

Impact Analysis of a Water Quality Enhancing Policy : A Simple Input-Output Approach

Kim, Hong-Bae & Jin, Sang-Yub

It is generally believed that there exists a trade-off between economic activity and environmental quality since pollutants are generated in the process of production and consumption of commodities. The literature shows, however, that there have been relatively few empirical attempts to analyze this trade-off relationship. This tendency may stem from the fact that there is insufficient data to represent the environment sector. This paper has constructed the environmental sector endogenized multi-region input-output (ESEMRIO) model in order to measure the impacts of water quality-enhancing policy on the Korean economy of two regions, recognizing the environment sector as a resource-using sector. The ESEMRIO model specifically estimates the impacts of the policy on the economy in terms of the policy costs, industrial output, and employment.

Sustainable Indicators : A Taiwan Experience

Lee, Yung-Jaan

Since UN's Conference on the Human Environment in 1972, sustainable development concept has become the ultimate goal for global environmental policies. Moreover, sustainable development has become the principal guideline for urban planning, resource development, and environmental conservation. Taiwan's National Comprehensive Development Plan also adopts sustainable development concept to improve the living environment, to enhance the production environment, and to protect the ecological environment. Therefore, the sustainable use of national land should include, at least, "equity" and "effectiveness" to achieve the sustainability goal. However, Taiwan's present national land use is either in an improper use or over-use status, which significantly ignores the balance between environment and development.

Many studies point out those sustainable indicators can provide operational definitions for sustainable development and can be used as a reference for policy making. Therefore, this paper defines the context and content of sustainability. Using Taiwan as a case study, this paper proposes sustainable indicators, which take into account three perspectives of sustainable development: environmental integrity, economic efficiency, and social equity.

This paper first defines the context and content of sustainable development and reviews the history of the sustainable indicators. Following that, this paper proposes principles for selecting sustainable indicators. This paper uses the Delphi technique to examine the feasibility of these indicators. According to the Delphi result, under the sustainable development goal, there are three major goals, seven indicator groups, and 42 indicators. To help sustainable indicators contribute to the evaluation of public policies, this paper adopts the Analytic Hierarchical Process (AHP) to evaluate the weighting of sustainable principles and indicators. This paper also adopts these findings to examine the degree to which the indicators can help Taiwan to achieve the sustainable development goal. The final part of this paper is conclusions.

Evaluation of Green Field Activation by Three-Dimensional Expansion of LANDSAT TM Data - A Change Over Time of Green-Space Landscape in Circumference of Kumamoto City -

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To begin with, in the analyzed object range, the Landsat TM data was taken three time periods and the Digital Cartographic Information was processed. The NVI picture images are made up by the Landsat TM data, the three dimensional topographical data, which is an elevation and an angle of obliquity, was compiled by Digital Cartographic Information, The NVI picture image from each observation time heap up topographical data. Next, the relationships between green coverage distribution and the geographical conditions will be analyzed using data of an elevation and an angle of obliquity. Secondly, we made a visibility analysis, using both the NVI picture image and three -dimensional topographical data, about the current state of green coverage in the visible field from each viewpoint, and each independent area is decided. In each area, how emerge observation data's trend analyze. Finally, we show the directional properties of development mainly effective land use from landscape's approaches.

A Study on Characteristics of Prefectural Landscape Regulations in Japan

Toshio KITAHARA

In short, "landscape" is a visual aspect of the environment spreading before us. The environment has both natural and man-made factors. The natural environment is based on the geography and the ecosystem, and the man-made environment has been historically built on the natural environment. Therefore the concept of landscape contains both the natural landscape and the urban one (1), and it was composed of various invisible factors, such as the relationship between people and their environment, their affection for the region and the culture as their historical essence, as well as visible elements.

In Japan, a number of prefectures have prepared landscape regulations (2). What features have those prefectural landscape regulations in comparison with the municipal ones? In this paper, I make a comparative analysis between prefectural and municipal' landscape ordinances, and discuss the characteristics and the role of prefectural landscape regulations in Japan, considering the following three issues:

- an outline of the municipal landscape regulations,
- an outline and characteristics of the prefectural landscape regulations,
- and an outline and methods of the prefectural landscape guidelines.

Sustainable Taipei? - Using the Ecological Footprint Concept to Explore Taipei's Sustainability

Lee, Yung-Jaan & Chen, An-Chi

The literature indicates that nearly one half of the world population will live in urban areas in the early 21st century. With the growing interaction of transportation, production and trade, world economic systems are integrated into an urbanized system gradually. These phenomena indicate that in view of the future global environmental change, "cities" will play an important role. On the other hand, the congregation of population, industries and urban function results in urban expansion, which further derive severe impacts on urban environment and economy. The information warns that unlimited overshoot of resource will ultimately destroy the city.

