
» To date, five sets of guidelines have been developed and released. Guidelines on…
- PFI project process
- Risk Allocation for PFI Projects
- VFM (Value for Money) evaluation
- Contracts
- Monitoring

PFI Projects by Sector

» The majority of projects are for public buildings, whilst there are only a handful of projects for public infrastructure

» Scale of project – not so large

» Road, river – no project
- Due to the restrictions imposed by laws
- Also, Road/river administrators have adequate resources.



(source: Cabinet Office of Japan)

PFI Projects with Problems

» "Spo-park Matsumori" (sports facility and swimming pool)
35 people were injured due to the fallen ceiling boards by earthquake.
Causes for private side:
- inadequate installment of anti-deflection harness
- inadequate construction management of architect
Causes for public side:
- no inspection for installment of harness

» "Thalasso Fukuoka" (warm-bath facility)
Opened in 2002, failed in Nov. 2004
Causes for private side:
- Over-estimation of visitors
Causes for public side:
- Lack of awareness of the demand estimation risk
- Risk analysis, evaluation, allocation, countermeasure no

PFI in Japan - Future Prospects

PFI for public buildings of local governments
- Due to poor financial situation, most of the local governments have reduced number of in-house engineers.
- "Baby-boom generation" engineers will retire in immediate future,
- From this viewpoint, local government will be driven to rely on PPP/PFI more.
- However, for road/river infrastructures, administrators have adequate resources, it is likely to remain so in the foreseeable future

Identification of PFI projects proposed by private
- The first private-proposed PFI project was identified in 2006.

PPP in Austria

Positive (+) and Negative (-) Experiences

ASFINAG Motorway A5
Vienna - Brno (CZ)

Positive (+) and Negative (-) Experiences

(+)
intense and in-depth preparation during tendering,
risk analysis, life cycle costs,
technical, economic and legal aspects

(+)
better final price
if competition can be maintained until closing negotiations
and last and final offers from 3 bidders

Positive (+) and Negative (-) Experiences

(-) it had been expected that the bidders would take more risks
than they finally accepted, e.g. risk of permits

(-) the combination of Continental law (Austrian law in the contract)
and Anglo-Saxon law (contract models from UK and Ireland)
has posed problems in various cases
e.g. compensation in case of earlier termination

(-) high efforts during project preparation,
especially for the first project of a kind,
(+) although the high efforts are compensated by the reduced costs

"Provocative Questions in Search of Intelligent Answers"

(1) Will PPP dominate our infrastructure markets in **future**
or is the future of PPP already past ?

(2) Will the "**lessons learnt**" be sufficient to make better
laws, project structures, contract, teams, design, …
for successful PPPs in the future?

(3) Do we know **practical examples** ? Can we recognise a trend ?

Provocative Questions

(4) PFI, concessions have been successful in
the UK, in France, Spain etc., in the new EU member states?

What about **Central Europe? Germany, Austria?**
Still too rich? Not flexible enough? Not used to?

(5) Is PPP only an excuse for our governments
and national economies: "**Build now, pay later**"
European infrastructure in spite of Maastricht?

Provocative Questions

(6) Is PPP an excellent tool for "**less experienced political systems**"
to use international expertise and have infrastructure projects
ready much earlier (and cheaper) than going the
"old fashioned" way ?

Or is it especially **dangerous** for them to deal with such complex
systems fully relying on foreign expertise ?
Do we know practical examples ?

Provocative Questions

(7) Is our **legislation** (in your country? in the EU?) adequate for PPP?
Are the laws ruling the procurement procedure sufficient ?
Too complicated? Unclear? ?

(8) Can a set of **contracts** - as thick and good as they may be –
ever sort out the problems a 30 years´ term will bring ?
Do we not need another way of understanding, agreeing,
sharing, partnering ?
Can PPP be the occasion to start thinking about simpler
contracts?

Provocative Questions

(9) Are the **engineers** deeply enough involved in the preparation of PPPs ? From the public side ? From the private side ? Could PPPs be better, if we were involved more deeply ?

(10) Do we have to explain, to demonstrate that the quality of a PPP project does primarily depend on the **engineering solutions**, before commercial profit, financial viability or contractual conditions can be finally assessed, fixed, agreed ?

Provocative Questions

(11) Tendering a PPP project is a delicate task. The balance between
(a) defining too strictly, thus limiting the innovative potential of the bidders and
(b) providing too much freedom, thus provoking high costs (frustrated costs for bidders)
and too complex procedures and decisions
is hard to find.

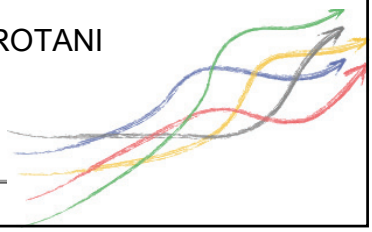
Can we find practical examples for problems caused by (a) or (b)?
Can we give practical examples where the balance has been well managed ?

Thank You !
Let´s discuss ….

+/- ?
!!! +/- ???
! +/- ? !!!

PFI in Japan

Akihiko HIROTANI



ACKG Ltd.

PFI in Japan

- The “PFI law” – enacted in 1999.
- About 60 PFI projects have been in service.
- The PFI has been promoted in Japan to increase use of private financing into public-works projects.
- “The third sector” – united body of half public and half private - exists as one means of increasing the involvement of the management skills by the private sector.
- But many cases of the third sector operations failed after the bubble of Japan’s economy.
- It is hoped that the PFI will eliminate this shortcoming.

