

The 3rd Japan-Korea-China
Tripartite EIA & SEA Conference, 2013

ABSTRACT VOLUME

“Impact Assessment as Manners of a Sustainable Society”

Thursday, 7: Plenary and Paper sessions and a Poster Session
(Multi-Sector Round Table)
Friday, 8: Paper sessions
Saturday, 9: Technical Visit
November 2013.

Venue: Chiba University of Commerce (CUC)
1-3-1 Konodai, Ichikawa City, Chiba Prefecture.

Chiba University of Commerce | 7 Nov.- 9 Nov. 2013 | Ichikawa, Japan

This conference is supported

by

Japan Society of Impact Assessment (JSIA)

and

Chiba University of Commerce

Dear colleagues from Korea and China,

Welcome to Japan!
We Japanese colleagues in the field of impact assessment (IA) heartily welcome you. We had very sad experience in March 2011 by the attack of the huge earthquake. Japan was damaged not only by the earthquake but also by the Fukushima Dai-ichi Nuclear Power Accident. Earthquake is a natural disaster and the nuclear accident was caused by mostly human errors such as mistake of the site location, ill design of the facility, and mismanagement in its operation.



By having the tragedy, we learnt again that human beings have to be more cautious against disasters especially in the age of vast application of science and technology. For precautionary approach of human actions, IA should have quite important role, sometimes it is critical. The colleagues of IA studies and practices in eastern Asia collected here in Tokyo will have intensive discussions based on rich information exchange crossing over wide scope of the field. In this event, participants would have not only presentations and discussions but also exchange their ideas, opinions and experiences. Though in only a few days, the participants from Korea, China, also from Vietnam especially this year, and Japan must have an opportunity to consider how IA would be contributable to disaster management. And the result of our activity should be sent to the world afterword.

Sachihiko Harashina

Professor, Chiba University of Commerce
Professor Emeritus, Tokyo Institute of Technology
Past president of IAIA

Schedule

Day 1 (Thu, 7th Nov.)

Multi-Sector

Round Table

9:30 ~ 12:00 Round Table
(only by invitation)

Tripartite Conference

11:30 Reception Desk OPEN
12:00 ~ 13:00 Lunch
13:00 ~ 14:00 Opening plenary
14:00 ~ 14:20 Short Break
14:20 ~ 16:00 Session 1
16:00 ~ 16:20 Short Break
16:20 ~ 18:00 Session 2
18:10 ~ 18:40 Poster Session
18:40 ~ Banquet

Day 2 (Fri, 8th Nov.)

09:00 ~ 10:40 Session 3-1, Session 3-2
10:40 ~ 11:00 Short Break
11:00 ~ 12:40 Session 4-1, Session 4-2
12:40 ~ 13:40 Lunch Break
13:40 ~ 15:20 Session 5-1, Session 5-2
15:20 ~ 15:40 Short Break
15:40 ~ 17:20 Session 6-1, Session 6-2
17:20 ~ 17:30 Closing Plenary

Day 3 (Sat, 9th Nov.)

Technical Visit

Start 10:00 JR Ichikawa Station

Downtown Walk

Impact Assessment as Manners of Sustainable Society

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keywords: Impact Assessment, Environmental Assessment, EIA, SEA, Sustainability

1. Introduction

It took 25 years until establishment of Japanese EIA Act in 1997, because of strong reluctance of major governmental bodies for controlling public works and industries such as electricity, though majority of the people had been requiring a legislative system. The EIA Act was amended in 2011. Even making some progresses such as introducing SEA like process on the site selection stage, it has still fundamental problems. I would like to discuss on the critical problem of Japanese IA (EIA & SEA) systems from the viewpoint of IA as manners in a sustainable society.

2. Sustainability and Impact Assessment

Since the Fukushima Nuclear Accident, the role of IA has been gradually understood by Japanese people. Decision making of introduction of a huge technology should take best consideration to such various impacts on the environment, society and economics, which are the pillars of sustainability, through a transparent process.

As sustainability must be realized in each country, Japanese government should work more positive to this direction. Though it has not been done domestically yet, it has been recently realized in the field of international cooperation activities. The JICA Guideline of Environmental and Social Considerations 2010¹⁾ was made more advanced in terms of credibility through having a Reviewing Committee composed of outside experts.²⁾

In amending the EIA Act in a few years ago, I insisted expansion of the scope of application as it had been limited to only huge projects. By this strong limitation, the number of EIA cases in Japan has been only about 20 per year, which is very few compared to that under the US NEPA system. EIA under NEPA is applied to every decision of the federal government.

3. Soft Infra for a Sustainable Society

But EIA should be done more widely for securing a sustainable society because it gives windows to the public to share environmental information and to think the current and future situation of the surroundings. If Japan became to conduct plenty number of EIA even though these are concise, it would provide more environmental information of each area and also create more jobs related to the environment, which lead to green economy, and should accumulate environmental information locally and nationally, then it could make Japan a more sustainable society.

And not only expansion of the scope of applying EIA with screening process of concise EIAs, but also applying on much higher stages of decision making of plans, programs and also even policies, which is SEA, should be conducted. In August 2011, Japanese government showed the will to conduct public dialogues on nuclear energy. Though it was not enough and special because of Fukushima, public dialogues should encompass much wider areas of policies, plans and programs by applying meeting based SEA.

4. Concluding Remarks

As IA is manners of a sustainable society, it is necessary to introduce concise EIA. And to realize it, Japanese EIA Act should be amended again. The purpose of the Act has to be rewritten to state the sustainability concept clearly. And much better information disclosures and public participation systems should be introduced.

Notes

- 1) JICA, (2010) JICA Guidelines for Environmental and Social Considerations.
- 2) The JICA GL 2010 is highly evaluated from many experts such as those of the World Bank. The author was the chair of the GL Revising Committee. He received IAIA Rose-Hulman Award 2013, as the first one from Asia, by the major reason of his heavy contribution to making the truly advanced GL.

Paper Session Day 1.

Session 1 Day 1 (Thu, 7th Nov.) 14:20 ~ 16:00 Chair: Akira TANAKA		
Challenges of Strategic Environmental Assessment in China	Kin Che LAM	Chinese University of Hong Kong
EIA procedures for Renewable Energy	Testuro UESUGI, Takaaki Ito, Sho NAKAMURA, Hiroki SATO	Environmental Policy Bureau, Ministry of the Environment, Japan
An Initiative for the Restoration of Estuarine Ecosystems	Jong-Gwan JUNG	Chungnam Development Institute (CDI)
Health impact assessment of Beijing's residents in exposure of chief air pollutants based on energy consumption scenarios	Wei LI	School of Environment, Beijing Normal University
Session 2 Day 1 (Thu, 7th Nov.) 16:20 ~ 18:00 Chair: Kim Tae HYOUNG		
Community response of environmental impacts due to coastal wind farms in Japan	Shigeo NISHIKIZAWA	Tokyo Institute of Technology
Establishment of a supervision platform covering the entire EIA process by the whole society --Discussion on long-term mechanisms as a solution of "Shifang," "Qidong "stability maintenance" dilemma	Hui ZHANG	Appraisal Center for Environment & Engineering, Ministry of Environmental Protection, China
Korean ODA and Environment Impact Assessment - Introducing safeguard policy of Loan ODA -	Kongjang CHO	Korea Environment Institute
Comparability Study of EIA/SEA Systems in Asian countries: as a Preliminary Study Seeking for the Harmonization of Different EIA/SEA Systems in Asia	Naoyuki SAKUMOTO	Japan External Trade Organization

Challenges of Strategic Environmental Assessment in China

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Keywords: strategic environmental assessment, strategic planning, sustainability, SEA effectiveness

1 Introduction

The development of SEA in China is fraught with challenges and at a crossroads. As a sustainability assurance tool, environmental impact assessment in China has evolved gradually in the past three decades to respond to changing environmental challenges and political landscape.

2 Challenges

The introduction of Plan-EIA, the Chinese version of SEA, as a significant component of the EIA Law in 2003, signified the political commitment of Chinese leaders to address environmental and resource issues which might undermine the country's sustained development. Given the strong planning tradition and stark contrast in development levels in China, Plan-EIA has been heralded by many as an appropriate and necessary tool for strategic planning.

Most of the efforts in the last decade have pitched on formalization of the process and perfection of assessment techniques. It is however argued that the assessment-based technocratic nature of Plan-EIA is not adequate to cope with the rapidity of development, privatizing of state enterprises, changing socio-political landscape and evolving sustainability issues such as climate change.

3 Conclusion

This paper outlines these challenges and discusses the options open to China. It is observed that the current approach, whilst being efficient, is arguably not necessarily effective in the pursuit of sustainability.

EIA procedures for Renewable Energy in Japan

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Environmental Impact Assessment Division, Environmental Policy Bureau,

Ministry of the Environment, Japan

Keywords: EIA, Streamlined Replacement, Power Plant (within 5 keywords)

1 Introduction

In these days, introduction of the renewable energy are strongly promoted in our country. With it, cases of environmental impact assessment for the renewable energy power plant are increasing little by little. Here, we introduce some recent examples and projects by Ministry of the Environment Japan for an environmental impact assessment related to the renewable energy.

2 EIA procedures for Renewable Energy Power Plant

2.1 EIA for Wind Power Plant

While an introduction of wind power generation is expected upon a shift to a Low Carbon Society, adverse effects on human health caused by the low frequency sound and noise, and on natural environment such as birds are becoming problems. To implement the wind power generation project smoothly, it is necessary to give thorough consideration to environmental protection. To date, in many areas, only the voluntary EIAs have been conducted and the sufficient measures have not necessarily been taken. Based on this situation, installation of wind power plants was added to the projects subject to the EIA Law (in process on Oct. 2012). Here we introduce some examples of the projects.

We may also introduce Model Project to prepare basic information for EIA for wind-power plant etc. as one of the projects for streamlined EIA for power plant.

