

# Rebuild Japan

## Future Energy and Commissioning

—Discussion on the strategy and framework of building energy system and energy conservation based on the Commissioning after the East-Japan Big Earthquake Disaster

## Tokyo Meeting

# ***Opening Address***

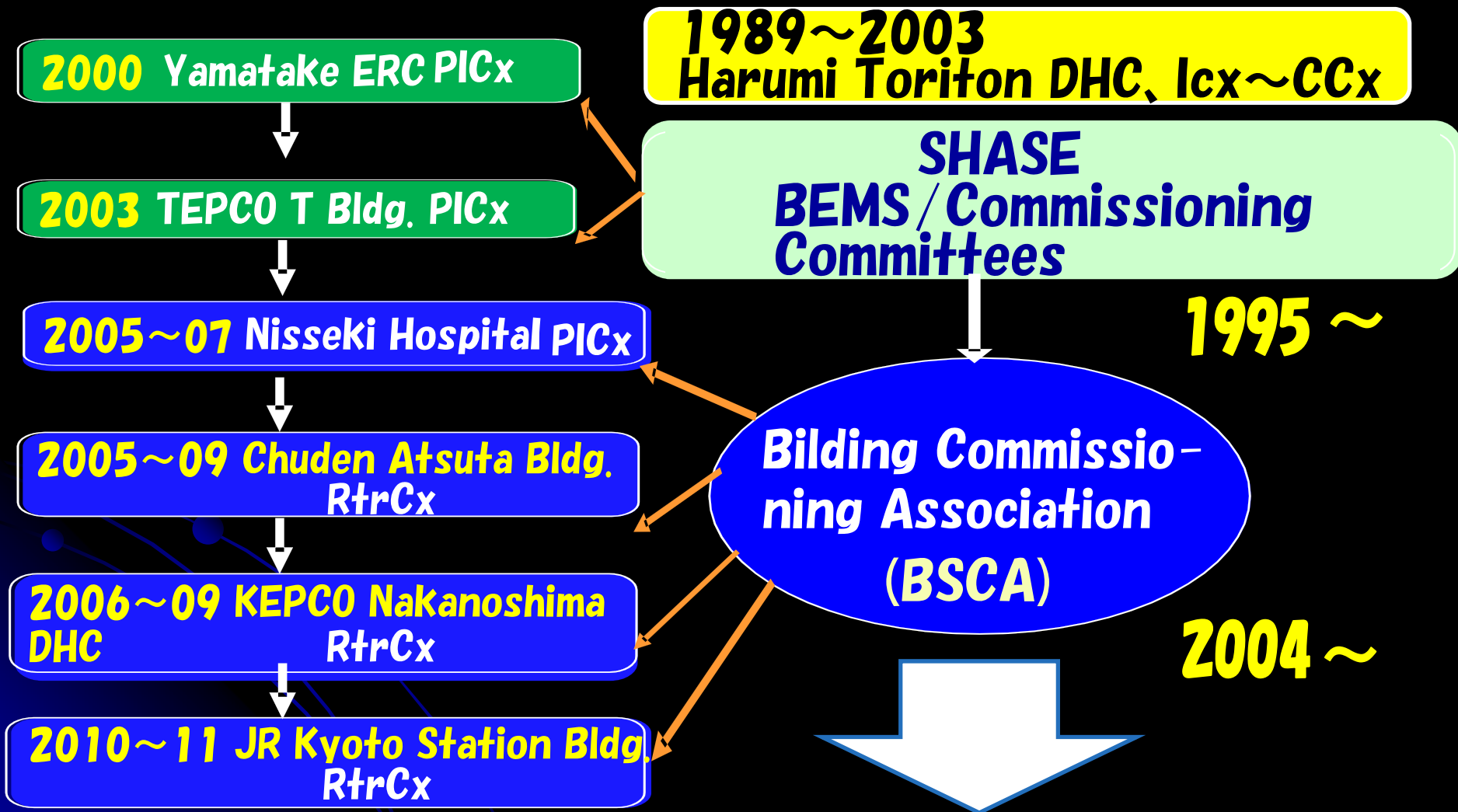
***Nobuo Nakahara, Chairman BSCA***

***What the disaster has taught us***

# ***BSCA' s***

## ***Role and Backgrounds***

# Cx Process Application in Japan and Role of BSCA



CA Qualification, Tool Development<sup>4</sup>

# International Collaboration on Commissioning

## SHASE Commissioning Committee

1995 JPN BEMS Committee  
2002 JPN Cx Committee

2004~

**Building Services Cx Association (BSCA)**

METI, MLIT, NEDO  
PBA, NSRI,

NESTEC

Tsinghua U.

