NILIM

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■ Guideline for Assessment of Garbage Grinder Introduction

Water Quality Control Department

The impact on sewage and garbage disposal systems and on society as whole should be examined by estimating the amount of kitchen waste to be cast into garbage grinders after arranging data on the target areas. Sewage managers can use this document as a technical reference when examining the propriety of introducing garbage grinders.

(1) Basic Unit of Kitchen Waste and Garbage Grinder Discharge
A method to estimate the amount of kitchen waste cast into a garbage grinder and change in the quality of wastewater is demonstrated.

(2) Impact on Sewage Systems
Estimating the impact on sewers, pumping stations and sewage treatment plants is shown. Any damage to the disposal functions of a sewage treatment plant can be identified.

(3) Impact on Garbage Disposal Systems
• By introducing garbage grinders, the water content of kitchen waste will decrease and the amount of combustible garbage will also decrease. The method for studying the impact on a garbage disposal system is demonstrated.

(4) Social Impact
• Grasping the social impact of introducing garbage grinders (convenience or inconvenience of utilizing garbage grinders) is demonstrated through community awareness research.

(5) Evaluating the Economic and Environmental Impact
• Evaluating the administrative cost, such as sewerage and cleaning expenses and analyzing the overall benefit to local communities is demonstrated.
• LCA (life cycle assessment) as an environmental evaluation based on loads, such as greenhouse gas emissions from users of garbage grinders, sewerage and garbage disposal systems and the amount of energy invested is demonstrated.

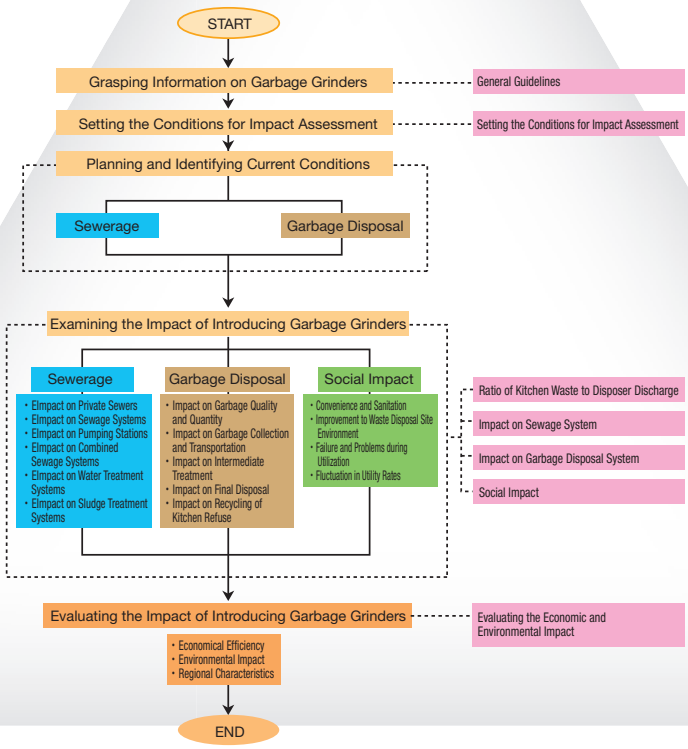

Figure 1 Flowchart of Impact Assessment

New Main Projects

1. Research on Effect of Social Overhead Capital on Beneficiaries

In due consideration of local characteristics or value criteria other than economic efficiency, the technique for evaluating the benefits of social overhead capital is to be studied. This study, which identifies the basic conditions for regional subsistence and combined effects of various projects and policies, will contribute to appropriate social overhead capital development and management that ensure fairness, economic efficiency and other value criteria.

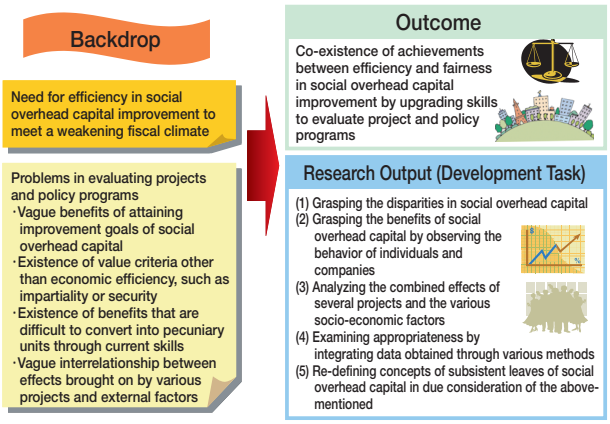

Figure2

2. Technologies to Support Improvements in Energy Performance of Residential Buildings

Information on the most effective methods as energy-saving technologies in new and existing residential buildings (target 50% reduction in carbon dioxide emissions) will be verified, and building envelope and equipment systems, which utilize a combination of such methods, will be systematized.