2.2 EIA for geothermal Power Plant

About the geothermal power generation, it has known that many suitable places for power plant exist in national park, which has some regulations. This year, we had some regulations on national park are eased. So, opportunity to do EIA for geothermal power plant may increase from now.

3 Conclusion

The environmental impact assessment about the renewable energy power plant has begun recently and we need still more knowledge and experiences. Considering the current situation, cases of EIA for renewable energy power plant, especially for wind-power plant, must increase more and more in near future. Ministry of the Environment Japan will continue efforts for coexistence of appropriate environmental consideration and the renewable energy promotion.

An Initiative for the Restoration of Estuarine Ecosystems

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1. Introduction

The main objective of these projects is to effectively deal with climate change. To strengthen the regional adaptation capacity is to counter the adverse impacts of climate change. Even though some decision making has taken by political background like as presidential election pledge, big projects promoted by the central government should have been reassessed within the provincial initiatives. Detailed procedure and contents include evaluating the upper level policy, plan and program which are relevant for the lower level program and project.

2. Purpose and Methods

The estuarine restoration projects are expected to solve water quality improvement as well as seasonal flooding by securing an adequate circular mixing of sea and fresh water together. Particularly water resources management will be carried out within the wider context of the preservation of the ecological environment. And it can help the province to better cope with water related disasters as well.



3. Site Selection and Impact Assessment

As a pace-setting project for the green revolution, the country is now planned to proceed with the estuarine restoration project. It is intended to prevent natural disasters including floods caused by sea level rising, improve the ecosystem, and promote landscape properties. Particularly in the perspective of implementation in provincial and local government,

some local communities required the revision of the project pertinent with the inherent function and role of the estuaries. Under the situation of this difference, we had set the special task force to reevaluate the project on the mixing and circulation around the existed embankment after the gubernatorial election in 2010. In this context, four core challenges of the estuarine ecosystem restoration project are as follows;

- Improving water quality and restoring the ecosystem
- Site selection of multipurpose spaces for local communities
- Regional development centered on ecological resources enhancement
- Securing abundant species diversities to mitigate habitat deterioration

4. Lessons Learned

These are some of the considerations that may be related with a retrospective impact assessment of the estuarine ecosystem restoration. There are two precepts which can be applied to the impact assessment in restoration case: One is the broad construction placed on the field of impact assessment, its contents and contexts provide some criteria for procedural decency and adequacy. And the other is unique in having made provision for a system of “long-term regional impact assessment” which has strong potential for anticipatory research works forward.

References

1. CDI, Korea, 2011, A Study on the Methods of Estuarine Ecological Restoration.
2. CDI, Korea, 2013, A Vision Setting for the Management of the Geum River Watershed.
3. MLIT, Korea, 2012, Research Report on the Geumgang Estuary Restoration and Field Survey.

Health impact assessment of Beijing's residents in exposure of chief air pollutants based on energy consumption scenarios

Wei Li

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Keywords: energy consumption scenarios; chief air pollutants ; health impact assessment; Beijing's residents

Table 1: Mortalities in 2015 under two scenarios

Mortalities	SO ₂	NO _x	PM ₁₀	PM _{2.5}	Total
Scenario 1	1428	3289	6002	4757	15476
Scenario 2	228	800	4309	3638	8975

1 Introduction

Energy consumption will emit harmful air pollutants, which declines in ambient air quality, aggravates diseases and even cause acute death. Many studies have focused on the relationship between energy consumption, air pollution and residents' health. Based on existing studies' results, this study quantitatively evaluated Beijing's residents health impact under two different energy consumption scenarios. On this basis, we can propose suggestions about energy constraint from the perspective of protecting residents' health.

2 Methods and Results

2.1 Methods

Based on the analysis of series of Beijing "12th Five-Year" planning outlines, this study set two energy consumption scenarios. (1) Low-constraint scenario1 (BAU scenario) based on the energy conservation and emissions reduction level in 2010. (2) High-constraint scenario2 based on the energy conservation and emission reduction targets in 2015. Firstly, we predicted air pollutants emissions generated from energy consumption using LEAP model. Then we simulated chief air

pollutants exposure levels. Finally choosing death as healthy endpoint, Poisson regression model was adopted to evaluate the health impact of air pollutants' short-term exposure on residents.

2.2 Results

Putting the year 2010 as a baseline, this study selected WHO latest air pollutants concentrations' guidance as reference concentrations. Acute mortalities caused by air pollutants emissions under two scenarios are shown in table 1

3 Conclusion

By restricting energy consumption and optimizing energy structure, up to 2015, there are totally 6501 cases of mortality can be reduced, in which 1200 cases are related to SO₂; 2489 cases are related to NO_x; 1693 cases are related to PM₁₀; 1119 cases are related to PM_{2.5}. So it's necessary to popularize kinds of energy-saving technologies and policies. Raising the proportion of natural gas and other clean energies vigorously has remarkable effects on the control of the loss of population health caused by air pollutants emissions.

References

- Kanagawa M, Nakata T (2007) Analysis of the energy access improvement and its socio-economic impacts in rural areas of developing countries, *Ecological Economics*, No.62, pp.319-329.
- Zhang Y, Guo Y, Li G, et al. (2012). The spatial characteristics of ambient particulate matter and daily mortality in the urban area of Beijing, China, *Science of the Total Environment*, No.435, pp.14-20

Community response of environmental impacts due to coastal wind farms in Japan

Shigeo Nishikizawa, Tatsuaki Mitani and Takehiko Murayama

Tokyo Institute of Technology, Department of Environmental Science and Technology, Japan

Keywords: coastal wind farms, environmental impact, perception, annoyance

1. Introduction

Although a large number of conflicts have occurred in areas where wind power is used, little is known about the differences in the geographical features. This study focuses on the perceptions and annoyance experienced by residents living near coastal wind turbines. Questionnaires were distributed to municipal governments that had coastal wind farms in order to clarify how frequently complaints. Moreover, interview surveys were administered to over 100 people who lived within 300 m of the turbines in Kamisu City and Kashima City as case studies.

2. Result

According to the questionnaires, which were collected from 38 coastal wind farms in Japan, there was at least one complaint related to 45% of wind farms. Major factors that were the topics of local residents' complaints were noise (nine sites), shadow flicker (eight), and bird collisions (five).

The interview survey shows that approximately half of the respondents perceived the environmental impacts of noise or shadow flicker caused by turbines. The rate of perception of shadow flicker was higher than that of operational noise. According to the results of the multiple regression analysis, as the residents' distance from the turbine became greater, the perception of noise they harbored subsided. In general, this was a reasonable and popular response. In contrast, regarding the distance from the shoreline, the results were reverse, in that the closer the residents were to the shoreline, the lesser were they likely to perceive noise. This implies that the sound of waves can eclipse the noise of turbines.

Furthermore, it was also clarified a correlation between noise and shadow flicker perception. This implies that one environmental impact can induce the perception of another impact, or, that noise and shadow flicker are likely to occur at the same place.

The figure shows the geographical distribution of perceptions and feelings of annoyance. It indicates that people living in the

areas at both ends of the site did not perceive turbine noise. In contrast, many people who lived near the multiple turbines perceived noise. In particular, residents who lived within 300 m of the turbines experienced annoyance. Some residents living near the north end of the site perceived greater noise or annoyance than those at the south end, despite the northern residents' dwelling at a distance of over 300 m from the turbines. This result can be explained by the relationship of noise with shadow flicker impacts.

3. Conclusion

(1) Perception of shadow flicker was more frequent than that of the operational noise, whereas the level of annoyance due to shadow flicker was slightly less than that due to noise. (2) Residents' perception of noise depends on their distance from the shoreline as well as from turbines, because the back-ground noise due to waves can eclipse the noise. (3) According to a geographical distribution, residents living near multiple turbines were likely to perceive noise and thereby become annoyed.

References

Nishikizawa, S., 2012. Energy Crisis and Strategies for Wind Power Development in Japan. Proceedings of 3rd International Forum for Environmental Assessment, 184-188.

Pedersen, E. and Waye, K., 2004. Perception and annoyance due to wind turbine noise—a dose-response relationship, *Journal of Acoustical Society of America* 116, 3460-3470.



(Kamisu City) Figure. Geographical distribution of noise impacts

Establishment of a Supervision Platform Covering the Entire EIA Process by the Whole Society --Discussion on Long-term Mechanisms as a Solution of “Shifang,” “Qidong "Stability Maintenance Dilemma

Hui Zhang

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Keywords: EIA, Supervision, Public participation

1 Introduction

Public participation in the EIA process is one of the few ways for the public to express their opinions and demands in the government decision-making process of China, and as environmental issues are closely linked with the life of each person and are the concern of the whole society, the expression of environment-related public demands is becoming more and more acute, and some social issues such as land acquisition, residents demolition are presented as environmental issues. The suppression of the public environmental needs by the Local government just for stability maintenance, results in the rapid intensification of the contradiction. Apart from a perfect top-level design of the EIA system, we also need a practical platform to carry out environmental monitoring during the whole process before and after EIA. The platform of permanent EIA documents and whole process supervision by the whole society can ensure the public to access all the

EIA related dynamic information, and Moreover, it can provide a long-term channel for the public to express their opinions and communicate with stakeholders, This platform enables the public to supervise the environmental behavior of businesses, government during the whole process, and effectively curb environmental violations. It can set up a long-term mechanism to resolve social conflicts and reduce the long-term mechanism of environmental disputes, and guarantee the scientificity and impartiality of decision-making.

2 Facts under “Shifang,” “Qidong" protest

2.1 EIS REVIEW of “Shifang,” “Qidong" projects

2.2 A long-term mechanism is needed to resolve social conflicts

3 Conclusions

Establishment of a supervision platform covering the entire EIA process by the whole society

Korean ODA and Environment Impact Assessment - Introducing safeguard policy of Loan ODA -

Kongjang Cho

(Korea Environment Institute)

Keywords : ODA, EIA, Safeguard Policy

1. Introduction

Korea turned a recipient country into a donor country by joining OECD DAC in 2009. As a result, aid scale will be expanded and EIA also strengthen in large-scale ODA. This study introduces a safeguard policy which is an EIA guideline for Loan ODA of Korea.