Taiwan

Asia Pacific Conference on Building Cx (APCBC)

2006~

1965~

UK  
CIBSE/BSRIA

Hong Kong  
Bldg. Cx Center

ICEBO

CSTB, Fr

IBEC, Jp

NIST

NEBB, AABC

ASHRAE

1985~

Texas A&M Univ.

2000~

IEA/Annex40, 47  
Cx Process

PECI/NCBC  
Cx Projects

DOE

GSA

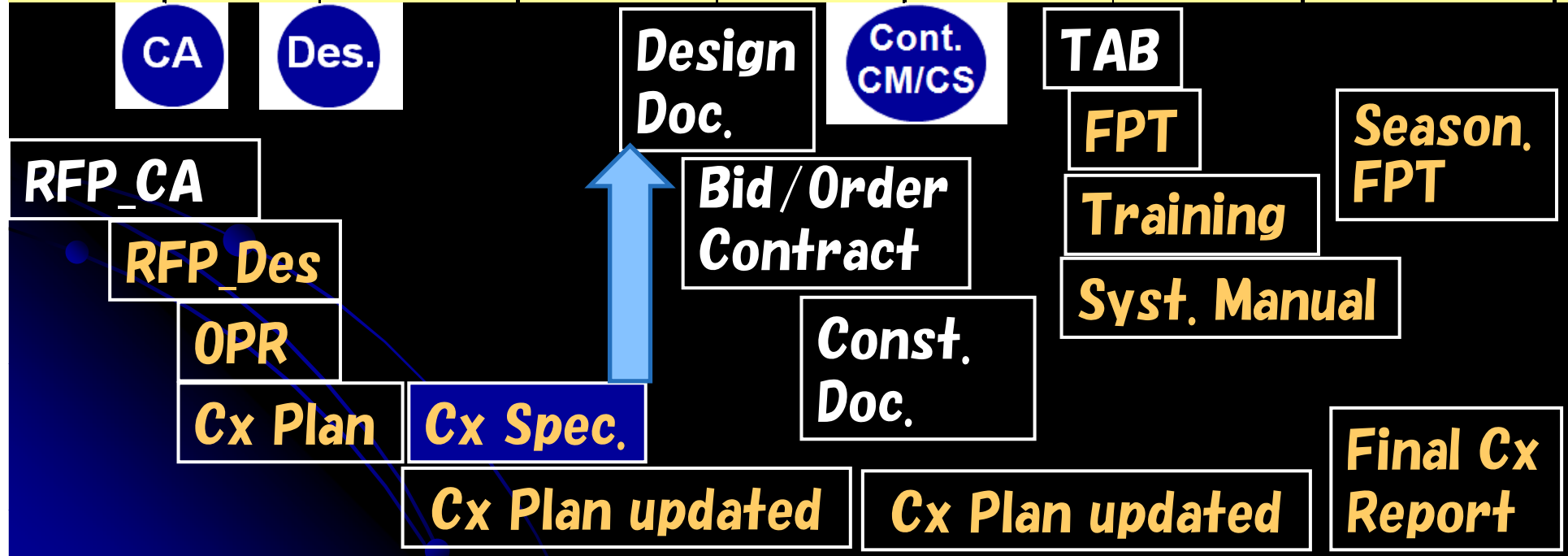
1999~  
BCA(USA)  
Total Building Cx

Wisconsin Univ.

