

APCBC

**Asia Pacific Conference on
Building Commissioning**

2007.10.26

Opening Address

**Breaking-through the Narrow Path
to Commissioning Process for a
Wide View**



/NESTEC

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Progress of APCBC

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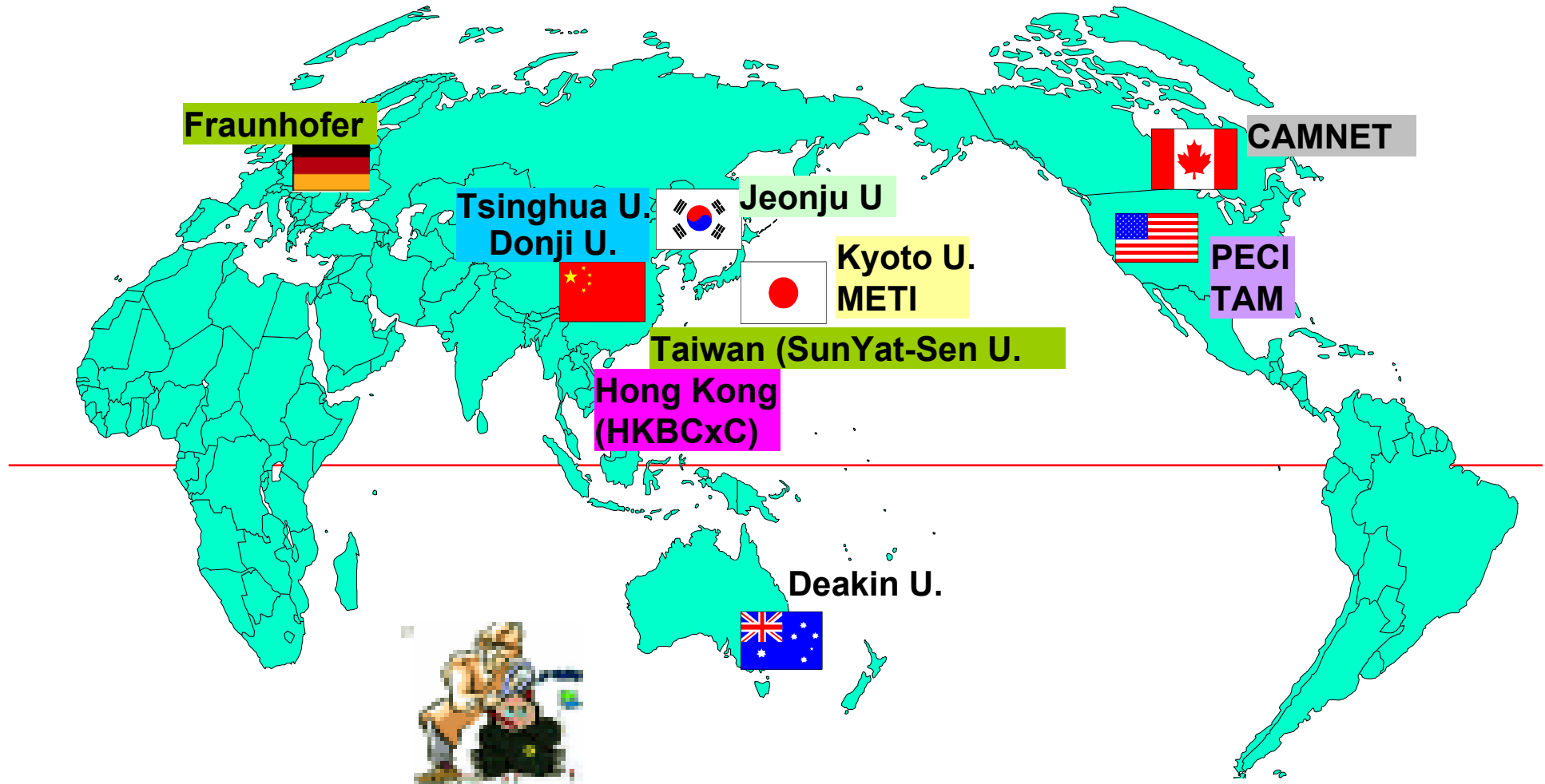
- **March 1995: Pan Pacific Symposium on Building and Urban Environmental Conditioning in Asian District, Nagoya U.**
- **August 2002: Mr. Wong (HK) visited Nakahara (Japan) to set up cooperative relationship on Building Commissioning**
- **April 2003: International Short Symposium on HVAC Commissioning / Annex 40 Kyoto meeting**
- **October 2003, ISHVAC-03, Tsinghua U., Key-notes**
 - **Study and Practice on HVAC System Commissioning, NN**
- **October 2004: ICEBO-04 / Annex40, Paris**
 - **JAPANESE VISION OF COMMISSIONING PROCESS AND ASIAN VIEW, NN**
- **April 2006, NCBC-06, San Francisco**
 - **Promoting Commissioning Process in Japan, Nakahara**
- **November 2006, APCBC-06 / ICEBO-06 / Annex47**
- **May 2007, NCBC-07, Chicago**
 - **Overview on Activity of Building Commissioning in Asia and Japan, Shimazu and NN**
- **October 2007, APCBC-07 (Workshop) / Annex47, Kyoto**