The guidelines

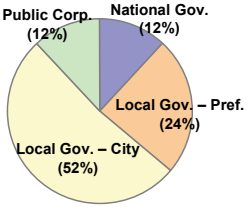
- The national government guidelines cover PFI projects that are to be implemented under strong influence of the central government.
- To date, five sets of guidelines have been developed and released.

  Guidelines on…
  - PFI project process
  - Risk Allocation for PFI Projects
  - VFM (Value for Money) evaluation
  - Contracts
  - Monitoring

Number of PFI project

- 211 projects were selected for PFI (2005/09)
- Local governments were involved rather than the national government.
  - Local government: many are in poor financial situation.
  - Cost cutting is the major motive.

● Share of selected PFI Projects

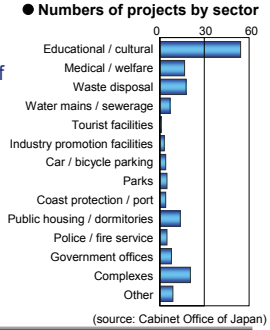


(source: Cabinet Office of Japan)

PFI projects - by sector

- The majority of projects are for public buildings, whilst there are only a handful of projects for public infrastructure.
- Scale of project – not so large
- Road, river – no project
  - Due to the restrictions imposed by laws
  - Also, Road/river administrators have adequate resources.

● Numbers of projects by sector

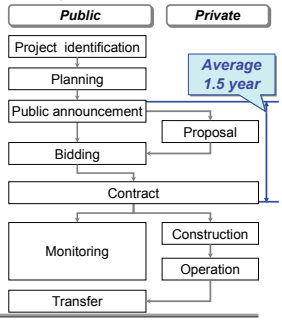


(source: Cabinet Office of Japan)

Process and VFM

- Process
  - All projects are identified and planned by public.
  - Term for tendering process is not long. (Average 1.5 year, the shortest is 4 months)
- VFM
  - Average 17%
  - Main factor is competitive effect.
  - Effect by risk allocation is little.

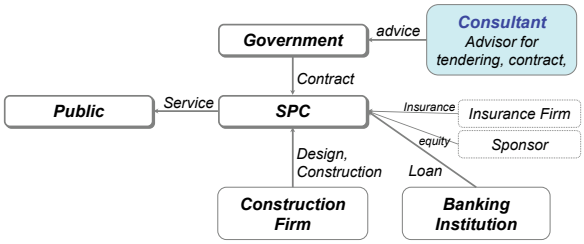
● PFI process



PFI scheme and role of consultant

7

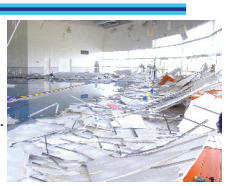
- In many cases, consultants are hired by public side, as an advisor for tendering and contract.
- Engineering purpose is quite few



The PFI Project with problems

8

"Spo-park Matsumori"
(sports facility and swimming pool)
– 35 people were injured due to the fallen ceiling boards by earthquake.



- Causes
  – For private side:
    – Inadequate installment of anti-deflection harness
    – Inadequate construction management of architect
  – For public side: no inspection for installment of harness

The PFI Project with problems

9

"Thalasso Fukuoka"
(warm-bath facility)
– Opened in 2002
– Failed in Nov. 2004

- Causes
  – For private side: Over-estimation of visitors
  – For public side:
    – Lack of awareness of the demand estimation risk
    – Risk analysis, evaluation, allocation, countermeasure - not well-discussed

Future prospects

10

PFI for public buildings of local governments
– Due to poor financial situation, most of the local governments have reduced number of in-house engineers.
– "Baby-boom generation" engineers will retire in immediate future,
– From this viewpoint, local government will be driven to rely on PPP/PFI more.
– However, for road/river infrastructures, administrators have adequate resources, it is likely to remain so in the foreseeable future

Identification of PFI projects proposed by private
– The first private-proposed PFI project was identified in 2006.

Private Public Partnerships---

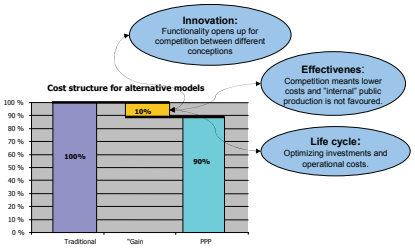
The Ramboll Experience

Agenda

- **PPP: what are the rationale and benefits**
- **The Ramboll experience**
- **Lessons learned**
- **The Future: PPP or something 'else'**

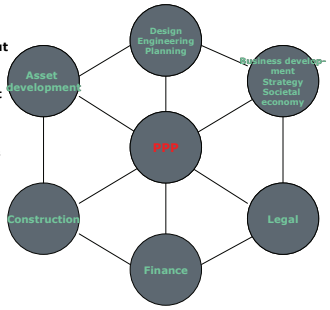
PPP – Rationale and Benefits

- **PPP means lower public risk exposure**
- **PPP opens up for user payment => better resources allocation**
- **PPP is an opportunity for earlier start-up of desired public projects.**
- **PPP projects implies better budget control**
- **PPP may give somewhat higher financial costs vs. "traditional" projects.**



The Challenge of Co-operation

- **PPP is a close, demanding and challenging partnership – not only between public and private sector, but also between the private partners**
- **There is a need to understand, accept and combine a wider than 'normal' range of interests and professions**
- **The 'trick' is to make these resources work together as one group for the mutual benefit of all parties. Project Management is therefore crucial**