In the housing sector as a whole, assistance for upgrading existing residential buildings to more energy-saving ones has become an urgent theme. Therefore, development associated with such renovation technologies especially with regards to higher energy efficiency will be focused upon.

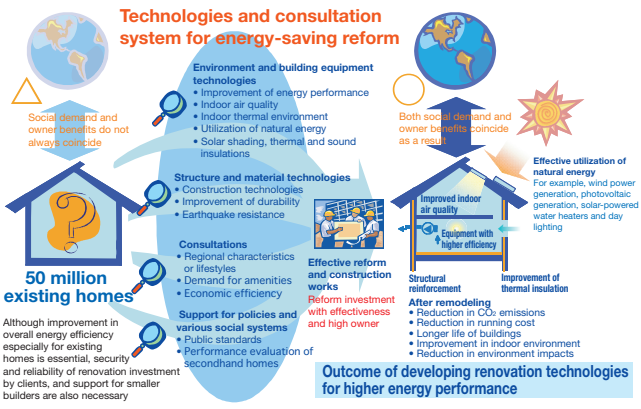

Figure3

3. Strategic Planning for Management of Coastal Environment

Environmental restoration of coastal areas is being attempted in Tokyo and Osaka Bays. Well organized systems have been requested with ecological restorations, a reduction in environmental load and continuous monitoring as the key. Thus, comprehensive planning and a monitoring mechanism for management will be studied taking the unique characteristics of the coastal ecosystem into consideration.

By developing "strategic planning" that incorporates planning, construction and management in advance or by implementing "adaptive management" based on the ecosystem response for the transition, the new system will contribute to the sustainable development and wise use of coastal areas.

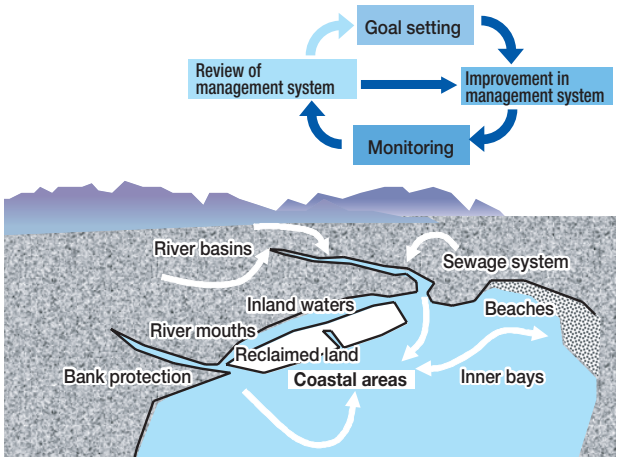

Figure4

4. Research on Regeneration of Modern Buildings of Historical and Cultural Value

For urban improvement, creation of beautiful landscapes and local revitalization, effective utilization of historical and cultural buildings, which are symbols of local history, are effective means. Therefore, this research will help to promote various technologies such as the evaluation of social values and safety, securing a level of public safety that conforms to current criteria, and recovery of deteriorated components essential to promoting conservation, regeneration and effective utilization of reinforced concrete structures built during the Taisho or early Showa periods.

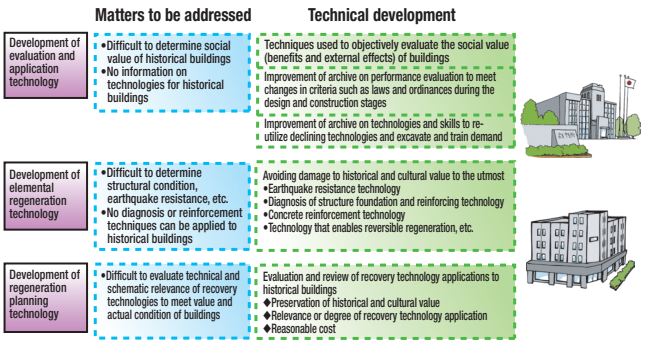

Figure5

5. Study about Road and Roadside Environment for Preventing Human Error

With the aim of preventing human error that may cause traffic accidents, research will be carried out to find out driver's judgment and behavior (lower driver concentration or error in judgment) at locations where accidents often occur to discover if serious and often fatal traffic accidents,and also find out road and roadside conditions (road signs, roadside utilization, shop signboards, etc.) at these locations. Based on this research, recommendations on various criteria and systems, planning and design improvements for roads and the roadside environment will be submitted in order to prevent such human error from occurring.