World Commissioning History World / Asia Asia

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- **1960s TAB Activ. started, USA**
CIBSE Code on Cx, UK
- **1979 ASHRAE Symp. on TAB**
- **1986 ASHRAE Symp. On Cx.**
- **1988 First SIBSE Code in UK**
- **1989 First AHRAE Cx Guide**
- **1991 Annex25, B0FD**
- **1993 First NCBC held, PECl**
- **1995 Annex34, B0FD Demo**
- **1996 ASHRAE New Cx Guide**
- **1999 BCA (US) established**
- **2000 Annex40, HVAC Cx**
- **2003 UK Cx Code M issued**
- **2005 ASHRAE/NIBS Cx Process**
200X-0 issued
Annex47, Retro-Cx, etc
- **2006 ICEBO 2006 (Shenzhen)**
- **1980s (HK) TAB/Cx Activity started**
- **1987 (J), First introduction of Cx**
- **1991 (J,C) Annex25**
- **1995 (J,HK) Annex34**
- **1997 (J) Cx Activity started**
- **1998 (J) First Cx Guide Draft**
- **2000 (J,HK) Annex40 participation**
(J) **First Application of ICx**
- **2003 (TW) TAB/Cx began to work**
- **2004 (J) BSCA established**
(HK) **HKBCxC established**
- **2005 (J) Cx Guideline issued**
- **2006 APCBC 2006.11 (Shenzhen)**
(TW) **Cx Guideline (to be issued)**

Today's Participants as Reporters



Annex 47 Participants

Brief Summary of Asian Cx Status

(In view of Initial Cx Process for New Buildings)

- **Japan: Voluntary development continues.**
 - SHASE and BSCA lead. Yet no true Cx providers are. BSCA struggles for qualification and establishing Cx platform and business model.
- **China: Researching Status (like Tsinghua, HKIT Us.)**
 - HK: HKBCxC active for Training and Qualification:
 - Case Studies Large Commercial buildings, R&D involved
- **Taiwan: TAB & Cx using BEMS mandatory for Public Buildings**
- **Korea: Researching Status except for actual Cx application to Foreign funded building construction**
- **Singapore: said US provider doing business**