PPP - Examples

- Two major motorways E-39 and E-18 (Norway)
- Public pool and fitness centre in Drammen, Norway
- Two public schools in Oslo, Norway
- Hospital in Molde, Norway
- Major public port – Narvik, Norway
- Major motorway E18 Muurla–Lohja, Finland

PPP – lessons learned & focal points

- Risk mapping and management must be very high priority
- Legal framework is complicated and mistakes are costly
- Earlier and more cost effective completion of publicly prioritised projects
- PPP means innovation!
- Capital expenditure is less than in ordinary public projects
- PPP 'forces' otherwise conflicting interests to co-operate. This is especial beneficial in joint municipal projects (schools, prisons, infrastructure)
- PPP is politically controversial. PPP in the health sector (e.g. running hospitals) has not been successful

PPP may not be ”100 % PPP”

- A complete PPP project (Build-Finance-Operate-Transfer) is seldom seen - but very many public sector projects will benefit from only some stages of the PPP concept.
- Principles of PPP co-operation can be employed in and benefit many other projects as well – legal, organization, finance etc
- Future ”PPP” will be more a mix of various ways of innovative co-operation. The PPP concepts help to better structure ‘roles’ and having more clear responsibilities.
- Weak public economy will still make PPP a good alternative – however not to the full extent that private parties ‘taking over’ public responsibilities.

Consequences for consulting companies

- An important lesson is that PPP projects give experience in handling complex projects with higher risks, but also higher profit opportunities.
- There is a need to form long-term partnerships with preferred specialist partners which in turn will open up new market opportunities and more innovative ways to complete our projects.
- We are moving from specialist design and construction consultants into much broader based multifunctional and multi-skilled teams
- PPP principles and experiences is a useful, educational platform on which to build new concepts and practical ways to implement large projects

Best practice procurement: developing and using skills

Adebayo Adeola
CPMS, Nigeria

Key questions

The world demands innovative solutions for increased demands on infrastructure. This requires highly skilled consultants, as well as design experts. The continuous upskilling of consulting engineers and their professional colleagues is essential. Examples of new models being developed will be presented. Learn more about the options and opportunities, both external and internal.

- Do clients really appreciate and value such commitment?
- Should a commitment to ongoing training & development be overtly recognised in bid documents?
- How do we best encourage innovation and risk taking?
- Would the development of a FIDIC "Certified" Consultant facilitate business?

Comments

The consulting engineering industry today is facing challenges on several fronts, the solutions to all of which are inevitably interrelated. Some of these challenges are:

- Changing business environment
  - Different procurement approaches
  - Greater roles of the private sector
  - New clients emerging
  - Globalisation and new world order
  - Emerging Economies

- Changing scope of consulting engineering services

  - New products such as sustainability, integrity and disaster management
  - Broadening scope to include marketing, finance, human resources management

- Operational Challenges
  - Attracting and retaining competent staff
  - Remuneration, excitement and image
  - Career prospects
  - Training – scope, form and finance
  - Work opportunities for experience

Building appropriate competences in the work force is one of the ways of addressing these issues. The focus of this session is to

1 Identify the competences needed for the modern day consulting engineering practice and suggest ways of acquiring such competences
2 Beyond the university degree and professional registration, there is no other standard method of measuring consulting engineering competences. Can certification by FIDIC provide such a measure? How should it be structured?
3 Some consultants from the developing countries have complained that they are caught in the experience trap. They are not able to get choice projects because they do no have the

necessary experience. Conversely, they do not have the experience because they cannot get the job. What is the way out of this dilemma?

4 The challenges of recruiting and retaining competent staff in consulting engineering have been reported by several firms. Identify the key issues involved and how training and work experience can improve the situation

Adebayo Adeola

Kadri Adebayo ("Bayo") Adeola received a BSc (Hons) in Civil Engineering from the University of Lagos, Nigeria, in 1975 and a MSc DIC in Civil Engineering (Hydraulics) from the Imperial College of Science and Technology, London, UK, in 1978.

He is the Managing Director of CPMS, Lagos, that specializes in project management, structural design and water resources management. He started his professional career with the Water Resources and Construction Agency, Nigeria, before joining Adeyemi Ogundipe and Partners in 1976, becoming Executive Director in 1993.

Bayo Adeola has been the Honorary Secretary of FIDIC's Group of African Member Associations (GAMA) and a member of FIDIC's Strategic Review Task Force.

He is registered in Nigeria as an Engineer, a former Honorary Secretary of the Association of Consulting Engineers, Nigeria, and a member of the Nigerian Society of Engineers and of the Project Management Institute. He currently chairs the FIDIC GAMA Task Force and is a member of the FIDIC Executive Committee.

Business opportunities

Peter Heil
National Development Office, Hungary

The key questions are:

- new business opportunities in Europe, Africa and Asia
- the power of effective networking
- the role of joint ventures, alliances and similar partnering tools
- what role associations can play in brokering or facilitating business networking.

Project consultants are our frequent partners. On the one hand, there are a number of government-sponsored investment projects, many of them in construction, the preparation of which consumes considerable resources. This work has lead to a number of direct, project-based partnerships with consulting firms. On the other hand, the Hungarian Government has invested, for many years now, significant resources in project preparation, setting up large pools of money to finance the planning and design of future structural and cohesion fund programmes. Perhaps the most complex of these pools involved the preparation of about 400 structural funds projects with four consortia of consulting firms, comprising about 1000 consultants.