Laurence Berkley NL

# Commissioning Process for New Construction

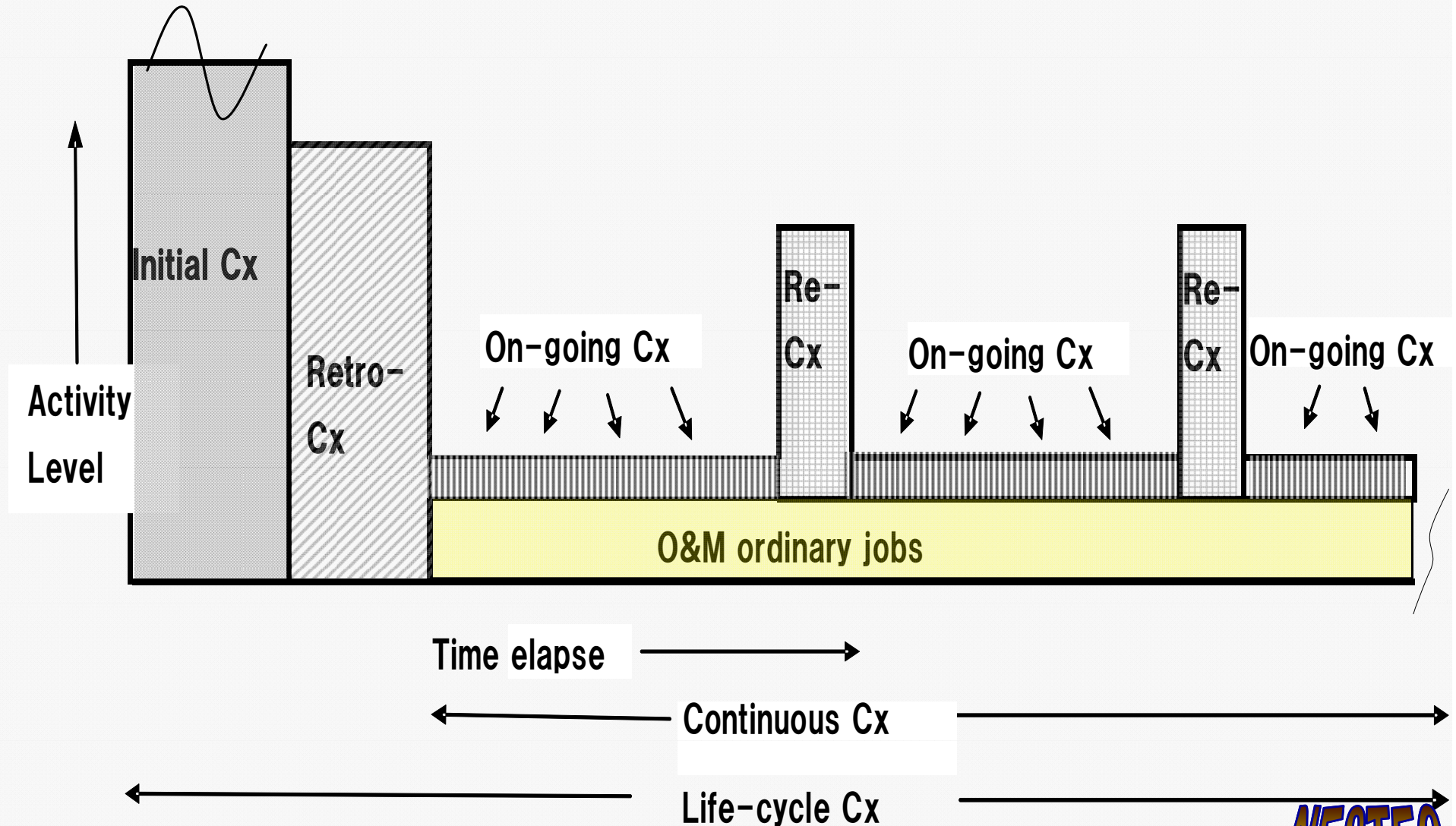
Production Stage							Operation Stage
Program Phase (Pre-Design Phase)		Design Phase		Elabolation Phase	Construction Phase		(Occupancy & Operation Phase)
Program Step	Planning Step	Preliminary Design Step	Working Design Step	Elabolation Step	Construction Step	Acceptance Step	Post-Acceptance Step



**Cx Meeting, Progress Report, Issue Log, Review & Verif.**



# Relation among Commission Types and Structure of Continuous Cx



# **Viewpoints for discussion:**

- **HVAC and Building Services Systems**
- **Buildings, housings and factories – some meet critical needs such as hospitals and data centers – others have non-critical uses.**
- **HVAC is for human hygiene and comfort, and for industrial products as well.**
- **There must be the limits to growth, as the Report for CLUB OF ROME' S Project on the Predicament of Mankind claimed in 1970s.**
- **Human intellect, wisdom and love to others shall overcome the crises on this globe.** **NESTEC**