2. Main Contents of Safeguard Policy

2.1 The objectives

- 1) To avoid adverse impacts of projects on the environment and affected people, where possible,
- 2) To minimize, mitigate, and/or compensate for adverse project impacts on the environment and affected people when avoidance is not possible
- 3) To help the borrowers to strengthen their safeguard systems and develop the capacity to manage environmental and social risks.

2.2 Responsibility of the borrower

- 1) Environmental and social considerations shall be taken into account during the initial stages of project planning.
- 2) Preference shall be given to avoid negative impacts, including potential risks. If adverse impacts cannot be avoided, mitigation and/or compensatory measures shall be prepared.
- 3) Meaningful consultations shall be made with the stakeholders and project relevant information shall be disclosed throughout the project cycle.

2.3 Responsibility of Korean Bank

For projects anticipated to have significant environmental and social impacts, Korean bank will assist borrowers to manage and improve their safeguard performances.

2.4 Process

- 1) Screening; classifies proposed projects into one of three categories in accordance with the type, location, sensitivity, scale, and potential project impacts, as well as the size and nature of the risks of the proposed project.
- 2) ESIA and IESE; The borrowers shall conduct ESIA for category A projects and IESE for category B projects.
- 3) Environmental and Social Review

Korean bank shall carry out environmental and social reviews based on documents submitted by the borrower, and site visits.

4) Monitoring

The borrower shall monitor environmental and social impacts and implementation of ESMP

3. Information Disclosure

The major point of this safeguard policy is the reinforcement of the information disclosure. Korean bank and the borrower shall disclose relevant environmental and social information for transparent decision-making. Information disclosure helps affected communities and other concerned stakeholders to assess and understand the risks, impacts, and opportunities associated with the project.

Comparability Study of EIA/SEA Systems in Asian countries: as a Preliminary Study Seeking for the Harmonization of Different EIA/SEA Systems in Asia

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¹ Japan External Trade Organization (JETRO) , Japan

Keywords: Harmonization of EIA/SEA, Asia, democratization

1 Introduction

Asian countries witnessed rapid development of institutionalizing EIA/SEA systems in the past few decades, however, EIA/SEA systems individually developed in respective country are extremely diverse and varied. To the western eyes, Asian EIA/SEAs could be roughly criticized because it is still halfway in adapting to western democratized EIA/SEA systems and it is less democratized. However, in Asian countries, it could safely be said that under different Asian socio-economic backgrounds from the West, EIA/SEAs are implemented with strongly supported government initiatives. Presently, Asian countries are needed to cope with emergent inter-regional or trans-frontier environmental problems, and, for this purpose, the payment of certain study interest to achieve harmonization among the already diversified EIA/SEA systems in Asian countries is required. In this presentation, as a preliminary study in order to develop and harmonize our common instrument of EIA/SEAs in Asia, The possibility of comparing different Asian EIA/SEAs will be discussed.

2 Subtitle

In order to compare different EIA/ SEA systems in Asia, some countries are selected and some

symbolic characteristics in EIA/SEA systems are compared and discussed to understand their different socio-economic and environmental situations. However, this study is still an experimental and preliminary one to understand how their systems are different and to find what are commonalities in their diversified EIA/SEA systems. Major concern in this study is directed to further develop EIA/SEA as a harmonized and cooperative tool among different countries especially in between developed and developing countries.

3 Conclusion

It could be concluded that the discussion of harmonization of diversified EIA/SEA in Asian countries is not an easy task. They are institutionally and socio-economically rooted in different country conditions. So far as the countries discussed herewith, it will be made clear that the implementation of EIA/SEA is highly demanded as one of most useful tools for achieving environmental protection. Voices expecting for more democratized and transparent EIA/SEA are often heard, however, governments' role in leading the EIA/SEA systems is still large and strong, and the government-led environment policy is much depended by general people in Asia.

Paper Session Day 2.

Session 3-1 Day 2 (Fri, 8th Nov.) 9:00 ~ 10:40 Chair: Kin Che LAM		
Analysis and Assessment of Environmental Management of Home Delivery Service by Consumers' Cooperative Society	Yoshika Yamamoto, Hiroo Kasagi	Setsunan University ,NPO Workshop for Sustainable Community
Discussion on Environmental impact assessment system between Korea and China	Xianglan YU	Namseoul University
The Practices and Experiences of Legislative Environmental Impact Assessment	Yuan ZHU	Appraisal Center for Environment & Engineering, Ministry of Environmental Protection, China
Recent Trend of Canada's Environmental Assessment System	Akane OTAKA	Kwansei Gakuin University
Session 3-2 Day 2 (Fri, 8th Nov.) 9:00 ~ 10:40 Chair: Kiyoshi MASUMOTO		
Comparison of Municipal Solid Waste generation from different regions in Asia	Ka Ming LOK	The Hong Kong Polytechnic University
Exploring the Indicators of Community Resilience to Improve SEA	Dalbyul LEE	Pusan National University
Current Situation and Issues on Stakeholders Involvement for Decontamination Measures of Radioactive Substances	Takehiko MURAYAMA	Tokyo Institute of Technology
Current Status of the System Frame of EIA in China	Chunsheng FANG	Jilin University
Session 4-1 Day 2 (Fri, 8th Nov.) 11:00 ~ 12:40 Chair: Sang-II HWAN		
Basic Framework of SEA on Transformation of China's Economic Development Mode	Jingming REN, Xingjie WANG	Appraisal Center for Environment & Engineering, Ministry of Environmental Protection
Study on Effectiveness of Strategic Environmental Assessment in China	He XU	Research Center for Strategic Environmental Assessment, Nankai University
International Comparison on Positioning of Mitigation during SEA of Railway Development	Masashi KOBATAKE, Akira TANAKA	Tokyo City University
The Review of Local Transport Plan Related SEA Practice in Northwest England and Its Implications	Bing SUN	Urban Planning, Architecture Design Institute of Fudan University
Session 4-2 Day 2 (Fri, 8th Nov.) 11:00 ~ 12:40 Chair: Wei LI		
Environmental Challenges of the Middle Focal Economic Zone of Vietnam in the Period to 2020, vision to 2030.	Le TRINH	Vietnam Association for Environmental Impact Assessment (VAFEIA)
Reviewing on SEA about Eco-Delta City in Busan – Focusing on Smart Growth-	Juchul JUNG, Kyungwan BAE, and Hyungjun PARK	Pusan National University

Sustainable railway development through Impact Assessment	Josh LAM & Marcus IP	AECOM / Hon Kong Institute of EIA
Streamlined EIA Procedures for Power Plant Replacement in Japan	Testuro UESUGI, Takaaki Ito, Sho NAKAMURA, Hiroki SATO	Environmental Policy Bureau, Ministry of the Environment, Japan
Session 5-1 Day 2 (Fri, 8th Nov.) 13:40 ~ 15:20 Chair: Yurika AYUKAWA		
Applying HEP to Evaluate Japanese Eel for Dam Removal Project- Setoishi Dam in Kumagawa River -	Koui SEKI, Hiroto YAGI * , Akira TANAKA	Tokyo City University, ※ EA International
The SEA for River Basin Planning in China: the State of the Art	Yunjun YU	South China Institute of Environmental Sciences, MEP.
River Projects EIA from the Point of View of Endangered Japanese Eel	Atsuko MASANO	Freelance Journalist
Environmental Impacts on Marine-based Energy Development	Taeyun KIM	Korea Environment Institute
Session 5-2 Day 2 (Fri, 8th Nov.) 13:40 ~ 15:20 Chair: Jong-Gwan JUNG		
Analysis of Relations between Environmental Impact Assessment and Evaluations on Public Works Projects	Takuya SUGIMOTO	Chiba University of Commerce
Brief introduction to Basic EIA Database of China.	Xiaohong Zhao	Appraisal Center for Environment & Engineering, Ministry of Environmental Protection
Survey on environmental NGOs participation in environmental impact assessment	Jing WU	Nankai University
The Nature We Want	Myungjin KIM	KSEIA
Session 6-1 Day 2 (Fri, 8th Nov.) 15:40 ~ 17:20 Chair: He XU		
Environmental & Stakeholder Management Practices for Retrofitting Automatic Platform Gates of East Rail Line in Hong Kong	Henry LEUNG	Hong Kong Institute of Environmental Impact Assessment, MTR Corporation Limited
EIA for small scale development in Japanese waste management sector	Ryo TAJIMA	National Institute for Environmental Studies
A preliminary hazardous ranking system for oil storage tanks in Korea	Sang-il HWNG	Korea Environment Institute
Session 6-2 Day 2 (Fri, 8th Nov.) 15:40 ~ 17:20 Chair: Takehiko MURAYAMA		
PM2.5 Assessment in EIA of Korea	Young Soo LEE	Korea Environmental Institute
Factoring in Climate Extremes into Environmental Impact Assessments	Marcus IP	AECOM Asia Co Ltd
An Analysis of Factors Influencing Community Acceptance on Geothermal Power Development	Jouju UECHI	Tokyo Institute of Technology
Standardization of Basic Datum of Emission Inventory of Power sector	Xin BO	Appraisal Center for Environment & Engineering, Ministry of Environmental Protection, China

Analysis and Assessment of Environmental Management of Home Delivery Service by Consumers' Cooperative

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¹ Setsunan University, Japan

² NPO Workshop for Sustainable Community, Japan

Keywords: Environmental management, Home-Delivery Service, CO2 Emission, CSR

1 Introduction

The home delivery service is important for shopping-disadvantaged areas. Our research question is whether the home delivery service is good in aspects of environment and management. We examined with the data from COOP Nagano.