The presentation describes emerging new opportunities for consulting firms and gives an overview of state-sponsored development programmes in Hungary, and in neighbouring states. Discussion focuses on the experience with consultants from a government perspective, and also on the kinds of partnerships between the state and the firms that may be possible in the future.

Péter Heil

Peter Heil is a government official who has worked with European Union-sponsored development programmes for about 10 years, including Phare, ISPA, SAPARD and the structural and cohesion funds. He has had many contacts with FIDIC, since FIDIC's contracting/engineering rules were standard in the EU pre-accession programmes, and with the International Project Management Association (IPMA) with which the aim was to team up in order to standardise the knowledge toolbox used by structural and cohesion fund consultants, with the aim of raising the quality of their services.

From 2002

Employer	National Development Agency
Position held	Vice President responsible for the utilisation of European Union regional aid.
Main activities	Head of Community Support Framework Managing Authority Head of Cohesion Fund Managing Authority. Co-ordination of EU pre-accession programmes Phare and ISPA in Hungary (1997-2003). Institutional preparations for the implementation of the EU-structural funds

and Cohesion Fund in Hungary after accession. (2002-2003).

From 1998 to 2002

Office of the Minister for Phare, (within the Office of the Prime Minister)
Director General (Head of Department)
Co-ordination of EU pre-accession programmes Phare and ISPA in Hungary.

From 1997 to 1998

Office of the Prime Minister, Secretariat for Assistance Co-ordination Government
Director General (Head of Department)
Co-ordination of EU pre-accession programmes Phare and ISPA in Hungary.

1995 to 1997

Office of the Prime Minister, Cabinet of the Prime Minister
Government
Head of Section
Economic policy analysis, development of policy recommendations, preparation of decisions, organisation of negotiations, meetings of the Prime Minister, negotiations with foreign investors, preparation of international loans.

Education and training

September 1995 to June 2001

Budapest University of Econoimc Science and State Administration
International law, International Economics, European integration
Doctor of Philosphy (Ph.D.) in International Relations ("summa cum laude")

September 1994 to June 1995

University of Oxford (United Kingdom)
European integration, Political Theory, Post-War European History
Visiting Student – Soros / Foreign and Commonwealth Office Scholarship
no qualification – Certificate of Studies available upon request

March 1992 to June 1992

Ruprecht-Karls Universitaet Heidelberg (Germany)
European integration, Political Theory
Visiting Student – TEMPUS Scholarship
(no qualification)

March 1999 to June 1994

Budapest University of Economic Sciences
Economics, International Relations, Political Theory, Sociology, Small Enterprise Management
Economist (M.A.)
All postings so far involved work with a high proportion of interministerial co-ordination work.
Since December 1997 responsible for the co-ordination of the Phare programme, since 1999-2000 for ISPA, involving overall responsibility for the design and implementation of ca. 70 large scale (multi-million euro) development projects and programmes.
Since 1997 responsible for one or more organisational units within the prime minister's office – including personnel and budgetary aspects. Current Staff Number of Unit headed is 52 people.
Excellent user experience with MS Windows, Word, Excel, Outlook, standard

office tools, Occasional user of Access databases, Experienced Internet user
Project planning and management
EU Integration (history, institutional affairs, Enlargement)
Good presentation skills (Frequently working as trainer at different courses)

Honours

Officer's Cross of the Order of Merit the Republic of Hungary, 2004

Batthyány-Prize for outstanding Civil Service Achievements, 2003

Best Practice Procurement: Liability & Insurance Workshop

Adam Thornton
Director and CEO
Dunning Thornton Consultants

- Modern society, seeking enhanced technology and improved infrastructure, demands from us higher levels of complexity and innovation. At the same there is greater aversion to risk and failure, a growth in consumer protectionism and assumptions of "fitness for purpose". Everything we do may be subjected to close scrutiny and clients and society at large are less forgiving of our failures.
- Management and mitigation of risk, liability & insurance are key and essential skills for the Consultant operating in today's market.
- Without effective management of risk, our profitability and even commercial survival are threatened.
- There are a number of areas that affect our exposure to liability and create our risk environment:
- Contracts – Onerous conditions, excessive warranties or performance guarantees, unreasonable monetary levels of liability, poorly defined or limited scope, inappropriate sharing or transfer of risk, inadequate budgets and programme.
- Availability of suitable Professional Indemnity Insurance
- Legislative framework
- Cultural appetite for litigation
- Project complexity – reliance on technology, poor quality of available sites (geotech, sensitive neighbours), complex working arrangements and procurement.
- Many of us find ourselves spending considerable time on managing commercial, legislative or contractual risk and also find that frequently our technical advice is tempered by our own risk perspective.
- To offer our best and most innovative service we need to be relatively unconstrained by concerns about liability, particularly unfairly apportioned liability.
- Risks which are usually insurable are typically those that may arise from negligence in a technical area, for example:

    - flaws in a technical solution, leading to stability or serviceability problems
    - failure to meet design criteria in terms of user efficiency (e.g. yield in energy production of a power plant)
    - erroneous quantity and cost estimates influencing the Client's decision
    - faulty tendering documents or procedures giving rise to Contractors' claims (i.e. remuneration of the Client for extra costs)
    - delays in producing construction plans with the consequence of late commissioning
    - insufficient site supervision with respect to quality, environment or safety.