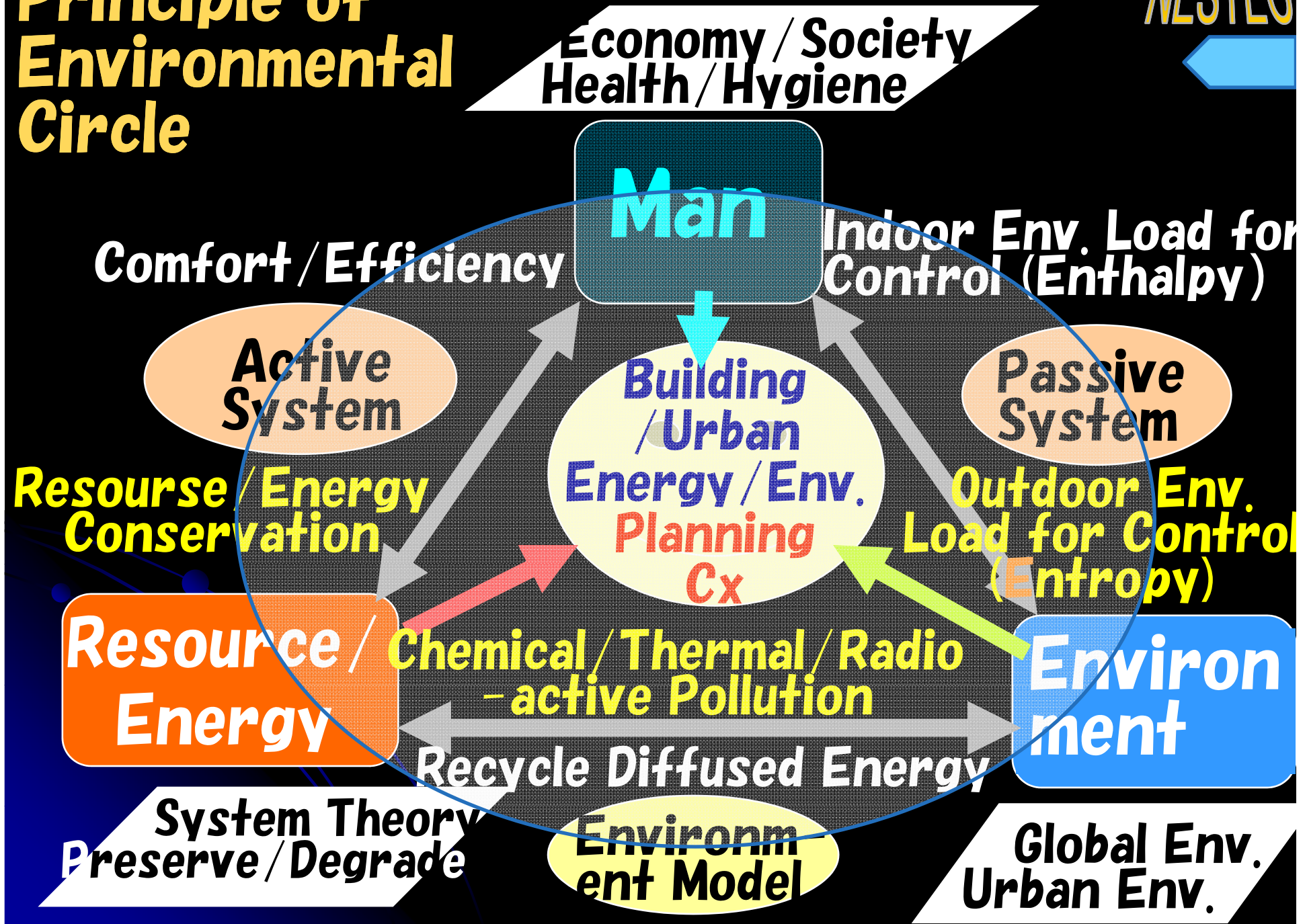
# What have we to keep in mind?

- Fossil fuel is not usable infinitively
- Global warming issue – though there are many discussions on the magnitude of it's effects on global environment, it puts another constraint on fuel use.
- Nuclear power will not have a infinite growth, especially after Fukushima.
- Natural energy, un-used energy and recycled energy sources are highly dependent on natural and social conditions and difficult to drastically raise energy efficiency.
- Quality of design, construction and maintenance is highly dependant on ability of individuals and organization.
- Back-up energy source shall be prepared and maintained as actual stand-by for critical use

# What is the *basic philosophy*?

- **Energy Conservation/Saving, 'Sho-energy', is universal principle to solve energy/environment related problems, which is the premise.**
- **Complex energy system, that is, the optimized design and operation of the compounded electricity, fuel gas, natural energy and un-used environmental energy shall be studied.**
- **Control optimization and measurements of variables and energy consumption are the next premise for achieving 'sho-energy'.**
- **Continuous commissioning only achieves the realization of 'sho-energy' as intended. Therefore, initial Cx and retro-Cx, shall be highly recommended, and Cx organization shall be established for each existing building.**

