Assessment of Eco Model City based on CASBEE-City
Integrating Environmental, Social and Economic Value

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Virtual boundary

Score for Quality (Q)

Q1. Environ. aspects
- Nature Conservation
- Local Environ. Quality
- Resource Recycling
- CO₂ sinks

Q2. Social aspect
- Living environment
- Social services
- Social vitality

Q3. Economic aspect
- Industrial vitality
- Financial vitality
- Emission trading

Built Environment Efficiency (BEE)

Score for Load (L)

- CO₂ emissions from energy sources (CO₂ from industrial, residential, commercial, transport sectors)
- CO₂ emissions from non energy sources (CO₂ from waste disposal sectors, etc.)
Built Environment efficiency (BEE = Q/L) in 2010

In general, the difference of BEE evaluation is small throughout Japan. BEE values in the central part of Japan are pretty high.

CASBEE-City assessment on all 1750 municipalities in Japan

Ikaga Lab., Dept. of System Design Engineering, Keio University
**BEE Change from 1990 to 2010**

CASBEE-City assessment on all 1750 municipalities in Japan

*1-20: Eco Model Cities*

*1+2-20: Eco Model Cities*

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Validation of Total Quality Score by Questionnaire Survey on Citizens’ Satisfaction

Citizens satisfaction (Subjective data) vs. Value of indicator (Objective data)

- Validation of Water Quality Indicator
  - Good Poor
  - Value of indicator (Objective data)
    - (75% of average daily BOD in rivers) [mg/l]
    - $y = -10.8 \ln(x) + 61.8$
    - $R^2 = 0.610$

- Validation of Crime Prevention Indicator
  - Good Poor
  - Value of indicator (Objective data)
    - (Number of crimes recorded / adjusted population) [number / 1,000 people]
    - $y = -22.7 \ln(x) + 94.3$
    - $R^2 = 0.776$

- Validation of Equivalent to GRP Indicator
  - Good Poor
  - Value of indicator (Objective data)
    - (Amount equivalent to gross regional products) [1,000,000 Yen / person]
    - $y = 15.6 \ln(x) + 20.1$
    - $R^2 = 0.680$

- Validation of Total Quality Score
  - Good Poor
  - Value of indicator (Objective data)
    - (Total Q score of CASBEE-City) [-]
    - $y = 0.9518x - 2.756$
    - $R^2 = 0.5539$
CASBEE Assessment on Kobe from 1990 to 2025
by Urban Infrastructure Initiative, World Business Council for Sustainable Development

Ikaga Lab., Dept. of System Design Engineering, Keio University

http://www.wbcsd.org/uikobereport.aspx
CASBEE Community Health Checklist

Residents look back on their daily life and check the current condition of their community

Residents

①hand out

②Check

③Feedback

Local Authorities

Elimination of functional inhibition

- hotness
- coldness
- noise
- accessibility
- traffic accident

Promotion of activity participation

- public transportation
- public facilities
- communication
- park
- community activities

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Relationship between Housing, Community and Symptom

Based on Questionnaire Survey on 10,496 people living in 148 cities in Japan (Ikaga Lab., 2012)
Thank you for your kind attention

We would like to extend our sincere gratitude for the great cooperation of the member of committee for the development of an environmental performance assessment tools for cities

Bibliography :


3) Shun Kawakubo: Nationwide Sustainability Assessment of Whole Municipalities in Japan Using Public Statistical Information, Doctoral dissertation (Keio University), 2013.3