- There are risks that our clients and third parties seek to transfer to us that are not insurable. These can include warranties relating to commercial success and the contractor's performance.
- Frequently we find ourselves managing not only our own risk but also our client's risk and the risks of other stakeholders with whom we work. For example, another consultant working on a project may have inadequate insurance cover and/or QA procedures. While it is appropriate for us to identify and mitigate technical risk there are other areas of risk that we are not well equipped to manage.
- It is not uncommon for insurers to impose on us and on other parties risk mitigation or QA measures in order to agree to coverage
- In consortia and other JV arrangements the internal apportioning of risks works only as long as our partner stays in business.

- When mitigation does fail the management of the loss is frequently removed from our control. It is common for the risk holder of last resort to be an insurer, either our client's, our own or a third party's. Once an insurer is involved we find our obligation to our insurer overrides our duty to our client.
- Sometimes we get to determine appropriate limits of liability to be carried by each party at the outset of the project, but more frequently those levels are imposed upon us.
- While Partnering, Alliancing and other modern procurement methods can provide more rational and fairly proportioned risk mitigation, particularly in Public Works and in infrastructure, there are many projects and clients for which more traditional risk management must be made to work.
- We do not all share the same risk environment, it varies significantly around the world. I can tell you a bit about New Zealand
- In NZ we currently pay around 2 - 4% of gross fee income (depending upon the size of a firm and level of cover) for PI premiums. Within other Anglo/American countries rates vary up to 12%..
- In NZ all member firms of ACENZ are required to carry a minimum level of PI cover and all firms will refuse to operate with unlimited liability. In the US and Australian some firms choose to operate bare (without cover) and without assets when faced with demands to operate without a limit on liability. In some other parts of the world firms work without PI cover because there is little cultural appetite for "litigation".
- In NZ we are facing increasing government legislation to provide more consumer protection by way of warranty. This is a common trend in a number of countries.
- We also suffer from "Joint and Several" liability legislation which means that an unfair share of the "damages" may be awarded against a respondent who may, in reality, have made only a minor contribution to the loss. [This may occur when other parties who contributed to the loss have gone bankrupt or have ceased to exist.] This also encourages litigation. Australian states have been successful in changing legislation to get limited "Proportionate Liability". In NZ we are also keen move in this direction.
- We face a constant battle with clients and their legal advisors seeking unreasonable contract conditions. ACENZ have been proactive and successful particularly with Central and Local Government clients in promoting fair conditions of engagement.
- In NZ we are unable to get insurance for:

    - Asbestos risks
    - Contamination or pollution risks, other than limited cover for some forms of accidental discharge.
    - Radiation
    - Punitive (exemplary) damages [Damages awarded as a punishment rather than to cover actual losses.]
    - H&S statutory fines
    - Contracts that require liabilities or indemnities beyond the common law and our normal standard contractual conditions

    This is common in many parts of the world.

    - In NZ the majority of member firms insure through a common Engineer-owned insurance company. This means that claims are managed sympathetically and there is plenty of support available when a claim is made. It also means that there is less inclination for engineers to aggressively find fault with another's performance.
    - In NZ the cost of litigation is extremely expensive and there is little legislative support for punitive damages. Most disputes are settled outside the formal court system.

- I have no doubt that many of the concerns that I have listed will be common to you all. Many of you will be interested to hear that FIDIC and EFCA are forming a joint task force to look into the issues surrounding the availability of PI insurance and issues dealing with unlimited liability. A recent survey of European MAs has raised many of the topics that I have mentioned.

So all this brings us to a number of questions for discussion at this workshop:

a) Do we as Consultants understand enough about our risk environment? If not should FIDIC have a role in promoting greater understanding?
b) Is there enough similarities between the different risk environments around the world for FIDIC to develop some common policies and guidelines?
c) Is there value in tackling the issue of unlimited liability globally?
d) What is the best way to engage in meaningful dialogue with the insurance industry?
e) Should FIDIC/EFCA take a position on uninsurable risk?

Adam Thornton

BE (Hons) (Civil) – University of Canterbury, New Zealand
FIPENZ – Fellow of the Institution of Professional Engineers of New Zealand
CPEng – Chartered Professional Engineer
IntPE – International Professional Engineer
MemACENZ – Member of the Association of Consulting Engineers of New Zealand

Technical Areas

Structural Engineering (buildings)
Seismic Engineering including base-isolation
Strengthening and refurbishment of heritage structures
Relocation of heavy structures

Professional Appointments

1992-1996	IPENZ /ACENZ representative on SANZ fire ratings committee
1993-1994	ACENZ Area Representative
1998-2001	Member ACENZ Board - Central region representative
2001-2002	Vice President ACENZ
2002-2004	CIC Documentation Guidelines taskforce President ACENZ
2002-	FIDIC - ASPAC Executive Committee
2003-2004	IPENZ Structural Taskforce
2004-	Dept of Corrections – RPDR Steering Group – External member
	SANZ Design and Construct Industry Advisory Group
2004-2005	Past-President ACENZ
2004-	NZSEE Study Group on Earthquake Prone Buildings
2005	IPENZ Engineering Practice Board member
	ACENZ Awards of Excellence - Convenor
2006-	FIDIC Description of Services Task Group FIDIC Business Practice Committee

Best Practice Procurement
Liability & Insurance Workshop

Chair: Adam Thornton (New Zealand)

Facilitators: Jacques Robert (France)
Martin Hohberg (Switzerland)

Background

- Modern society, seeking enhanced technology and improved infrastructure, demands from us higher levels of complexity and innovation. At the same there is greater aversion to risk and failure, a growth in consumer protectionism and assumptions of "fitness for purpose". Everything we do may be subjected to close scrutiny and clients and society at large are less forgiving of our failures.
- Management and mitigation of risk, liability & insurance are key and essential skills for the Consultant operating in today's market.
- Without effective management of risk, our profitability and even commercial survival are threatened.