The advocacy of "sustainable cities" concept is a response to the global environmental change and international sustainable development movements. "To minimize wastes" and "to re-evaluate the net contribution among sectors" are the two primary principles to reach the goal of sustainable city. However, when examining the impact of urbanization on the environment, one finds that many studies only focus on "environmental" concepts. Even the "carrying capacity" analysis cannot deal with the impact of behavioral change, which is resulted from production, consumption, trade, and technology, on the sustainable city. Based on this concept, this paper adopts William E. Rees and Mathis Wackernagel's Ecological Footprint analysis to evaluate Taipei's sustainability.

Four sections are included in this paper. Section one deals with the context of sustainability. Section two discusses the shortcoming of traditional carrying capacity and the meaning of using ecological footprint to evaluate sustainable city. Section three explores the calculation of ecological footprint. The outcome of Taipei's ecological footprint will be carried out as well. The final section comments on Taipei's sustainability, using the ecological footprint concept.

Effects of the Structure of Open Space on the Visual Accessibility of Railway Stations in Urbanized Area

Gehan Elhady, Yoichi KUBOTA & Kiyotaka FUKAHORI

Railway transportation systems are becoming more important and appropriate in people daily life. According to their advantages of speed, efficient and reduction of pollution, railway systems are expected to replace the other means of transportation by the beginning of the 21st century. In addition, railway stations are becoming part of the essential infrastructure of the environmental age, and one of the means by which we can renew the inner city. Consequently, the arrangement of space structure around station buildings has great importance in clarifying passenger's accessibility and recognition of the station buildings. Therefore, this study focuses first on analyzing the current physical relationships between the station buildings and the surrounding street network. The second purpose of the study is to clarify the degree of visual accessibility provided by the different types of physical relationships. A typology of the space structure patterns around stations was constructed. Then, visibility contour lines method was applied in order to measure the degree of visibility and to clarify how the different types of physical relationships affect the visual accessibility. The study was conducted on a sample of stations in Tokyo metropolitan area.

A Study on Environmental Risk Assessment and Value Conflict : The Case of Bayer Company in Taichung, Taiwan

Liao, Chung-Jen

When dealing with technological risk issues on land development, both the Government and investors usually have the experts and technical bureaucrats do the environmental risk assessment based on so-called rational and value neutral methods. Besides, environmental engineering and planning are used to reduce the environmental risk and pollution. However, in risky society, filled with various value conflicts, the Governments and investors often fail to melt down the doubt and dissatisfaction of lay public or environmental protection groups. These results in the failure of economic development programs, and environmental resistance movements are often labeled as irrationality and biased.

In Taiwan, in the past 40 years, as economy grows dramatically, severe environmental pollution and ecological imbalance problems occurred. Since 1980s, local residents and environmental groups are getting together to interrupt developmental programs dominated by Governments, like the case of Bayer TDI factory from German in 1998. Bayer, though supported by the Central Government and backed up by some domestic chemical experts and famous international environmental impact assessment associations, finally gave up its investment proposal in Taichung, Taiwan.

Two questions are thus arisen. First, could experts and technical bureaucrats really exclude value judgments in the process of risk assessment? Secondly, what is eventually the concept of risk communication as the public participates in the Environmental Impact Assessment (EIA) process? Hence, this paper probes into risk assessment and value conflict among technical bureaucrats, experts, and lay public and furthermore to examine the risk communication model and the process of risk movement by case study method. Finally, this paper presents some suggestions for environmental public policy.

Landscape Potential Using Visual Composition of Large Scale Landscape Elements

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In recent years, landscape restoration has valued the expression of each region's identity. But they have been limited to small landscape¹⁾ areas, called districts. This is the main reason why "patchy landscape" is an Asian urban landscape characteristic. We feel it is necessary to grasp the identity not only of which include the small districts, but also of the large landscape²⁾ areas, the topographic situation, and the small landscapes that it contains. In general, land use and use zones are analyzed in order to appraise and discuss the large landscape area. However, the general methods are not enough to deal with the issue of identity, as they describe only patterns that any city may have.

In this study, we analyze landscape with the concept of "Landscape Potential", in order to deal with "the urban identity (identity of the city)" that a large landscape area has, as opposed to looking only at small landscape areas. We clarify the nature of an urban landscape that captures the identity of the area, where these landscapes exist. Landscape Potential here is based on the idea that a landscape is made up of many layers of elements.

Landscape Potential is the latent power of the landscape which is determined by the arrangement and the sight structure of the large scale landscape elements. The elements of large scale landscape are the element whose scale is large and which can be confirmed from the long distance.