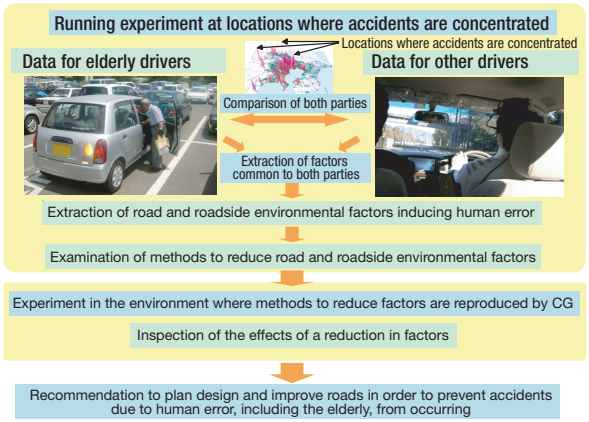

Figure6

6. Performance Assessment Methods for Innovative Structures applying Advanced Structural Materials

By effectively utilizing the characteristics of advanced structural materials such as high-strength steel, high-functional steel and advanced composites, a structural system with exceptional earthquake resistance, variability and reusability, as well as a method for assessing and validating its performance is being developed. Meanwhile, by effectively utilizing and applying basic technologies on such structural systems to recovery technologies such as those used for existing buildings, technologies suitable to the improvement and regenerating functions of existing urban structures are being developed.

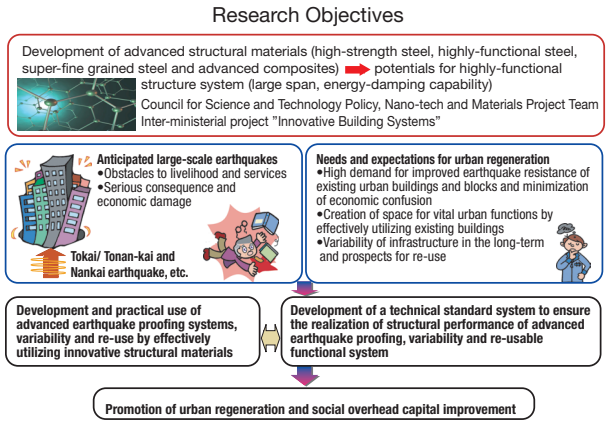

Figure7

7. Regenerating and Reorganizing Suburban Areas to Meet Social Demand and a Decreasing Population

From next year the Japanese population is expected to fall and contribute to the surplus in vacant lots and unoccupied dwellings especially in suburban areas. Therefore, deterioration in living environment and inefficiency in public services are anticipated.

To reduce the impact of these problems and encourage residents to recreate comfortable housing and residential areas, regenerating and reorganizing technology, such as land-readjustment, units subtracting from collective housing, forecasting the decline in suburban residential areas, etc. and examining the cost and benefits of regeneration and reorganization, will be carried out.

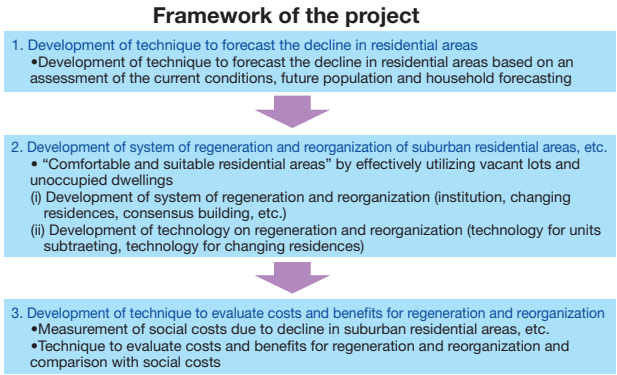

Figure8

8. A Study on International Freight Flow Network and Infrastructure Development Policy in the Age of Economic Partnership in East Asian Region

In the East Asian region, the movements for free trade agreements (FTAs) have been becoming more and more dynamic among ASEAN nations, Japan, China, South Korea and others. It can be expected that the trends of international cargo flow will be highly influenced by the advance of such economic partnerships.

In this study, trade-freight integrated forecasting system is to be developed, and future demands of international freight such as maritime container freight and airfreight are to be estimated considering effects caused by free trade agreements.

Moreover, various policies for developing and managing ports and airports related to international freight flow are to be assessed, based on economic outcome analysis.