Our Risk Environment

a) Contracts – Onerous conditions, excessive warranties or performance guarantees, unreasonable monetary levels of liability, poorly defined or limited scope, inappropriate sharing or transfer of risk, inadequate budgets and programme.
b) Availability of suitable Professional Indemnity Insurance
c) Legislative framework
d) Cultural appetite for litigation
e) Project complexity – reliance on technology, poor quality of available sites (geotech, sensitive neighbours), complex working arrangements and procurement.

Insurable Risks - Arise from negligence

- flaws in a technical solution, leading to stability or serviceability problems
- failure to meet design criteria in terms of user efficiency (e.g. yield in energy production of a power plant)
- erroneous quantity and cost estimates influencing the Client's decision
- faulty tendering documents or procedures giving rise to Contractors' claims (i.e. remuneration of the Client for extra costs)
- delays in producing construction plans with the consequence of late commissioning
- insufficient site supervision with respect to quality, environment or safety.

Background Continued

- Clients and third parties seek to transfer risks to us that are not insurable. These can include warranties relating to commercial success and the contractor's performance.
- Frequently we find ourselves managing not only our own risk but also our client's risk and the risks of other stakeholders with whom we work. For example, another consultant working on a project may have inadequate insurance cover and/or QA procedures.
- It is not uncommon for insurers to impose on us and on other parties risk mitigation or QA measures in order to agree to coverage
- In consortia and other JV arrangements the internal apportioning of risks works only as long as our partner stays in business.

Background Continued

- When mitigation does fail the management of the loss is frequently removed from our control. It is common for the risk holder of last resort to be an insurer, either our client's, our own or a third party's. Once an insurer is involved we find our obligation to the insurer overrides our duty to our client.
- Sometimes we get to determine appropriate limits of liability to be carried by each party at the outset of the project, but more frequently those levels are imposed upon us.
- While Partnering, Alliancing and other modern procurement methods can provide more rational and fairly proportioned risk mitigation, particularly in Public Works and in infrastructure, there are many projects and clients for which more traditional risk management must be made to work.

The New Zealand Risk Environment

- **PI premiums are around 2 - 4% of gross fee income (Within other Anglo/American countries rates vary up to 12%)**
- **All member firms of ACENZ are required to carry a minimum level of PI cover.**
- **We are facing increasing government legislation to provide more consumer protection by way of warranty. This is a common trend in a number of countries.**
- **Joint and Several" liability legislation.**
- **Constant battle with clients and their legal advisors seeking unreasonable contract conditions.**
- **ACENZ have been proactive and successful particularly with Central and Local Government clients in promoting fair conditions of engagement.**

NZ - Risk Environment Continued

- **In NZ the majority of member firms insure through a common Engineer-owned insurance company. This means that claims are managed sympathetically and there is plenty of support available when a claim is made. It also means that there is less inclination for engineers to aggressively find fault with another's performance.**
- **In NZ the cost of litigation is extremely expensive and there is little legislative support for punitive damages. Most disputes are settled outside the formal court system.**

NZ – Un-Insurable Risks

- Asbestos risks
- Contamination or pollution risks, other than limited cover for some forms of accidental discharge.
- Radiation
- Punitive (exemplary) damages [Damages awarded as a punishment rather than to cover actual losses.]
- H&S statutory fines
- Contracts that require liabilities or indemnities beyond the common law and our normal standard contractual conditions
- These are common in many parts of the world.

Budapest 2006 - Liability & Insurance Workshop

Questions For This Workshop

a) Do we as Consultants understand enough about our risk environment? If not should FIDIC have a role in promoting greater understanding?
b) Is there enough similarities between the different risk environments around the world for FIDIC to develop some common policies and guidelines?
c) Is there value in tackling the issue of unlimited liability globally?
d) What is the best way to engage in meaningful dialogue with the insurance industry?
e) Should FIDIC/EFCA take a position on uninsurable risk?

Dunning Thornton Consultants

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Changing Role of Consultants

William S. Howard
Executive Vice President and Chief Technical Officer
Past Chair – American Council of Engineering Companies

Introduction

- Change is a word we hear about often in these times—and rightly so. We are in an era of rapid change caused by all types of forces. The goal of today's workshop is to explore the changes affecting all of us and how our role of consultants may evolve as we adapt to them.

What are the forces that are driving change?

- Increasing project complexity

    - An increasingly stringent regulatory environment will require more sophisticated solutions and will also require consultants to be informed to help clients remain compliant and prepared for the future.
    - The public's interest and influence in projects can add complexity. As projects become more complex the number of stakeholders—governmental and non-governmental—and their variety of interests will increase.
    - Instead of tasks and responsibilities spread between different entities, owners will be more interested in having one partner for the whole project. They will want that partner to take full responsibility for the final results of the investment. This trend/need will result in alternative types of project implementation, including:

        - D-B (design-build)
        - B-O-T (build-operate-transfer)
        - Other forms of PPP (public private partnership)

        where the consultant plays the role of the general contractor, responsible for logistics, preparation stage (design, tender dossier), execution of works, quality assurance, and operation of the facility.
    - There will be a blending of technical roles of the designer and constructor. We may be moving toward a master builder/grand creator approach with successful firms learning the skills of each other.

