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Global Services – Enhanced Partnership

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Theme:

Global Challenges & Opportunities

- Key challenges that face our planet
- Our roles and opportunities as leaders in Consulting Engineering

Global Procurement Trends

- Innovation in procurement
- Enhanced partnership

Global Challenges

- Managing and Protecting Resources
- Water Shortage
- Climate Change
- Sustainable Energy Solutions
- Changing Attitudes to Transportation
- Sustainable Communities
- Urbanization

Managing and Protecting Resources

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  Several recent studies, based on population growth scenarios up to 2050, suggest that, for everyone to be able to enjoy the consumption levels and lifestyle of Western society, the global natural resource requirement would range from between 2 to 3.8 Planet Earths.

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  The global population is 6.5 billion. Over 2.4 billion people are without adequate sanitation.

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  Water use is growing at twice the rate of global population.

- Lfz!X pset; Water Resources Planning, Sustainable Infrastructure, Renewable Energy, Ecosystem Restoration

At risk – the World's Water Supply

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  According to a 2002 United Nations report, nearly two-third of Earth's population is at risk of water shortage. Currently, one person in three is affected by water scarcity due to overuse, pollution, or insufficient sanitation and infrastructure.

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  In China, 400 out of 600 cites suffer from water shortage.

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  One flush of a western toilet uses as much water as the average person in the developing would uses for a whole day's washing, drinking, cleaning and cooking.

At risk – the World's Water Supply

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  China's latest 5-year plan calls for desalination capacity to increase from 31,000 cu.m/day in 2005 to 1 million cu.m/day in 2010, and further to 2.5-3.0 million cu.m/day in 2020.

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  In Hong Kong, 80% of the population uses seawater for toilet flushing.

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  In parts of Australia (including Sydney), any new residential development must now demonstrate 40% water savings compared to the traditional supply.

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  Conservation, Reuse, Desalination

Climate Change and Sustainable Energy Solutions

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  Carbon dioxide is the primary greenhouse gas. It has already pushed up global temperatures by half a degree Celsius and it will continue to have a major effect unless requisite steps are taken.

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  The mean sea level is expected to rise 9-88cm by the year 2100, causing flooding of lowlying areas and other damage.

Climate Change and Sustainable Energy Solutions

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  Governments globally are setting targets for new energy generation from renewables. For example, although less than 5% of the UK's electricity is currently from renewalbes, incentives are in place to ensure this reaches 10% by 2010 and 20% by 2020.

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  40% of energy-related greenhouse gas emissions are associated with buildings.

- Lfz!X pset!;Carbon Management, Energy Efficiency and Sustainable Buildings, Clean Energy Technologies.

Changing Attitudes to Transport

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  World trade is growing at around 8% - 10% per annum and will soon outstrip the existing capacity of ports and airports and their associated surface access systems.

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  Transport contributes 14% of all the world's greenhouse gas (mostly CO_2) emissions and 22% of all energy emissions.

Changing Attitudes to Transport

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  Over three-quarters of transport emissions are generated by road transport, while aviation emissions are the fastest growing in the transport sector.

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  In recent years, car ownership in China has grown at between 10% and 20% per year, even faster than its economic growth.

Changing Attitudes to Transport

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  For developed nations:
  How will we pay for the maintenance, replacement and incremental improvement of existing transport systems?

  For emerging nations:
  How can we best satisfy the individual and collective aspiration for greater mobility and accessibility in a sustainable manner?

  For the global economy:
  How can we best deliver the new capacity required to facilitate economic growth whilst minimizing associated environmental impacts?

  For everyone:
  How can we reduce the impact of the transport sector on global warming?

- L fz !X pse t; Transport Pricing Solutions, Innovative Financing, Advanced Technology, Behavioral Change

Creating Sustainable Communities

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  In 1789 Thomas Jefferson said: “I say the Earth belongs to each generation. No generation can contract debts greater than may be paid during the course of its own existence.”

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  Sustainable construction in the US has surpassed the 3% market penetration typically identified as a transition point from a trend to a cultural pattern.

Creating Sustainable Communities

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  Analysis indicates that by 2010, the US non-residential green building market will be worth approximately $204.5 billion.

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  The UK Government is progressively tightening building regulations, with a target of achieving zero-carbon emissions from new homes by 2016.

- Lfz!X pset; Integrated Planning Process, Socio-Cultural Consideration, Life-cycle Costs

Urbanization – Creating a Human Context

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  In 1975, 37% of the world's population lived in urban areas. In 2015, the figure is predicted to reach 54%.

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  China's urbanization plan is projected to have an average of 30 million people per year moving into cities in the next 10 years.

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  In 1950, the world's biggest city was New York with 12.3 million inhabitants. In 2015, Tokyo is expected to have a population of over 36 million.