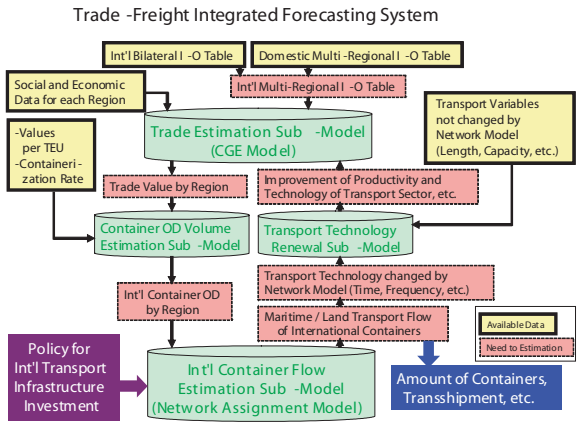

Figure9

15 Other Main Projects

Title of Project
Research on Technologies for Zero Emission and Recycling-Oriented Society
Development of Evaluation and Technologies for Buildings Aiming to Form a Sustainable Society
Research on the Construction of Sound Water Cycles and Sediment Transport Systems
Evaluation Method of Disaster Prevention Performance of Social Infrastructure and Facility in Urban Regions and Disaster Mitigation Technologies
Research for Improving Safety and Amenity in Road Space
Development of Comprehensive Technology for Advanced Smart Residential Buildings
Research on Comprehensive Management of Chemical Risks in Bodies of Water
Research on the Influence of Soil and Groundwater Contamination on the Watersheds
Development of Synthetic Evaluation Technologies for Improving Urban Thermal Environments
Research on Improvement of Consensus-Building Methods in Infrastructure Management ～Aiming to Promote Common Understanding and to Raise Satisfaction～
Development of Techniques for Assessing and Controlling Overall Cost Reduction Effect in Public Works
Research on Airport Development Policy to Adapt to the Future Airport Service Network in East Asia
Research on the Building a Multi-Modal Transport System
Research on Promotion of International Tourism by Networking Local Resources and Transportation Hubs
Comprehensive Effort for R&D on Advanced Cruise-Assist Highway System

■ "UK-Japan Road Workshop"

Traffic Engineering Division

The 6th U.K. - Japan Workshop on Advanced Technology in Highway Engineering was held in London and Birmingham, England between November 9th and December 4th, 2004. Since Japan is currently promoting "outcome-based road administration", the main theme of the workshop was "performance management". In addition to the opening session, both participants discussed the latest measures taken through administration and research. Five sessions covering performance management, pavement management, highway management and traffic control management were held. Members also inspected the site of Active Traffic Management (ATM) for Motorway 42 (M42) in the suburbs of Birmingham and the National Traffic Control Center.

The 7th workshop is scheduled to be held in Japan in autumn 2005. On that occasion, performance management will be the ongoing theme, and asset management and ITS policies and technologies will also be discussed. It is hoped that this workshop will help to strengthen cooperation between Japan and United Kingdom in the area of road science and technology.

Photo 1 In front of the National Traffic Control Center in Birmingham

■ TECHNICAL NOTE of National Institute for Land and Infrastructure Management (April, 2004)

No.	Title of Paper	Names of Divisions
120	Annual Research Report 2002 of Road Environment Division	Road Environment Division
136	Decrease and Its Variable Factor of Lakeshore Vegetation in Lake Kasumigaura	Landscape and Ecology Division
142	Puncture Resistance of Waterproof Sheets Applied at Coastal Confined Waste Disposal Site	Coastal Disaster Prevention Division
143	Precision of Estimation by Payment Card Contingent Valuation Method -Using Promotion of Increment of Tidal Flat and Shallow Water Area in Mikawa Bay-	Coastal Zone Systems Division
144	A Study on Services and Functions by Sea Ports, With a View to Supporting Global Logistics Strategies	Port Planning Division
145	Port Calling League of World Container Ships(2003)- Analysis of the Statistics Concerning with Port Calling and Influence on Rock-Out of Port in the Western Part of North America-	Port Planning Division
146	Influence of Rejuvenating Agents upon Performance of Recycled Asphalt	Airport Facilities Division
149	The Street Tree of Our Country V	Landscape and Ecology Division
152	Study for Conservation of Mammal Habitat -Investigation on Prevention Measures Against Animal Road Kill-	Road Environment Division
153	Environmental Impact Assessment Technique for Road Project(2) <Revision of 2004>	Road Environment Division
154	Joint Research about the Availability of Compost in Planting Work	Erosion and Sediment Control Division
156	NILIM Special Session in the First International Conference on Hydrology and Water Resources in Asia Pacific Region (APHW 2003) -From the History, Today's Issues in Water Management- Report	Water Management and Dam Division
158	Hydraulic Resistance by Flexible and Tall Plant Communities	River Division
161	Field Study on Characteristics of Fluvail Processes Induced by Floods, Succession and Area Expansion of Riparian Plant Communities in Gravel Bed Rivers	River Division
163	Report of the Evaluation Sub Committee of NILIM in FY 2003 Evaluation Committee of NILIM	Research Administration and Evaluation Division
166	Investigation of Causes and Counter Measures of Dangerous Phenomena on the Roads	Advanced Road Design and Safety Division

■"2005 Annual Report of NILIM" is now on our website (in Japanese only, for the time being)

We publish "2005 Annual Report of NILIM" to show our research activities and accomplishments, and you can see its contents on our website, www.nilim.go.jp. English version will be available in the future.

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