- Globalization

    - Due to globalization, more people from different cultural backgrounds and countries will come together to work on the same project team. Special skills will be needed to effectively manage such teams considering the diverse cultures, practices, and approaches likely to be involved.
    - Training will be increasingly important to imparting such skills to consultants.
    - Globalization may bring about increased competition, resulting in fee pressures for tendering of projects. Outsourcing routine work to lower cost countries may become prevalent. Consultants may require engineers to take on a broader role of managing resources instead of working on the actual design of the project. The other (opposite) form of outsourcing will be for very specialized tasks/projects.
    - Outsourcing will make quality control more challenging.

- Sustainability

    - Triple bottom line principles will drive consultants to prepare projects that focus on improving the quality of life, enhancing the environment, and creating economic opportunities for present and future generations.
    - Sustainability principles will create multi-faceted projects.

- Integration of projects

    - Integrated resources management will require a holistic view. Consultants will need to establish viable project goals that maintain/improve current infrastructure assets, actively involve all stakeholders, serve present and anticipated future needs, promote public/private partnerships, and utilize creative funding solutions.
    - Multi-use projects will bring added value to clients (e.g., groundwater remediation facility that serves as an environmental education center, landfill converted to a community golf course). This will require consultants to be more creative when designing solutions.

- Shortage of technical resources (owners and consultants will be doing more with less)

    - The demand for technical expertise is increasing, but in some countries fewer students are enrolling in technical programs.
    - In the U.S.A. there is an imminent workforce shortage due to the baby boomer population reaching retirement age. This may not be as big of a problem in other parts of the world.
    - Consultants will be taking on more of the client's role since many clients will not have the necessary resources to complete projects.

- Clients, who need to do more with less, will be increasingly reliant on consultants

    - Clients will want consultants who understand them and who act as a trusted partner. Successful consultants will be knowledgeable in project finance, permitting, and operations, and in other areas that were often the owner's responsibility in the past.
    - Integrity will be very important (especially transparency and the commitment of all parties to deliver the services and people they contracted to provide).
    - Leading consultants will understand owner challenges and understand their work processes.
    - Consultants will need to be responsive and proactive in partnering on projects.
    - Technical expertise will be assumed—the best consultants will possess other skills to be successful, such as risk management, communication, stakeholder involvement, engagement, etc.

<u>The consultant of the future</u>

- Will manage/lead diverse global teams comprised of financial, environmental, engineering, construction, operation, and NGO representation. They will excel at program management.
- The consultant of the future will need to be more than a great designer. Their skills will have to extend beyond engineering and construction and include the ability to lead, build consensus and effectively communicate, be trustworthy and innovative, and manage risk. Anything less and the consultant will not be working for the owner.

<u>Our challenge</u>

- Owners will look to the engineering profession for holistic solutions to their problems with an eye toward sustainability and "the long view." The future will be exciting. We need to encourage and get others involved to join the profession.

William S. Howard

Education

Advanced Management Program, Wharton School, University of Pennsylvania, 1993
M.S. – Sanitary Engineering, Cornell University, 1971
B.S. – Civil Engineering, Northeastern University, 1969
Boston College High School - 1964

Registration

Professional Engineer: Massachusetts (1975), New Jersey, New York, Pennsylvania, New Hampshire, Ohio, Michigan, and Delaware
Professional Planner: New Jersey (1986)

Honours/Awards

Board Certified Environmental Engineer, American Academy of Environmental Engineers
Consulting Engineers Council of New Jersey – Member of the Year – 2000
Fellow – American Council of Engineering Companies – 2002

Mr. Howard serves as CDM's Executive Vice President for Quality and Client Service, and the firm's Chief Technical Officer. He has been a member of the firm's Board of Directors since 1992, and sits on the Board's Executive Committee. Mr. Howard is also responsible for the firm's executive education and training programs administered by CDM University which is IACET certified. He is also past Chair of the American Council of Engineering Companies.

Since 1990, Mr. Howard has been responsible for the training, development, and certification of CDM's corps of Client Officers, as well as, more recently, the firm's Project Managers. His efforts in this area have included the development of training programs, performance measurement systems, incentive compensation programs, and certification procedures.

Over the years, Mr. Howard has held a number of leadership positions in the firm including:

Executive Vice President & Chief Technical Officer	2001 – Present
Manager – Northern Division	1997 – 2000
President – National Division	1994 – 1997
Various positions from Project Engineer to Area Manager	1971 – 1990

In these positions, Mr. Howard has developed a keen understanding of the business of consulting engineering and is particularly aware of how the business is changing. As a member of the firm's Strategic Planning Committee, he is involved in positioning CDM for the future. As a member of the firm's Executive Committee, he is involved in weighing the business risks vs. opportunities emanating from changing market conditions.

Mr. Howard is also driving CDM's Quality and Client Service initiatives that expose him to the ever changing and increasingly complex issues facing CDM's business nationally and worldwide. In this

regard, he is responsible for monitoring the quality of CDM's services, developing quality management systems, and implementing improvement programs where warranted.

Mr. Howard is a graduate of Northeastern University where he received his B.S. in Civil Engineering in 1969. He received his M.S. in Sanitary Engineering from Cornell University in 1971 and completed the Advanced Management Program at the Wharton School of the University of Pennsylvania in 1993.

Mr. Howard serves on the Board of Trustees of his alma mater, Northeastern University, Chairs the school's Audit Committee, is Vice Chair of the Long Range Planning Committee, and is a member of Northeastern's Engineering Industrial Advisory Board, Engineering Research Committee, Academic Affairs/Commencement Committee, and the Special Committee on Graduate Education.