Philosophical / Ethical Background of Building Commissioning

■ Mechanism of Urban Environment State Change

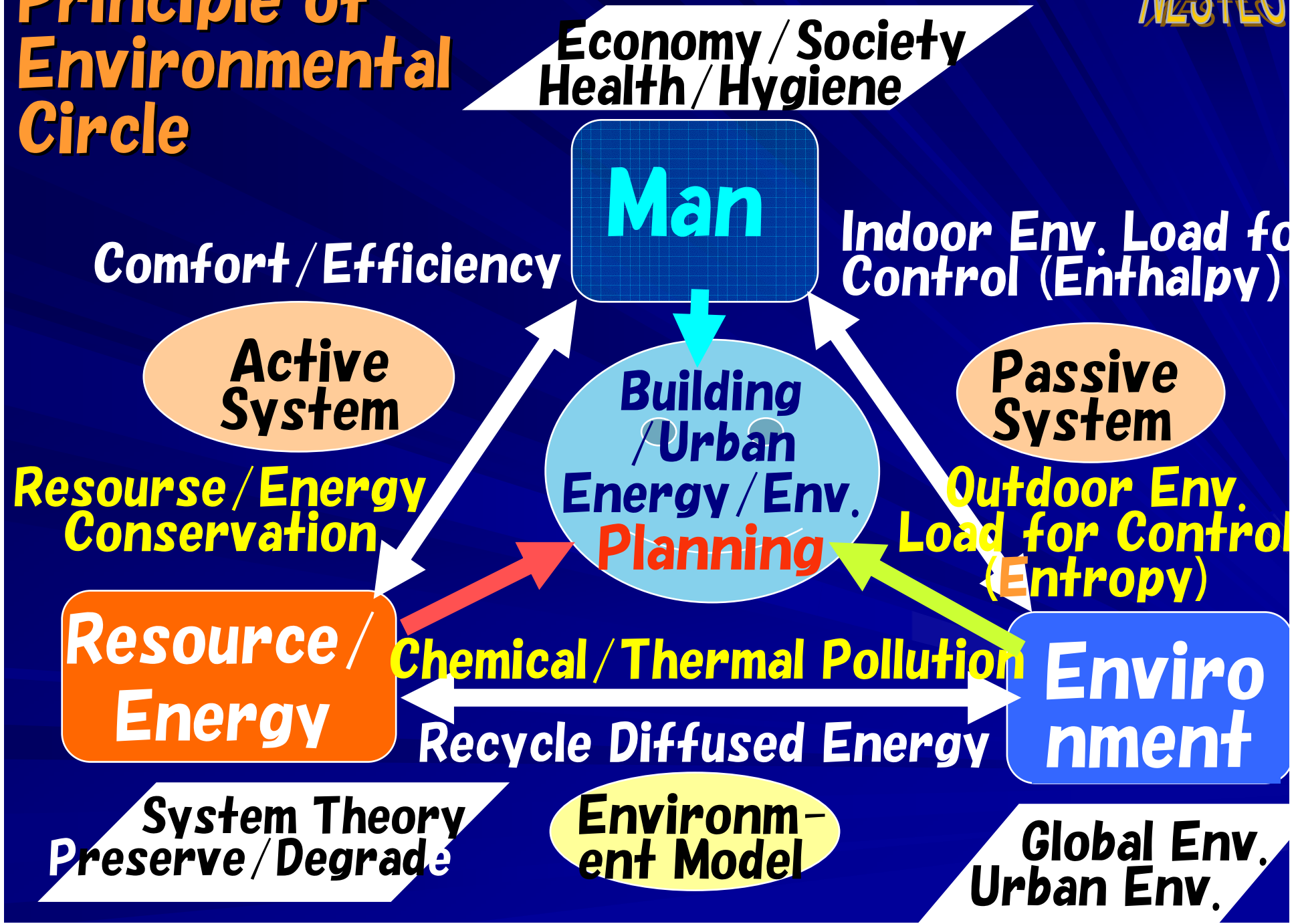
– Virtual/Vicious Circle of Man-
Environment-Resource/Energy