2 CO2 Impacts between home delivery and store sales system

We examined the CO2 emission per sales amount (kg-CO2/1,000yen) between home delivery service and traditional store sales system from the data of 2007 Environmental Report. The CO2 impact of the home delivery service (0.20kg-CO2/1000yen) is less than store sale service (0.64kg-CO2/1000yen).

3 Characteristics in shopping-disadvantaged areas

We compared the data from all 11 branches of COOP Nagano from the points of management and environment, CO2 impacts. Table 1 shows **Conclusion** that Shiojiri and Matsumoto branch rank

higher. They have wider shopping-disadvantaged areas needed home delivery service rather than others.

3 Conclusion

We reveal the following points in this research. First, the CO2 emission by home delivery service is lower than traditional store sales. Secondly, the home delivery service is not a bad reason from the aspects of management and environment.

Acknowledgement

We would like to acknowledge to COOP Nagano.

References

COOP Nagano (2009) 'Environmental Annual Report 2009'

Nagano Prefecture (2009) 'Market Research in Nagano Prefecture' 2009'

<http://www.pref.nagano.lg.jp/syoukou/business/syouken/h21gaiyou.pdf> 2013/04/13 Accessed

Table 1 Ranking of Management and CO2 Emissions

Center	Management						CO2Emissions(kg-CO2)				Market survey	
	Gross profit	Rank	Personal annual purchase YEN	Rank	Rate of participating mutual-aid contract (%)	Rank	CO2 emission of car-use Kg-CO2	Rank	Kg-CO2/km	Rank	Rate of local shopping (%)	Rank
Nagaike	0.198	□	255,243	□	0.30	□	181,659	□	0.47	□	90.20	□
Matsumoto	0.201	□	282,079	□	0.29	□	137,837	□	0.46	□	83.90	□
Ikeda	0.205	□	281,086	□	0.33	□	237,631	□	0.31	□	38.18	□
Shiojiri	0.210	□	287,286	□	0.33	□	190,180	□	0.35	□	37.25	□
TOTAL Average	0.202	□	259,769	□	0.29	□	186,827	□	0.39	□	57.00	□

Discussion on Environmental Impact Assessment System between Korea and China

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Keywords: EIA, Environment, EIA of China, EIA of Korea

1 Introduction

Environmental impact assessment (EIA) today is increasingly a routine decision making technique worldwide. Environment is the aggregate of climatic, social, cultural, conditions influencing human life According to Webster's dictionary the word 'environment' means something that environs, to whole complex of climate, external and biotic factors that act upon an organism or an ecological community and ultimately determine its form, or more simply the surrounding; surrounding objects or circumstances. This paper analyzed the beginning, development, system of Korea. At the meantime, the status of China EIA has been described. The EIA system is compared, between Korea and China. Finally, the problems existed in EIA system of China has been pointed out, and some advice was showed.

2 EIA

2.1 EIA of Korea

As one of Korea's environmental policy major achievements, the development of EIA Can be divided into 3 stages: the introduction of stage (1977~ 1980), the beginning of stage (1981~ 1992) and improving stage (since 1993). "Environmental protection act" of 1977 is the first Korean Comprehensive environmental legislation. In 1981, Korea announced the "environmental impact assessment report compiling regulation", put forward specific requirements on how to compile the EIA report. The EIA procedure can be divided into 3 stages, the preparation of the report order period, the

approval stage and the stage of monitoring.

2.2 EIA of China

The construction project environmental impact assessment system is China's environmental protection industry as the earliest formation and regulations and implementation of the system, is also the most effective putting "prevention first, combining prevention" with policy, to prevent new pollution and ecological damage of the fundamental measures. The legal system of China's environmental impact assessment is mainly in building the practice of project management in the environment of growing up. It can be divided into 3 stages.

3 Conclusions

Korea's EIA system is more comprehensive, the effect is very excellent, and Korea attaches great importance to environmental protection work. China's EIA development of the system the legislative institutions, carry out practical situation and function condition, which is not very perfect. Compared with the environmental impact Assessment system of advanced country, planning EIA in China, there is not fully implemented.

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The Practices and Experiences of Legislative Environmental Impact Assessment

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Keywords: Legislation, EIA, European Union, USA, China

1 Introduction

Aiming to promote a sustainable law-making, the legislative EIA is the highest level of EIA. After summarizing the international and domestic practices and experiences of legislative EIA, the paper gave several suggestions on legislative EIA in China.

2 Legislative EIA practices

2.1 USA

Although the *National Environmental Policy Act* requires the federal agency to do EIA for legislations, legislative EIAs were very rare in USA, as legislations were almost all proposed in congress. However, accord to a presidential executive order, the federal agencies' rule-making needs to perform *regulatory impact analysis*, which is cost and benefit analysis per se. According to another Presidential executive order, the free trade agreement needs an environmental review before it is signed.

2.2 European Union

EU has revised and published its *Impact Assessment Guideline* in 2009, which gives detailed procedures, requirements, technologies, etc of social, economic and environmental assessment before the decision of EU law-making. As one of the three pillars, environmental impact assessment of legislation is indispensable.

2.3 World Bank

The World Bank had conducted a pilot project before the revision of *Kenya Forest Act* in 2005. The EIA had identified several prior environmental issues within the forestry sector in Kenya, based on stakeholder consultancies. And the result was a policy action matrix, which gave the issues needed to resolve, timetable, milestones, actions, monitoring and feedbacks.

2.4 China

Before revising the *Air Pollution Prevention Law*, the cost and benefit analysis had helped the decision making in the year of 2000, and it is the first and so far the only legislative EIA in China.

3 Conclusion

China is on the way to improve its administration based on the rule of law, and the legislative EIA is an effective tool, which has been mentioned in some national documents. However, the legislative EIA has not substantially started in China, and even the relevant researches are very rare. To avoid the fundamental source of environmental problems, law-making should perform EIA firstly. Only the environmental issues have been broadly discussed, are the major environmental, health or natural resources problems more likely to be avoided. Therefore, China should begin its legislative EIA quickly, in order to accumulate experiences and to build the framework of theories and technologies.

Recent Trend of Canada's Environmental Assessment System - What Japan can learn from Canada -

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Keywords: CEAA, Environmental Assessment (EA), Environmental Policy and Law

1. Introduction

In Canada, the current ruling conservative party, led by Prime Minister Stephen Harper, has replaced the original Canadian Environmental Assessment Act (CEAA 1992) with the new act (CEAA 2012).

The purpose of this presentation is to introduce Canada's new EA system, which is not well known in other countries.

2. Canadian Environmental Assessment (CEA)

2.1 What is CEA?

CEA is a process used to predict and mitigate the adverse environmental effects of a project before it is carried out. Environmental assessment is now part of public decision making at all levels of government in Canada.

2.2 Brief History

CEA began about 40 years ago.

1973 EA was introduced

1992 CEAA(CEA Act) was enacted

1995 CEAA was enforced

2012 CEAA 1992 was replaced by CEAA 2012

3. Major Changes

There were many changes to CEAA1992.

3.1 Changes that weakened the EA system

- (1) Timeline was set
- (2) Omission and simplification of the EA process
- (3) Less opportunity for environmental NGOs to participate in the EA.
- (4) The projects subjected for EA are restricted
- (5) The responsibility for conducting an EA rests with: Canadian Nuclear Safety Commission (for nuclear projects); National Energy Board (for

international and interprovincial pipelines and transmission lines); or Canadian Environmental Assessment Agency (for all other designated projects).

- (6) State's EA can be substituted for the federal EA.

3.2 Changes that made the EA system more effective

- (1) Enforcement (Such as penalty)
- (2) Funding for public participation
- (3) Follow-up programs
- (4) Cooperation and communication with Aboriginal people

4. Comparisons to Japan's EA

Canada and Japan has very different EA system.

4.1 The focus of the new EA system

Both Canada and Japan changed the EA system recently. The EA system in Canada was changed to focus on development more than environmental protection. On the other hand, Japan changed the EA system to strengthen environmental protection.

4.2 What can Japan learn from Canada?

Introducing the effective Canadian system to Japan would improve the Japanese EA.

- (1) Review panel
- (2) Funding system
- (3) Enforcement of EA
- (4) Alternative plans

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Exploring the indicators of community resilience to improve the SEA

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Keywords: SEA, Community Resilience, Sustainability, Indicator, Hazard Mitigation

1 Research Objective

This research is to explore the indicators of community resilience as a tool to improve the SEA. The SEA is a planning supporting tool for sustainability. It can more effectively evaluate the sustainability for communities through employing the concept of community resilience in the process. The indicators of community resilience within the SEA can be used to assess whether the plans play a role to build the more sustainable communities.

2 Applying the SEA to Hazard Mitigation Plan in Korea

SEA is a process to review plans and provide alternatives to enforce sustainability of community. The U.S National Environmental Policy Act of 1969 enacted SEA for sustainable development. Regarding the effect of this act, Cary Jones et al. (2005) asserted that this act was a catalyst to connect between sustainability and planning. In Korea, there have been many efforts to enforce the community's sustainability through SEA. As one of the efforts, in recent, Korea has tried to include the hazard mitigation plan in the process of the SEA. The plan is to build community resilience which is a capacity for sustainability of community. Thus, the indicators of community resilience are essential to more effectively evaluate the sustainability within the hazard mitigation plan in the process of the SEA.

3 The Indicators of Community Resilience for Hazard Mitigation

The hazard mitigation plan needs to be evaluated by the indicators of community resilience. Community resilience refers to capacity to withstand

shock, recover the impact and adapt disturbance (Mileti, 1999; Peacock et al, 2010). Hazard mitigation is also the integral part in the hazard response process to improve community resilience. In the hazard mitigation, the indicators of structural mitigation strategies are dam, levee, and seawall and that of non-structural mitigation strategies are regulation, land use and education. Therefore, exploring the indicators of community resilience is better to be started from these strategies of hazard mitigation.

