## Thing on going and done in Japan

Shiro Nakajima Building Research Institute



**BUILDING RESEARCH INSTITUTE** 

## Outline

- The so called building waste recycle law was enforced in 2000. After that there is no drastic movement in Japan for the C&D waste.
- The government is reporting the state of art of C&D waste every 5 years. We are expecting a new statistic data in 2010.



#### Amount of the C&D waste





#### Recycle ratio of the C&D waste





#### Types of the C&D waste





#### Amount of the land filled waste







#### Recycle ratio in detail

#### We are expecting a new report in the year 2010.



## Outline

- The so called building waste recycle law was enforced in 2000. After that there is no drastic movement in Japan for the C&D waste.
- The government is reporting the state of art of C&D every 5 years. We are expecting a statistic data in 2010.
- CASBEE (Comprehensive Assessment System for Building Environment Efficiency) the labeling system has been revised in 2008.







Comprehensive Assessment System for Building Environmental Efficiency

CASBEE (Comprehensive Assessment System for Building Environment Efficiency) is an environmental labeling method for building, based on assessment of the performance of buildings.



# Assessment methods for resources and materials management

## Water Resource

1.1 Water Saving1.2 Utilization of Rainwater & Grey Water

## Material of Low Environmental Load

2.1 Reduction of Material Consumption

2.2 Reuse of Existing Buildings' Skelton etc

2.3 Utilization of Recycled Structural Materials

2.4 Utilization of Recycled Non-Structural Materials

2.5 Utilization Timber from Sustainable Forestry

2.6 Reusability of Components & Materials

The red part has been revised.



# Assessment methods for resources and materials management

## Utilization Materials with Low Health Risks

3.1 Utilization Materials with Low Health Risks3.2 Prevention of use of CFCs & Halons

The red part has been revised.



## Outline

- The so called building waste recycle law was enforced in 2000. After that there is no drastic movement in Japan for the C&D waste.
- The government is reporting the state of art of C&D every 5 years. We are expecting a statistic data in 2010.
- CASBEE (Comprehensive Assessment System for Building Environment Efficiency) the labeling system has been revised in 2008.
- The so called 200 years service life housing project started in 2008. (*BRI involved in*)



## 200 years service life housing project

National project to promote "High Quality Long Service Life Houses" started from 2008.

## Outline

The amount of budget is approximately 15 billion Japanese YEN (110 million Euro) annually.

The project is a 5 years program.



## 200 years service life housing project

## Programs

- 1. Supports research and development.
- 2. Create systems to financially support the home owners who will construct high quality long service life houses.
- 3. Provides standards that high quality long service life houses should meet.
- 4. Create approval system for the high quality long service life houses.



# Financially Supporting System

- 1. In the system to financially support the home owners the financial support will be given to who will construct high quality long service life houses or renovate existing houses to high quality long service life houses.
- 2. The houses have to achieve a certain quality.
- 3. The government have already run the system for three times and 163 proposals have been accepted.



# Financially Supporting System

# The house should satisfy a certain level for the following requirements.

1. Durability 2. Structural safety against earthquakes 3. Energy efficiency 4.Barrier free design 5. Maintenance friendly design 6.Renovation friendly design 7. History recording system 8.Neighbor considering design 9. Minimum floor area



## **Outline Continued**

- Life cycle carbon minus housing project started in 2009. (BRI involved in)

## Life Cycle Carbon Minus Housing Project

National project to design and build Life Cycle Carbon Minus Houses started from 2009.

The project is to design and construct houses whose carbon balance will totally be minus.



## **Outline Continued**

- Life cycle carbon minus housing project started in 2009. (BRI involved in)
- Japan society of Steel Construction (JSSC) and Japan Iron and Steel Federation (JISF) have launch on a national research and development project on innovative steel structure. (BRI partially involved in)



## Innovative Steel Project

#### **Outline of the project**

- Develop steel material two times stronger than the currently used steels.
- Develop technologies to construct steel structures using the new type of steel material.

#### **Objective of the project**

- 1.Develop technologies to construct structure with high seismic performance.
- Reduce the materials input.
- Reuse the structural members.





- Steels having two times stronger strength than the steels normally used have been developed.









- The prototype structure was built in BRI.
- Most of the joints are dry joints by limiting the usage of welding.





- IC-tags were put on all structural members and their production histories and histories as structural members were recorded.





- Information can be received by getting the IDs from the IC-tags and accessing the database .







The structure was deconstructed.





- Intended to rebuilt.

![](_page_26_Picture_3.jpeg)