■ Principle of Energy Conservation

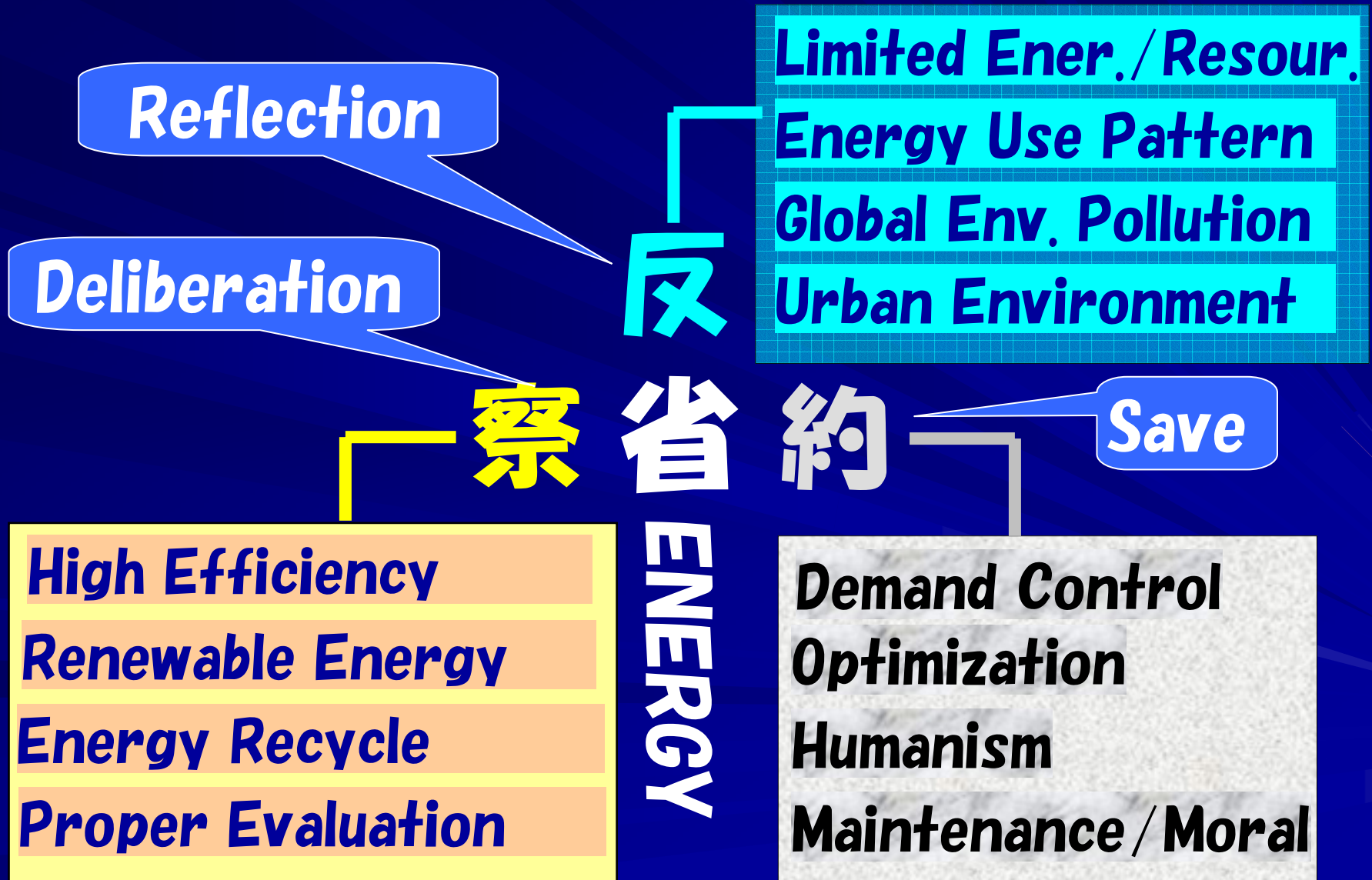
■ Recognize the Big Effect of Commissioning Process from Program to Maintenance

■ Proper and Unbiased Evaluation System for Energy / Environment / Sustainability

Principle of Environmental Circle



Energy Conservation Principle



Commissioning Application

- Life Cycle Commissioning

- Initial Commissioning

 - Total Initial Commissioning

 - Partial Initial Commissioning

not recommended but better than nothing

 - Ex1 : Acceptance Step Commissioning

 - Ex2 : Program Phase Commissioning
(Consulting)

 - Ex3: Construction Phase Commissioning

- Retro-Commissioning

- Continuous (On-going) Commissioning

Lifetime Commissioning Process

A building

Client Owner

Program Ph.
Design Ph.

