

社会資本ストックの管理運営技術の開発(新規)

Development of Maintenance Management Technology for Infrastructure and Building Stocks (New)

最終処分場に占める廃棄物の26%が建設廃棄物であり、不法投棄量の60%は建設廃棄物である。再資源化等率の目標値である95%に対して、リサイクル率は土木で91%、建築で73%にとどまっている。高度成長期を通じて、大量に建設・供給されてきた施設の劣化や陳腐化等による更新需要は、近年中に集中的に高まると予想され、このまま更新されれば財政事情を悪化させ、また廃棄物の最終処分場が逼迫するなど環境制約が顕在化し、不法投棄等の社会問題を引き起こす可能性もある。一方、これら大量に建設・蓄積された施設は、地域における社会資本ストックを形成し、国民生活や経済活動を支える重大な役割を担っている。

そこで、本プロジェクトでは、国・地方の財政事情を勘案し、廃棄を抑制する取組み(リデュース)を行いつつ、社会資本ストックの機能及びそのサービス水準を維持してゆくため、全ての施設の構造的劣化や社会的陳腐化の実態および多様な維持管理・更新手法の適用による機能向上効果を適切に評価・予測した上で、環境、財政制約を踏まえ最も合理的に社会資本ストックを管理運営する手法を評価・選択するための「戦略的ストックマネジメント計画システム」の開発を行う。

26% of the waste at final disposal sites is from construction work including demolition, and 60% of the amount of illegal abandonment is from construction work. To improve this state, ministry of land, infrastructure and transport set up the target rate of recycling of the waste by construction to 95%. However, the rate in building construction or civil work is still only 73-91%.

It is expected that the renewal demand by degradation, obsolescing, etc. of facilities, which have been

built and supplied in large quantities on the high-growth era, increases intensively in a few decades. If renewed as it is, a financial situation may be worsened, and environmental restrictions, for example, the final disposal sites of waste will be full, may actualize, and social problems such as illegal abandonment may be caused. On the other hand, these facilities built and accumulated in large quantities form the infrastructure and building stock in a district, and support the life of the people or an economic activity.

Then, the Reseach Project for "strategic stock management planning system" is launched. The system will take consideration the financial situation of a country or a region, and it will make it possible to maintain the function and its service level of infrastructure and building stock, taking the measure which controls dispose of waste.

In this system, the actual condition of structural degradation or social obsolescing of all facilities and the improvement effect in functional by application of the various maintenance management or updating techniques will be able to be evaluated and predicted appropriately. Moreover, this system will be able to evaluate and choose the technique of carrying out maintenance management for the infrastructure and building stock most rationally under environmental or financial restrictions.

社会資本ストックの診断・延命・転用技術及び評価技術の開発

Development of the diagnostic, prolongation-of-life, diversion and evaluation technology for infrastructure and building stock