4 Conclusion

SEA, which provides sustainability in planning process, can be improved through employing the indicators of community resilience. Based on the indicators, in-depth analysis is needed to find the variables which could make differences in community resilience.

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Current Situation and Issues on Stakeholders Involvement □ for Decontamination Measures of Radioactive Substances

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Keywords: Radioactive substances, Decontamination, Risk Communication

1 Introduction

On 11th March 2011, an earthquake of magnitude 9.0 and subsequent tsunami triggered a serious accident. Significant amounts of radioactive substances were released to the surrounding environment. We reviewed how radiation risk was communicated to the public by local government, and how these different views led to increased public anxiety and a breakdown in trust. Focusing on decontamination for radioactive substances, we review specific activities for stakeholder involvement in several types, and discuss the effectiveness and challenges.

2 Methodology

While other areas in Fukushima Prefecture are contaminated, people were allowed to continue their lives because of relatively low levels of radiation except for areas with more than 20 mSv. The government decided to decontaminate areas where the annual radiation levels are over 1 mSv. These criteria were taken from the guidelines of International Committee on Radiation Protection (ICRP), 2007. Our research project targeted those areas, and we conducted several field surveys and interviews with the municipality officials in charge of decontamination activities.

3 Results

Risk communication activities by public sectors were divided into three types;

- Regional dialogues on general issues including health risks and decontamination by Fukushima Prefectural government

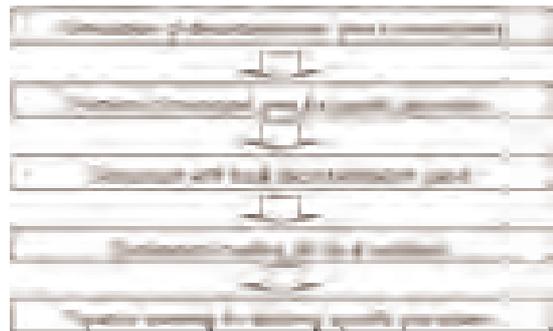
- Consensus-building on siting potential facilities for the storage of radioactive wastes generated by decontamination by local municipalities
- Explanation and consensus-building on decontamination measures for specific sites by local municipalities.

The third type of activity includes consensus-building on decontamination for each house. Because all municipalities did not have experience in decontamination work, it takes much more time than administrative authorities expected. Of those municipalities, we conducted a survey for Fukushima City, where progress on the decontamination work is greater than in other municipalities.

After severe experiences, the municipal officials realized the importance of stakeholder involvement, and started to implement the procedure illustrated in the figure.

Through surveys for other municipalities, there are some communalities and differences.

Possible factors which lead the differences would include presence of hot spots, leadership, and installation of temporal waste storage.



A procedure with the local decontamination panel

Basic Framework of SEA on Transformation of China's Economic Development Mode

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Key words: economic development mode; transformation; strategic environment assessment

1 Introduction

This paper will form a framework for strategic environmental assessment on transformation of China's economic development mode and forecast fields in which this assessment can play a role in order to guide practices concerning strategic environmental assessment for the transformation of economic development mode.

2 Framework of strategic environmental assessment for the transformation of China's economic development mode

Guided by the theoretical system, taking indicator system as the assessment tool and standard system as the reference scale, by considering the indicator system of the transformation of economic development mode, we investigate policy evolution, regional pattern, industry mode and development trend of China's transformation of economic development mode from four levels, national level, provincial level, municipal level and the level of key industrial parks. By referring to international experience, we can form a policy system for strategic environmental assessment for the transformation of China's economic development mode.

3 The fields in which the strategic environmental assessment of the transformation of China's economic development mode can play a part

Take policy environmental assessment, regional environmental assessment and industrial environmental assessment. This kind of assessment can play an important part in appraising performance

of the transformation, evaluating transformation level, monitoring transformation trend, making early warning against risks in the transformation process, guiding the transformation direction and predicting prospect of the transformation.

5 Conclusions

We need to emphasize cultivation of specialized talents on strategic environmental assessment, regional economy, environmental economy, industrial economy, policy science, mathematics, physics and computer and multi-skill management personnel. It is necessary to carry out multi-field strategic environmental assessment. It is necessary to make rational integration of forces of the existing four-level environmental assessment system. It is necessary to make full use of the environmental assessment database resources. It is necessary to give full play to relevant industrial associations and assessment research institutes.

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Study on Effectiveness of Strategic Environmental Assessment in China

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Keywords: SEA, Effectiveness China

1 Introduction

Carrying Strategic Environmental Assessment is being promoted through law in many parts of the world with the aim of integrating environmental consideration into decision-making process and improving sustainable development. In China, for the past ten years, there are remarkable progresses on SEA development in many aspects, such as infrastructure construction, methodologies and techniques improvement, and practitioners training. In addition, abundant practical experience was gradually accumulated through many pilot studies and empirical cases. Nevertheless, there are many major and serious challenges to SEA implementation in China according to the perception of practitioners actively engaged in the planning and implementation of SEA in China.

2 SEA effectiveness in China

Firstly, define the “effectiveness” of SEA and analysis the SEA system form the different aspects. Three sub-systems (institutional changes, institutional implementation, and institutional innovation) have been identified. The “effectiveness” of SEA has been decomposed into three aspects: the role that SEA owned, the role has been given, and the role that SEA has played.

Secondly, a evaluating framework, see Fig 1., has been constructed based on the logic chain of “insitution environment□theoretical research statuses □management system□application practice”, and the implementation status and effectiveness of SEA in China has been analyzed. We examine how SEA has been carried out at different levels in China by highlighting the development and inadequacies, and

what would constitute “effective” SEA. We find that SEA is only relatively effective in preventing or alleviating adverse environmental impact of plans rather than influencing decision-making process. According to analysis, desirable institutional, organizational changes and cross-sectoral collaboration would help enhance SEA s effectiveness.

Fig. evaluating framework

3 Conclusion

two main challenges have been addressed. Firstly, the identification and formulation of evaluating indicators, and secondly, finding ways and methods to quantify and measure conformance



to the indicators.

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International Comparison on Positioning of Mitigation Proposal during SEA of Railway Development

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Keywords: SEA, Mitigation Hierarchy, Tiering

1 Introduction

In Japan, the newly introduced procedure “Primary Environmental Impact Consideration (PEIC)” has been enforced from April 2013 under the Environmental Impact Assessment Law Amendment (2010). PEIC is considered a first step of SEA in Japan. Tanaka (1998) has urged that mitigation hierarchy is necessary for environmental assessment to become more efficient. The purpose of this study is to discuss the preferred mitigation hierarchy during the EIA and SEA phases. The research method is comparing laws, guidelines and case studies relevant to SEA and EIA in USA, China and Japan. We take particular note of tiering of the mitigation hierarchy from the SEA phase to the EIA phase. We selected railway developments for case studies, because the first case of PEIC was railway development.

2 Study results

Table 1 shows the mitigation hierarchy and positioning tiering during SEA and EIA phases on the regulations and case studies in USA, China and Japan. In the results, the guidelines in USA and China require consideration of the mitigation hierarchy such as “avoid-minimize-compensate (i.e. offsets)” during the SEA phase. The developer of the California High-Speed Train System in USA considered compensation mitigation such as mitigation banks and in-lieu fee programs during SEA, as well as more specific compensation mitigation such as compensation rate and identifying the use of some mitigation banks and target species during EIA phases. The developer of the Plan EIS for Urban rapid rail transit construction in Chang Du in China considered protection and vegetation during SEA phase. But, we could not find the subsequent EIS of this study.

On the other hand, the guideline in Japan requires the consideration of a partial mitigation hierarchy such as “avoid-minimize” during the SEA phase. But, the developers of the Chuo-Shinkansen (Tokyo-Nagoya) in Japan considered restoration and conservation mitigation to be necessary during the PEIC phase, as well as compensation mitigation such as creation, transplantation and identifying the target species during the subsequent EIA phases.

We discuss that the different reasons between USA and Japan for tiering of mitigation are due to: 1. Timing of implementation PEIC is too close to the subsequent EIA, 2. Positioning of tiering on the guidelines. In USA, EIA documents must concentrate only site-specific issues.

3 Conclusions

Considerations of mitigation during the EIA phase in USA are more concrete than in Japan. We suggested that tiering is one factor. So we concluded following two statements for future SEA in Japan.

1. Meaningful tiering between SEA and EIA phases found that consideration of the mitigation hierarchy such as “avoid-minimize-compensate” is necessary not only during the EIA phase but also SEA phases in the guidelines.

2. Tiering of the mitigation hierarchy such as “avoid-minimize-compensate” should be established clearly in the guidelines.

In this study, we couldn’t research a case study to identify tiering of the mitigation from the SEA to EIA phases in China. In the future, it is necessary to research this.

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Table 1. Mitigation during SEA and EIA phases and positioning of “Tiering” in USA, China and Japan regulations and case studies.