# Principle of Environmental Circle



# Meaning of Energy Conservation/Saving, 省(節)能

Commissioning

Deeply Consider

Reflect

反

察省約

Save / Conserve

Energy resource limit

Energy use pattern

Global environment

Regional environment

Raise system efficiency

Utilize natural energy

Recycle energy

Raise energy security

Proper evaluation index

Energy

Save useless demand

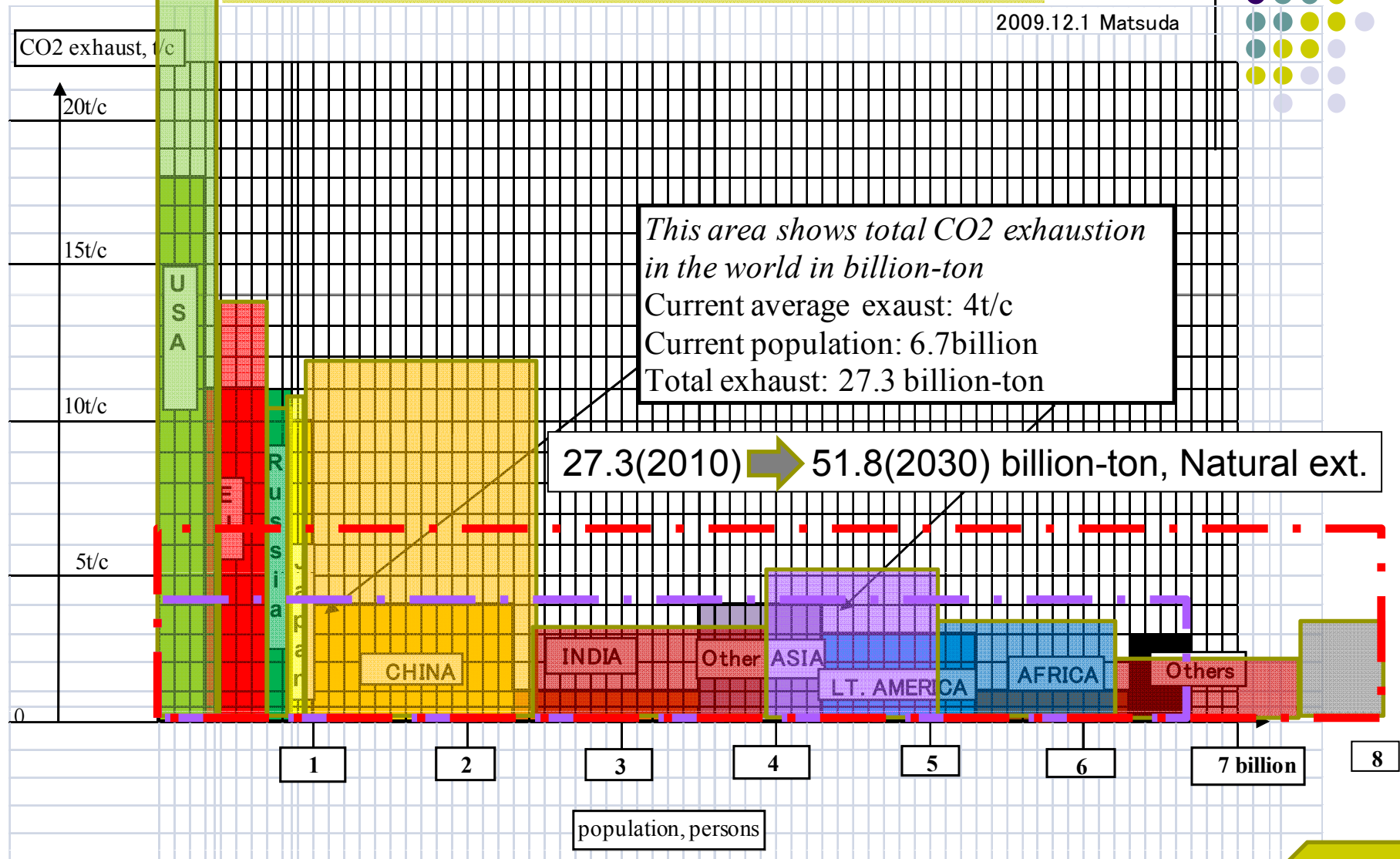
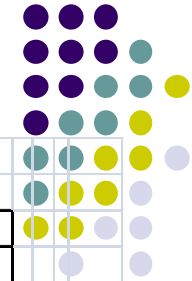
Optimizing concept

Humanism / moral

Proper maintenance / way of living

# World CO<sub>2</sub> Exhaustion

2009.12.1 Matsuda



N. Matsuda