診断技術 Diagnostic technology



延命技術 Prolongation-of-life technology



転用技術 Diversion technology



要素技術の体系化
Systematization of the component technologies

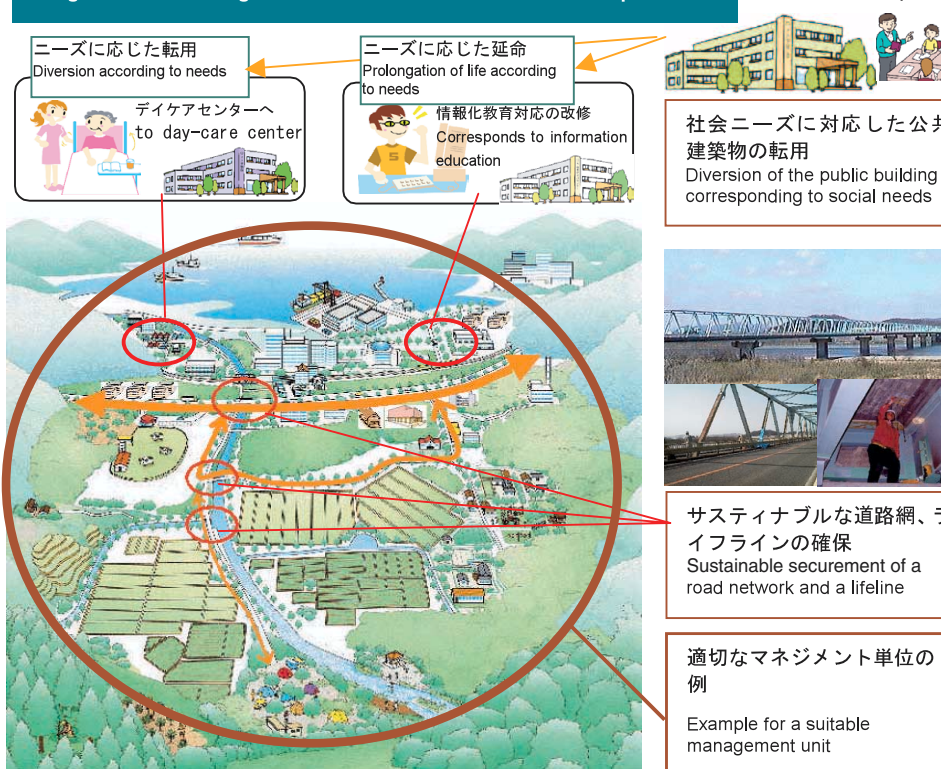
評価技術 Evaluation technology

施設の現状を把握し、延命や転用の可能性とその効果を定量的に評価する技術の開発
Development of the technology of monitoring the present condition of facilities and evaluation of the possibility and the effect of the prolongation of life or diversion quantitatively

地域単位における戦略的ストックマネジメント

Strategic stock management in a local unit

全体計画に基づく地域単位のストックマネジメント像 Image of Stock management of the local unit based on total plan



戦略的な社会資本ストックの管理運営

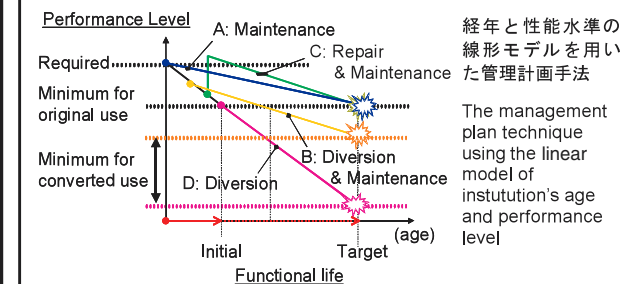
Strategic maintenance management of infrastructure and building stock

環境及び財政の制約下で社会資本ストックの機能維持や有効活用と延命化を実現。
Realizing functional maintenance, effective use, and prolongation-of-life of a infrastructure and building stock under restrictions of environment and finances

維持管理、更新を平準化することで環境負荷の低減(廃棄物のリデュース)、安定的財政運営を実現。
Realizing reduction of environmental load (= reduce of waste) and stable fiscal management by equalizing maintenance and renewal execution

個別施設の維持管理計画技術の開発

Development of the maintenance management planning technology for individual facilities



環境影響、所要投資、サービス水準を含めた観点から、個別施設の管理・延命・転用方針を立案する技術の開発

Development of the technology of drawing up maintenance, prolongation-of-life or diversion plan for individual facilities from a viewpoint including environmental influence, necessary investment, and the service level

戦略的ストックマネジメントシステムの開発

Development of strategic stock management system

Facility	Benefit	Cost	Environment	...	Total
Plan A	○	△	○	...	◎
Plan B	△	△	◎	...	◎

Facility	Benefit	Cost	Environment	...	Total
Build. A	Benefit	Cost	Environment	...	Total
Plan A	◎	△	x	...	△
Plan B	○	○	△	...	◎
Plan C	△	x	◎	...	○
Plan D	x	◎	△	...	△
Plan E	△	◎	△	...	x

環境影響、所要投資、サービス水準を予測・評価し、設定したマネジメント単位全体の管理運営を最適化する技術の開発

Development of the technology that predicts and evaluates environmental influence, necessary investment and a service level, and optimizes management of the set-up total management unit, and the service level