Country	Guideline name	What is SEA EIS for?	Positioning of Mitigation on guideline		Positioning of “Tiering”
	Case study name		SEA phase	EIA phase	
USA	Regulations for Implementing The Procedural Provisions Of the National Environmental Policy Act.	Policies, Plans and Programme	avoid □ minimize □ compensate		“Tiering” refers to the coverage of general matters in broader environmental impact statements with subsequent narrower statements or environmental analyses incorporating by reference the general discussions and concentrating solely on the issues specific to the statement subsequently prepared.
	California High-Speed Train System	Program	avoid □ minimize □ compensate		Ex) the developer considered compensation mitigation such as the use of mitigation banks during SEA, as well as more specific compensation mitigation such as compensation rate and identifying the use of some mitigation banks and target species during EIA phases.
CHINA	Technical guidelines for plan environmental impact assessment (On trial)* / Technical Guideline for Environmental Impact Assessment Ecological Impact** / Plan Environmental Impact Assessment Regulations***	Plan	prevent □ minimize □ reduce □ repairing the environment □ rebuilding the environment*	prevent □ reduce □ rebuilding the environment**	If a plan that has undergone plan EIA includes specific construction projects, when project EIAs are carried out for construction projects under the plan, the conclusions of the plan EIA should be seriously taken into account and the contents of the project EIAs could be simplified based on the outcomes of the plan EIA.***
	Plan EIS for Urban rapid rail transit construction in Chang Du	Plan	avoid □ reduce □ protection / vegetation	-	-
JAPAN	Basic Guidelines for Environmental Impact Assessment	Project location, scale, placement and architecture	avoid □ reduce	avoid □ reduce □ compensate	Tiering means that reflecting the outcomes and judgment during PEIC phase to conduct efficiently and reasonably of subsequent EIA.
	Chuo-Shinkansen(Tokyo-Nagoya)	Project location	avoid □ reduce □ restoration / conservation	avoid □ reduce □ creation/ transplantation	Ex) the developer considered compensation mitigation such as the restoration and conservation during PEIC, as well as compensation mitigation such as creation, transplantation and identifying the target species during the subsequent EIA phases.

Notes: The terms “avoid”, “reduce”, “compensate” are not synonymous and differ in several ways in the three countries.

Strategic Environmental Assessment (SEA) in Vietnam – Lessons Learned

Le Trinh

Vietnam Association for Environmental Impact Assessment (VAFEIA)

Key words: Vietnam, strategic environmental assessment, lessons learned, Tonkin Gulf Coastal Region

1 Introduction

In order to integrate environmental consideration into socio-economic development planning process concepts and approach on strategic environmental assessment (SEA) have been created. However, at present, in many countries, SEA is still new issue, application and effectiveness of which are still debated.

2. SEA In Vietnam and Lessons Learned

In Vietnam, SEA for development policies and regional, sectional development plans has started to be executed from Mid 2006 based on the requirements of the Law on Environmental Protection (2005). Until Mid 2013 over 80 SEA reports have been reviewed by MONRE. Actually, at present, SEA is playing an important role in decisions of the Government on provincial and sectional socio-economic master plans for the period to 2020 and vision on 2030. Many studies SEA with high quality greatly contributed in integration of environmental consideration into economic development decision. However, SEA is a new concept, its approach and methodology are new,

therefore, various limits may be also found in SEA process. This paper introduces some achievements and problems to be concerned in SEA in Vietnam. A good practice in SEA for the Tonkin Gulf Coastal Region Socio-Economic Development Master Plan is briefly presented by the author with description of the region, main issues of the plan, core environmental issues, potential impacts generated by plan implementation and proposed mitigation measures. From the results of SEA practice for this Master Plan various lessons in information collection to set up database, SEA methodology, public consultation, time and budget for SEA are given in this paper.

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Reviewing on SEA about Eco-Delta City in Busan - Focusing on Smart Growth -

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Keywords: SEA, Eco-Delta City, Smart Growth, Sustainability

1. Introduction

Recently the urban paradigm is shifting from the economic growth-oriented development to sustainable urban development. Sustainable city should consider community's environmental, economic, social aspects. In this point, the smart growth is a rising topic for sustainability. The smart growth is a growth management policy in the pursuit of a balance among economic development, social equity, environmental protection and livability. This study, through SEA we attempt to review adequacy of Eco-Delta City, new sub-central area in Busan, and evaluate whether this plan has been established on the basis of smart growth theory or not.

2. Smart Growth Theory

Smart growth tries to avoid the issues associated with urban sprawl. The goal of smart growth is not to no growth or slow growth. Rather, the overall goal is sensible growth that balances our need for economic development with our desire to save our natural environment(EPA, 2001). Smart growth has presented a set of land use and development principles: emphasis on pedestrian-oriented transportation and transit, harmony of development and preservation, compact building design, walkable neighborhoods, sense of place and so on. These principles are directed at developing sustainable communities.

3. The Review of Adequacy of The Eco-Delta City Plan

We firstly reviewed community self-sufficiency, second sustainability of transportation system, third land use considering environment, finally eco-friendly hazard mitigation strategies. Even though Busan Eco-Delta City plan involves partially

smart growth concepts, there are factors that undermine sustainability. The factors are to threaten urban center function, to overlook various park and green function influencing the livability and hazard mitigation plan for all areas. Finally we suggest several strategies. First, the plan should be concerned about high-tech industry to create stable higher value-added business. Second, transportation system should adopt TOD connecting with green transportation. Third, planners should set up the green network and revitalize entertainment functions of parks and waterfront. Lastly, for better water cycle, LID(Low Impact Development) should be installed generally.

4. Conclusion

Smart growth is not intended to reduce and inhibit the growth opportunities, but to induce making decision more carefully for sustainable urban development. Thus if new development is necessary for the progress of cities such as Eco-Delta City, we should have more attention to smart growth and strive to proceed the development through flexible coordination of economic, environmental, social and livability with various stakeholders and experts.

Acknowledgement

This research was financially supported by the Ministry of Education, Science Technology(MEST) and National Research Foundation of Korea(NRF) through the Human Resource Training Project for Regional Innovation.(No. NRF-2011-07-□-04-034)

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Sustainable Railway Development Through Impact Assessment

Josh Lam and Marcus Ip
AECOM

Keywords: EIA, Rail, Planning, Construction, Ecology

1 Introduction

This paper shares some experiences and world leading good practices of Environmental Impact Assessment (EIA), in support of a sustainable railway development project in Hong Kong which has one of the best and fastest growing rail systems in the world. The paper encompasses the planning, design and construction stages.

2 Express Rail Link

The 142 km Guangzhou-Shenzhen-Hong Kong Express Rail Link (XRL) will provide the strategic linkage from Hong Kong to the comprehensive high-speed rail network in Mainland China. An EIA was conducted to support the sustainable planning and design of the Hong Kong Section of the XRL, approximately 26km long. The robust impact assessment covering a full suite of environmental issues, such as rail noise, ecology, landscape and visual, archaeology, and hazards to life, was successfully used to address public concerns, demonstrating the adoption of an optimized project scheme with no potential adverse impacts to the environment.

2.1 Consideration of Alternatives & Selection of Project Scheme

The project is under a fast-tracked programme, and critical environmental and field surveys and impact assessments were carried out in advance of other components of the EIA, to provide earliest inputs to Value Engineering Workshops for alternative alignment options development and evaluation. Significant environmental resources, e.g. Country Park and historical building were identified at an early stage. Other factors examined in the feasibility study include geographical and geological considerations, land resumption, site constraints, constructability, operation flexibility and maintainability and disruption to the community. The selected XRL alignment scheme is a feasible design solution offering clear benefits in terms of operations, environment, construction and land related issues.

2.2 Ecological Impact Assessment & Mitigation

Ecology was a key issue as the railway corridor transverses significant conservation areas. No-dig zones for above-ground works were identified, including in the Mai Po Inner Deep Bay Ramsar Site, Deep Bay Wetland Conservation Area (WCA) and Country Parks.

There was also public concern about potential groundwater drawdown. Proven tunnelling methods were adopted to avoid unacceptable groundwater drawdown, with monitoring and contingency measures in place. Through underground tunnelling construction methods, above-ground works were minimized and restricted to areas with generally low ecological value.

Compensatory wetlands will be created to compensate for the loss of natural stream habitats, with ecologically friendly

features incorporated in the design of two open channel sections to provide habitats to wildlife. An Environmental Habitat Management Plan (EHMP) was prepared to specify management objectives, target species for habitats to be created, habitat management/maintenance requirements, monitoring programme, construction programme, and implementation schedule.

2.3 EIA Follow-up

The XRL EIA Report was approved and an Environmental Permit was granted in 2009 for the construction and operation of the Project. The XRL, as a mega project, comprises a total of 32 works areas to support its construction. Construction of the Project commenced in early 2010 and is anticipated to be completed in 2015.

As part of a comprehensive EIA follow-up programme, environmental monitoring and audit (EM&A), covering full range of environmental issues including noise, air quality and ecology impacts, tree preservation, archaeological excavation etc, has been developed to check on the compliance with the EIA recommendations and their effectiveness, and also to identify any further need for additional mitigation measures or remedial actions.

Regular weekly site audit, as an effective tool in enforcing and triggering specified environmental protection and pollution control measures, has been undertaken to ensure appropriate implementation of environmental protection and pollution control mitigation measures throughout the construction period. The monitoring results, site auditing findings and monthly EM&A Report are made available to the public via a dedicated XRL internet website (http://www.mtr.com.hk/eng/projects/envir_xrl.html) set up by the Project Proponent, creating an open and transparent channel between the Project and public.

2.4 Continuous Public Engagement

Since the planning stage in 2007, green groups have been continuously engaged to solicit their views for consideration in the EIA, development and evaluation of project design options and ecological protection design. Community liaison groups have been formed to provide a platform for affected residents and organizations for direct communication, with hotlines established for public inquiries. Monthly environmental progress reports have also been posted on the Project website.

3. Conclusion

The experiences of the EIA study for the XRL Project in Hong Kong were described in this paper. Good practices are demonstrated in the EIA process which is an integral part to support the sustainable planning and design of the high-speed railway project, towards a greener economy.

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Streamlined EIA Procedures for Power Plant Replacement in Japan

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Ministry of the Environment, Japan

Keywords: EIA □ Streamlined Replacement, Power Plant

1 Introduction

Generally speaking, replacements of aged thermal power plants lead to reduction of their environmental loads (e.g. GHG emission, air pollutants, land development, etc.). Thus, such “load-reducing replacement projects” should be encouraged and accelerated from the environmental point of view. In addition, there is an increasing demand in Japan for streamlining the EIA procedures for power plants (including these replacement projects) to accelerate the construction. The Ministry of the Environment Japan are tackling to reduce the duration of EIA procedures for power plant (especially for load-reducing replacement project) without losing appropriate consideration for environment. Here we introduce briefly about the idea of the duration reducing

2 Streamlining EIAs

2.1 Reducing the Duration of the Reviewing Processes

One of the measures for duration reducing we are trying is to run the reviewing processes of local governments, METI and MOE parallel with close and earlier information exchange. (Normally they are carried out by turns. For example, MOE does not start its reviewing process until the local governments finish their processes and expresses the comments.) Fig. 1 shows the concept of reducing the duration of

the reviewing processes of a draft EIS (EIS: Environmental Impact Statement).