Urbanization – Creating a Human Context

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  Hong Kong, with 48,000 people per sq.km, has by far the highest population density of any city in the world. The next highest is Mumbai with 19,000 per sq. km. The figures for Los Angeles and New York are respectively 2,700 and 2,050. London's density is 5,100.

- Lfz!X pset!;Urban Structure, Creating Sustainable Environments, Social Inclusion and Sense of Place

Global Services in Demand

Water

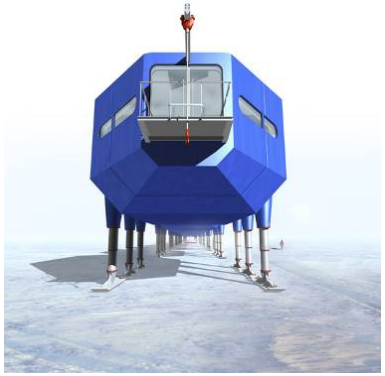
- systems for potable / non-potable reuse
- systems for desalination, storm water harvesting and recycling
- treatment of wetlands

Climate Change

- integrating water and natural resources into building technology
- creating new efficiencies by harnessing the power of renewable sources and systems

Sustainable Communities

- economics, ecology and environmental systems
- planning, building and landscape design
- infrastructure



Global Services in Demand

Managing and Protecting Resources

- looking at sites in relation to their habitats and ecologies and approaching planning and design in ways that conserve, cleanse, and sustain our natural systems

Transportation

- new energy sources
- creating urban pricing systems and regulatory structures
- maximizing mobility while controlling emissions and creating energy efficiencies

Urbanization

- creating greener buildings and more regeneration strategies
- devising new and more sustainable roles for infrastructure
- protecting and creating urban ecologies
- planning for greater density, encourage social cohesion and sustainability

Global Procurement Trends

Drivers Behind Innovative Approach

- Tough competition for declining public funds
- Escalating costs caused by environmental constraints, pressure on world commodity prices, and inefficient delivery methods leading to adversarial relation and high claims
- Aging workforce in public sector organization




Global Procurement Trends

Innovative Approach to Deliver Projects

Common characteristics :

- Finding new financial resources, preferably off-budget for the public sector and off-balance sheet for the private sector
- Transferring risks
- Delivering value for money by promoting efficiency, accountability and innovation
- Applying the principles of whole-life costing

Some Innovative Examples for Project Procurement – Enhanced Partnership

- **Using public/private partnerships to deliver local health services** The UK Department of Health uses public/private partnerships to deliver large-scale facilities

  Key points

  - **Effective** method of delivering small-scale community facilities efficiently
  - **Local** engagement ensures that local sensitivities are accounted for
  - **LIFTCo** remains in private sector for 20 years
  - **Good** ongoing management is crucial.

- **Public/private partnership solves congestion in Sydney's suburbs** Westlink M7 transforms road travel in western Sydney

  Key points

  - **PPP procurement** route enables government to focus on community benefits
  - **Small short** list and long bid period benefited all parties
  - **Revenue-sharing** formula creates balance of fairness.

Some Innovative Examples for Project Procurement – Enhanced Partnership

- **Indiana Toll Road: a public project goes private** The state of Indiana contracts out the operation and maintenance of the road to a private consortium

  Key points

  - **Short bidding period** was a challenge for bidders in their effort to develop accurate forecasting of costs and revenues
  - **Private sector** operator can generate greater revenues than state management
  - **Long-term lease** enabled state to fund other transport initiatives for the community.

- **Public/private solution to California's rail freight bottleneck** The Alameda Corridor, a radical upgrade to keep pace with expected growth

  Key points

  - **Compete** aggressively for all funding opportunities
  - **Develop** strategic contracting solutions
  - **Resolve** third party agreements early
  - **Reduce** risk to owner and investors
  - **Be sensitive** to community concerns.

Some Innovative Examples for Project Procurement – Enhanced Partnership

- **Alliancing approach delivers major Australian highway project** An engineering solution that maximized the availability of Lawrence Hargrave Drive in Australia

  Key points

  - **Alliancing** approach is appropriate where social, risk and cost factors must be carefully balanced
  - **Framework** minimizes need for recourse to law
  - **Painshare/gainshare** model distributes liability evenly and promotes harmonious working.

- **Hong Kong rail project benefits from Target Cost contract model** The upgrading of the Tsim Sha Tsui station, one of the busiest metro stations in Hong Kong

- **Key points**

  - **Process** helps to identify and manage risks
  - **Two-stage** tendering helps to capture ideas early on
  - **Requires** both employer and contractor to work in an open-book environment
  - **Painshare/gainshare** model hailed as a success.

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