STREAM ONE - EMERGING ISSUES

The Changing Role of Consultants

Chair:
William S. Howard, P.E., BCEE, FACEC
Past Chair ~ ACEC
Executive Vice President ~ CDM
Cambridge, Massachusetts, USA

Facilitators:
Andrzej Michalowski, Director ~ CH2M Hill, Poland
Han Lin Toh, Senior Engineer ~ CPG Consultants, Singapore

The Changing Role of Consultants

Workshop goals:

1) To explore issues affecting our profession and
2) To identify ways we may evolve to meet the demands of tomorrow

The Changing Role of Consultants

Workshop program:

1) Opening remarks
2) Round-table discussion
3) Report outs

The Changing Role of Consultants

We live in an era of change:

- Project complexity
- Integration of projects
- Alternative delivery methods
- Globalization
- Sustainability
- Demanding clients

The Changing Role of Consultants

As consultants, we must consider skills beyond the technical details:

- Economic
- Political
- Environmental
- Social

Forces Driving the Change:

Project Complexity

- Increasingly stringent regulations require better informed consultants
- Prepare clients for the future
- Public's interest and influence can add complexity
- Project complexity related to project stakeholders
- Understanding the influences and needs of stakeholders is vital for project success

Budapest 2006

Forces Driving the Change:

Alternative Delivery Mechanisms

- Alternative delivery mechanisms gaining popularity:
  - D-B (design-build)
  - B-O-T (build-operate-transfer)
  - Other forms of PPP (public private partnership)
- Owners will want one partner for the whole project
- Consultant expected to take full responsibility for the investment
- Blending of technical roles of the designer and constructor: becoming the *Master Builder* or *Grand Conceptor*

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Forces Driving the Change:

Globalization

- Professionals from different cultural backgrounds and countries working together
- Special skills needed to manage diverse teams
- Increased competition results in fee pressures
- Outsourcing work for lower costs will make quality control more challenging
- Consultants must, as always, also manage technical details and quality under these increasingly complex conditions

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Forces Driving the Change:

Sustainability

- Sustainable projects focus on improving the quality of life, enhancing the environment, and creating economic opportunities for present and future generations
- Sustainability principles provide for multi-faceted projects that may serve multiple purposes
- Consultants will need to be more creative with their solutions

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Forces Driving the Change:

Integrated Resources Management

- A more holistic view of a problem or challenge that helps to establish viable project goals:
  - Maintain or improve current infrastructure assets
  - Engage all stakeholders
  - Serve present and future needs
  - Address multiple problems simultaneously
  - Utilize creative funding solutions

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Forces Driving the Change:

Technical Resources

Dangerous convergence of increasing project demands, an aging workforce, and a shortage of technical professionals, which could create serious problems for engineers and consultants— a “perfect storm.”

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Budapest 2006

Forces Driving the Change:

Helping Clients Do More With Less

- Clients want understanding and trusting partner
- Successful consultants will be knowledgeable in project finance, permitting, and operations
- Integrity will be paramount
- Leading consultants will understand owner challenges and work processes
- Consultants will need to be responsive and proactive

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

Forces Driving the Change:

The Bottom Line

- The consultant of the future will need to be more than a great designer—technical expertise will be assumed!
- We must be able to:
  - Lead and build consensus
  - Communicate effectively
  - Innovate
  - Manage risk
  - Envision holistic solutions
  - Excel at program management
  - Lead diverse global teams
- Anything less than this and the consultant will not be working for the owner.

Budapest 2006

Questions to get us started:

1. Will the role of consultants fundamentally change? If so, how?
2. Should independent advisors be engaged by clients and, if so, under what circumstances? Who will they be? Will we serve in these roles?
3. What will consultants do differently in the future and why? Will we have to use engineers differently to meet global needs?
4. Will project management be considered an integral part or independent service from consulting engineering firms?

2006 INTERNATIONAL CONSULTING ENGINEERING CONFERENCE

How can professional services be acquired with best results?

John Gamble
President, Consulting Engineers of Ontario

- What are the "best results"?
- What is quality?
- So who decides quality?
- How do we delivery quality?
- Quality requires consensus
- Procurement is the key to quality

John Gamble

John Gamble is a licensed professional engineer and has been president and chief executive officer of Consulting Engineers of Ontario (CEO) since January 2002. CEO is a member organization of the Association of Consulting Engineers of Canada (ACEC) and represents over 250 firms in Canada's largest province.

In addition to his duties with CEO, Mr. Gamble also chairs ACEC's task force on procurement which actively and effectively advocates for the use of qualifications-based selection (QBS) for engineering consultants. A recent success of ACEC's advocacy was the endorsement of the principles of QBS by a federal government agency responsible for developing "best practices" for infrastructure investment.

Mr. Gamble was previously the manager of government affairs with the Association of Professional Engineers of Ontario – the organization that licenses and regulates the practice of professional engineering in the Province of Ontario. Prior to that, he spent three years as policy advisor to two successive cabinet ministers in the provincial government. He holds a Batchelor of Science degree in civil engineering and spent the first 10 years of his career practicing engineering at the Toronto-based consulting firm of Gore & Storrie Limited (now CH2M Hill Canada Ltd).

Throughout his career, Mr. Gamble has actively represented and promoted the engineering profession and makes frequent presentations to a wide range of industry, government, academic and public organizations.