2.2 Use of Preliminary Survey and Monitoring Data

For a replacement project, it is considered to be relatively easy for the project proponent to conduct field surveys (e.g. survey of the habitat status of animals and plants) prior to the EIA procedures, when the new one is planned within the premises of the existing plant or its adjacent area. In addition, environmental monitoring has been conducted in many cases related to the operation of the existing plants.



Figure 1: Concept of reducing the duration of the reviewing processes of a draft EIS

3 Conclusion

With all these efforts, the duration of EIA procedures, which normally takes about 3 years, is expected to be reduced up to 1 – 1.5 years, although we have only a few cases of streamlined EIA procedures so far.

Applying HEP to Evaluate Impacts of Kuma River Dam Removal Projects on Japanese Eel Populations

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Keyword: Dam Removal, Japanese Eel, Ecological Impact Assessment, Alternatives Analysis

1 Introduction

Yagi, Tsuru, Tanaka (2013) used Habitat Evaluation Procedures (HEP) to evaluate the potential effects on Ayu (*Plecoglossus altivelis*) habitats from removing the Arase and Setoishi dams on the Kuma River in Kumamoto, Japan. The researchers determined that HEP was very effective method for studying habitat changes on a representative specie in an ecosystem. This study used HEP to determine the potential effects of Kuma River dam removal projects on habitats of the IUCN-protected Japanese eel (*Anguilla japonica*).

The Japanese eel population is declining rapidly due to overfishing, the human destruction of eel habitats and impacts of global climate change. More specifically, water quality deterioration and artificial river control projects have had a major impact on eel population (Tsukamoto, 2008). Local fishermen and residents on the Kuma River have been concerned about the effects of dams the on the eel population since the dam construction projects started in the 1950s. Until the recent introduction of HEP to Japan there was no objective method to study these effects. This paper uses HEP to analyze the potential influences of Arase and Setoishi dam removal projects on Japanese eel habitats and makes recommendations to increase the quality of the habitats.

2 Methods

HEP can be used compare both qualities and sizes of species habitats in two ways: 1) simultaneously studying of multiple habitats in different locations, or 2) studying one location over a fixed period (Tanaka, 2012). HEP study results are expressed in “Total Habitat Units” (THU) where:

$$THU = \sum_1^n HU$$

$$HU = HSI \times Area (m^2)$$

HU = Habitat Unit

HSI = Habitat Suitability Index
(0 to 1)

THU is the viability score of the total studied habitat area. HU is the viability score for each subsample of the studied area. HSI is a composite value of several environmental factors which affect the viability of the

subject species. An HSI score of 1 is considered a ‘perfect’ environment, whereas a score of 0 is considered non-viable. Five HSI factors considered in this study were: distance of upstream migration pathways; obstructions to migration pathways; concentrations of dissolved oxygen; and, pH and temperature factors.

3 Evaluation

The river supports eel populations in both the yellow and silver stages of maturation. The primary factors affecting these eel populations are distance of upstream migration pathways and obstructions to migration pathways. This study considered three different scenarios and their potential effects on THU: 1) continued power generation at Arase and Setoishi dams; 2) demolition of only the Arase dam; and, 3) demolition of both the Arase and Setoishi dams. This study used HSI models and normalized THU scores for each scenario in accordance with HEP procedures. (See Table 1)

4 Conclusions

It is possible to use the HEP process to evaluate the effects of dam removal on Japanese eel populations and to quantify the qualities of specific habitats. HEP study results can be used when considering future river works. Specifically, HEP can be used as an alternative to, or in consonance with other Environmental Impact Assessments to determine habitat impacts of dam removal projects.

Table 1

	Present	Remove Arase Dam	Remove Arase Dam and Setoishi Dam
Quality of Habitat (THU)	Status Quo	To Be Good	To Be Very Good

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The SEA for River Basin Planning in China: the State of the Art

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Keywords: EIA, SEA, River Basin Planning, Regulation, Guidance

1 Introduction

The Regulation for EIA of River Basin Planning was issued in 1992 and revised in 2006. However, the Regulation of SEA of planning came into effect in October, 2009. This paper is to introduce and analyze the new development of SEA for river basin planning in China. However,

2 Development of the SEA for river basin planning in China

2.1 Development of river basin planning

Since 1949, China's water management and river basin master plans have evolved over three major periods. The first period was the 1950s and the 1960s. The second was in the 1980s and 1990s. The third started at the beginning of the 21st century (Pegram et al 2013). There are four features with regards to the third period of river basin planning (Pegram et al 2013).

2.2 Development of the SEA for river basin planning

However, the concept of EIA was only introduced into China in 1973. Since the late 1990s, EIA in China has been developed as the main regulatory instrument for environmental protection, culminating in the new EIA law approved in October 2002 and adopted on the 1st September 2003. On the other hand, the Regulation for EIA of River Basin Planning was issued in 1992

and revised in 2006 by the Ministry of Water Resources. However, the Regulation of SEA of planning came into effect in October, 2009. This brought new requirements to the SEA for river basin planning. Meanwhile, more and more environmental issues caused by the implementation of river basin plans in China. A new guidance on the SEA for River Basin Planning should be developed. A new research project in this field has been started by South China Institute of Environmental Sciences, funded by the Ministry of Environmental Protection and Ministry of Finance.

3 Conclusion

As the new regulation of SEA of planning came into effect in October, 2009, and more and more environmental issues caused by the implementation of river basin plans in China, a new guidance on the SEA for River Basin Planning should be developed.

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River Projects EIA from the Point of View of Endangered Japanese Eel

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Keywords: EIA, eel, the Tone River

1 Introduction

The Japanese eel, which makes one of the best Japanese traditional teriyaki cuisine, is in danger. In February 2013, the Japanese Environment Ministry listed it as endangered species, instead of data deficient species, in its non-legally binding red list. Meanwhile, by May 2013, the Ministry of Land Infrastructure and Transportation (MLIT), finalized a part of Tone River System Improvement Plan, including large scale projects such as multi-purpose dams and water resource development projects. The plan was made for the first time for the Tone since 1997 when the public participation procedure was implemented to the amended River Law and became a touchstone of P/P/P.

2 The Tone River System Improvement Plan

2.1 Decrease of the Glass Eel Catch

The Tone has the largest area (16,840km²) in Japan, consisted of branches and the nation's second largest lake called Kasumigaura and other lakes, that has provided water resource to the Tokyo metropolitan areas. Also it is known as the important habitat for fauna and flora including the Japanese eel. In the 1960's, 67% of the nation's entire catch of glass eel for nursery was from the Tone River system, which dropped to 49% in the 1970's, 23% in the 1980's, 28% (Nihei 2012). Hamada (2012) compared prediction of impact on Kasumigaura fishery due to water resource management followed by completion of Hitach Watergate construction work in 1964 assessed by Ibaraki Pref. and actual annual total

catch processed by the Ministry of Agriculture, Forestry and Fisheries till 2007. And the prediction of loss was tentatively calculated as 24.7%, which was the ratio of lost volume of water, while the actual loss turned out to be 80%. Therefore it was crucial to invite all the stakeholders' experience and facts during the preparation of the plan this time.

2.2 Lack of Participation and Information

However, reviewing the preparation process of the plan, we found no concrete data and experience such as above provided by river administrators and no researchers with these academic background were invited. And concerned public opinions were not considered cautiously. Moreover, the procedure left out Kasumigaura area itself from the plan, although flood control, water resource and conservation projects in all branches and lakes related to one another from the stand point of stakeholders and the public.

3 Conclusion

P/P/P needs to be refined before long for improving the habitat of the eels and the sustainable use.

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Environmental Impacts on Marine-based Energy Development

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Keywords: Marine-based Energy, Environment Impact, Tides, Waves, Ocean wind

1 Introduction

Global warming due to increased emissions of greenhouse gases as well as the resulting increased sea levels, extreme weather, and climate change etc. is currently a topic of worldwide interest. Since the current fossil fuel centered energy production system accounts for a large share of greenhouse gas production, it has now become critical to develop environmentally friendly forms of energy that can reduce greenhouse gases. Since South Korea is surrounded on three sides by oceans, it maintains certain geographical advantages in development of marine-based energy. This paper introduces current marine-based energy development projects and investigates their environmental impacts.

2 Marine-based Energy Development

2.1 Current status

The available marine-based energy in South Korea consists of tidal power energy, tidal current energy, wave energy, ocean wind energy, and ocean thermal energy, and their current status is

represented in Table 1 (Hwang and Park, 2010).

2.2 Environment Impacts

The marine-based energy development projects have been conducted in small-scale or test cases except the tidal power project. The environment impacts on small-scale or test cases of marine-based energy development are not significant so far. However, the large scale case like marine-based energy farm can affect marine biota, water quality, birds, flow pattern, sediment, and so on (Maeng et al., 2012). Therefore, the environmental impacts on large scale development of marine-based energy are carefully predicted.

3 Conclusion

The marine-based energy developments have been increased and enlarged in a future. To minimize the environmental impacts on large scale development of marine-based energy, the well-organized guidelines are needed. The guideline is focused on the main issues of each marine-based energy type as well as describes environmental impact observation and prediction.