Construct. Ph.

under construction

Post Acceptance Ph.
1 year after completion

After completion
(Existing building)

Designers

C
A
·
C
M
T

Cx Management tools, MAC

Initial Cx Process

Construction Team

Continuous Cx Process
• Re-commissioning,
• Retro-commissioning

Cx Tools for Testing / Diagnosis

ESCO / RtrCx

Energy Saving through LifeCycle Cx Process

Energy Saving through ESCO / RtrCx



Points of Discussion

How to meet the different culture and customs lied in the construction industry of each country ?

■ **Owners' recognition on**

- how important the OPR is,
- how human beings could not be totally reliable as the social beings, if not as the natural beings, - - - -
- difference of religious and ideological background

■ **Allowable design quality**

- how severely designers are sued for their design mistakes, when with or without OPR,
- Vague discrimination among conceptual design, schematic design and design development

Points of Discussion – continued

How to meet the different culture and customs lied in the construction industry of each country ?

- **How design profession and CA qualification could harmonize without fight for optimality of the design under OPR**
- **How TAB and FPT could efficiently harmonize in the end to realize OPR**
 - **Difference of the custom and expected performance of TAB among countries**
 - **How owners could endure the delay of acceptance due to implementation of sufficient TAB and FPT**

Commissioning Authority (CA)

- Nominated and paid directly by the owner,
 - How owners could have knowledge on CA?
- Individuals or organizations which are socially acknowledged as a bearer of fair mind with sufficient professional knowledge and management capability,
 - How can this god-like governor is obtained or qualified?
- The third personality concerning the project in concern
- Preferably, standing-alone professional independent from design team and construction team

Merit of Commissioning —to be obtained

For Building Owners:

- Building truly match Owner's Requirements
- Realize high quality products and maintenance
 - How come owner just evaluate cost & appearance?
- Contribution to Facility Management
- Obtain cost efficient building through lifetime
- Satisfactory room environment
- Add value to real-estate
 - How curious Engineering Report do not evaluate quality of energy & environment!
- Reasonable rent
- Satisfaction through energy conservation and contribution to global environment

Merit of Commissioning —continued —to be obtained

For Design Professionals:

- **Raises quality of design**
 - **While they'll need more time that owners hate**
- **Clarify roles and responsibility of designer**
 - **And yet, how come if owners don't evaluate it?**
- **Economical merits**
 - **Fair amount of fee deserving its quality**
 - **Reduced troubles**
 - **Cost effective design**
 - **They'll still say that owners wish the lower price, neglecting the effect on the worsen? quality.**
- **Raised fame as design professional**
- **Act as CA based on their experience**

Merit of Commissioning —continued —to be obtained

For Contractors:

■ Clarify Scope of TAB

– ex. Japan Situation is far behind US & UK experience of TAB & Cx Codes of practice setup during 1965~1995

■ Reduce Troubles during construction and after occupancy

■ Economical Merit

■ Clarified scope and responsibility for TAB and Cx-related works

■ Reduce risks for trouble solution expense

■ Clearly define fee for Design Support Works

– Owners would never admit this but shall fed back to design quality and design fee matters.

■ Clearly define acceptance procedure

■ Act as CA based on their experience

Merit of Commissioning —continued —to be obtained

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For O&M Engineers:

- Earlier Participation to Cx process team
- Improved Maintainability
- Improved Documentation to operate systems
- High Quality systems hand-over through sufficient quality of TAB, FPT process
- Acceptability to instruction and guidance by CA as Consultant
- Improved O&M activities, assisted by deepened knowledge and improved working environment
- Encourage them for aggressive actions for energy conservation and global warming gas reduction
 - They need incentive and shall be dignified as who finally realize quality of Design and Cx.



***Thank you
for your participation***