Table 1: Current status of marine-based energy development

Energy	Current Status
Tidal power	256MW
Tidal	1MW
Wave	500kW
Ocean wind	62MW
Ocean	Test

References

- Maeng, et al. (2012) A study on the Environmental Impact Assessment: I. Offshore Wind Farm Projects and II. Garolim Tidal Power Project. Korea Environment Institute, 484 pp
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Analysis of Relations between Environmental Impact Assessment and Evaluations on Public Works Projects

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1. Introduction

On public works, EIA and Evaluations on public works projects are the systems that the project is checked on planning and implement. Evaluations are conducted based on Government Policy Evaluations Act, which is introduced in 2002 in Japan.

This presentation will be reported the result of analysis of descriptions on the publicly-available documents of ex-ante evaluation.

2. Analysis Framework

1) Investigation object

In this study, road project is the target of the investigation, which is the high number of EIA implementation in Japan. The publicly-available documents¹⁾ of ex-ante evaluation are used in this analysis, and the number of investigation objects is 92 projects for the past 3 years (2011-2013). 64 of the project implementing body are government, and 28 of the project implementing body are prefectures.

2) Investigation items

On 92 documents of ex-ante evaluation, EIA implementation, operating of public involvement, descriptions of environmental impact and disaster are figured out in the document. Investigation items are considered for in terms of environment, accountability, and social circumstances after the Grate East Japan Earthquake.

Table1. The number of descriptions of ex-ante evaluation documents (government / prefectures)

year	EIA	PI	environment	disaster
2011	1/0	0/0	8/6	28/10
2012	4/0	5/0	7/0	20/3
2013	2/2	0/1	4/4	8/13
total	7/2	5/1	19/10	56/26

64 projects: project implementing body are government

28 projects: project implementing body are prefectures

3. Findings

Descriptions of ex-ante evaluation documents are compiled in table 1.

Descriptions of environmental impact are read about carbon dioxide emissions reduction, and beneficial change of noise and aerial pollution. While EIA is implemented, the description of environmental impact is not read in the document on 4 projects. About disaster, using as detour and transportation route for relief materiel is written in the document.

4. Conclusion

On 92 road projects which was conducted ex-ante evaluation for the past 3 years, the number of EIA implementation is 8. 3 of 8 projects that is implemented EIA are not read about the description of environmental Impact. Detailed analysis of operation of preparation of the documents would be required on case study.

1) Ministry of Land, Infrastructure, Transport and Tourism
website: URL

<http://www.mlit.go.jp/road/ir/ir-hyouka/ir-hyouka.html>

Brief Introduction to EIA Basic Database of China

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Keywords: EIA, Database

1 Introduction

Over 30,000 projects need to do environmental impact assessment (EIA) every year in China. Each EIA work requires a lot of basic data. Basic data directly affects the quality of EIA documentation. But for a long time, due to the imperfections of sharing mechanism, it is difficult for the EIA agencies to obtain relevant data. Fortunately, things began to change since September 2003, when Environmental Impact Assessment Law of China was implemented.

2 EIA Basic database

2.1 Concept

The definition of EIA Basic Database: the data collection which support the whole life cycle of EIA, and data produced during the process of EIA. The software system (platform) is also an indispensable part of the EIA basic database.

2.2 Main contents

EIA basic database mainly includes the support data, business data and management data. In fact, the construction

process of EIA basic database is the process to build the "horizontal" and "vertical" database as well as the management system.

2.3 Initial results

During the construction of EIA basic database, some initial results have been achieved, including infrastructure, data sharing mechanism, standard , data, service platform, assistant decision-making system and so on.

3 Conclusions

In order to further improve the effectiveness of the EIA, the construction work of EIA basic database needs to be strengthened, though it is a hard work. The data in EIA basic database involves not only the environmental protection department, but also the relevant ministries. Anyway, there's still a lot of work needed to be done in data sharing.

References

Environmental Impact Assessment Law of China

Survey on environmental NGOs participation in environmental impact assessment in China

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Keywords: Environmental NGO, EIA, Public participation

1 Introduction

Environmental Non-Governmental Organizations (ENGO) are a kind of Non-Governmental Organization which are with environment protection as the theme, not for the purpose of profit, does not have the executive power and provide environmental public welfare service for the society. Compared to the general public, ENGO have some advantages such as stronger influences, better capabilities of communication, and higher professional level. Therefore, as an important form of public participation, researching the process of ENGO participating in environmental impact assessment is of great significance.

Based on the literature review, this article presents the present situation of public participation in environmental impact assessment, the current situation and problems of ENGO, and the ways to solve these problems. After that, a questionnaire of the survey on environmental non-governmental organizations participation in environmental impact assessment was designed. The data were analyzed statistically in order to learn the degree of participation and the current obstacles of ENGO participating in environmental impact assessment process. And finally, this article give some advices on how ENGO can play a role on environmental impact assessment.

The Nature We Want

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Keywords: Nature, Sustainable Development, EIA, SEA

1. Nature

Nature often refers to geology and wildlife. Nature may refer to the general realm of various types of living plants and animals, and weather and geology of the Earth. Laozi of a philosopher of ancient China mentioned the way of life is Wu Wei Ziran (無爲自然) (Wikipedia). It means the nature not acting. George Perkins Marsh, an author of *Man and Nature* in 1864 constituted an early work of nature argued that deforestation could lead to desertification (US EOP, 2011). In general, nature includes ecosystem and biodiversity. We recognize the severity of the global loss of biodiversity and the degradation of ecosystems (IAIA 2002; UN, 2012). Nature are often the most affected and damaged by human development and desire. So sustainable development is the answer of the nature we want?

2. Sustainable Development

The World Commission on Environment and Development defined "sustainable development" as "development that meets the needs of the present without compromising the ability of future generations to meet their own needs" in 1987 (Ortolano, 1997). In 2005 the International Association for Impact Assessment (IAIA) proposed six guiding principles to promote "biodiversity-inclusive" impact assessment (IAIA, 2005). Korea's environmental policy seeks to achieve the harmonious coexistence of its people with their natural communities. Impact assessment can play an important role in meeting the challenge of a transition to sustainable development (MOE, 2011). To meet this challenge, Korean environmental impact assessment (EIA) decision makers and practitioners have developed policies and

methodologies to facilitate this transition. For example, since 1986 the Ministry of Environment has conducted three national surveys and prepared an Ecosystem and Nature Map documenting biodiversity change in terms of vegetation, endangered species, wetland and landform in 2007 and 2013. The Map provides guidance to development proponents and EIA practitioners in early stage of impact assessment for nature conservation.

3. The Nature We Want

Last year the United Nations Conference on Sustainable Development reaffirmed "the future we want" as one of reduced, poverty, increased social equity, and greater environmental protection.

This highlights the importance of the conservation of biodiversity, enhancing habitat connectivity and binding ecosystem resilience (UN, 2012).

The importance of the nature is increased in the level both Korea and the world. System and methods are reviewed to satisfy the nature we want.

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Environmental & Stakeholder Management Practices for Retrofitting Automatic Platform Gates of East Rail Line in Hong Kong

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To enhance passenger safety, Mass Transit Railway (MTR) Corporation will retrofit Automatic Platform Gates (APGs) at fourteen above-ground stations along the East Rail Line.

Retrofitting APGs at platforms of an operating railway line involves highly complicated works including modifications to the platform structure, where concrete breaking and installation works have to be carried out during the very tight non-operating hours in the night time so that

disruption to railway service could be minimised.

As a responsible project proponent, MTR is conscious about the environmental and stakeholder issues in association with the works.

This paper outlines the good management practices being carried out during the project design / procurement stages, leading to the construction commencement to minimize any unnecessary disturbance to the society throughout the works execution.

EIA for small scale development in Japanese waste management sector

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Keywords: Waste Management, small scale development, EIA, LEIR

1 Introduction

In the Japanese waste management sector, a concise EIA called Living Environmental Impact Review (LEIR) is undertaken as a part of permission process for disposal facilities. LEIR aims to enhance installation of necessary waste disposal facilities by dispelling growing public concern about its environmental impact through scientific review and communication process. Its characteristics will be clarified, followed by a short discussion on effectiveness.

2 Characteristics of the LEIR system

LEIR is a required for certain waste disposal facilities, including (but not limited to) incineration plants, PCB disposal facilities, and final disposal sites, under the Waste Disposal and Public Cleansing Law. The impact of operating such facilities on the living environment is assessed before permission. Permission will be decided based on prescribed criteria, taking LEIR report and result of consultations into account. Mitigation measures could be made as condition for approval.

Compared with full EIAs, three characteristics could be pointed out. Firstly, LEIR is applied for small scale projects. In the case of incineration facilities, LEIR needs to be undertaken for projects with incineration capacity over 0.2t/hour. In contrast, full EIA is usually required for projects with capacity over 100~200t/day. Secondly, the process is significantly simplified compared to full EIAs, as shown in figure 1. There is no formal screening, scoping, or procedure to amend the assessment result. The scope of assessment is limited to the living environment, which

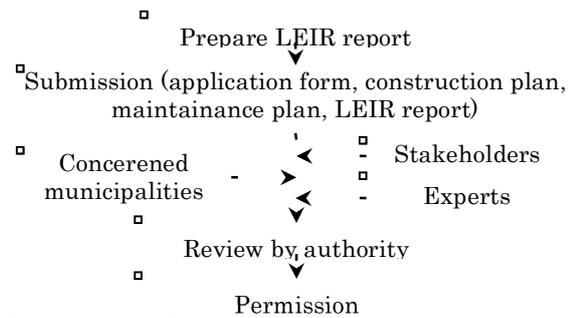


Figure 1: LEIR procedure for incineration

is defined by law as air quality, noise, vibration, odor, and water quality. Thirdly, window for public participation is quite limited. In terms of process, consultation is undertaken only after the LEIR report has been prepared. Besides, only stakeholders are allowed to submit opinion letters.

3 Discussion

Considering the original role of LEIR, i.e. to act as a communication tool, in theory, there seems to be procedural flaws, including lack of early participation. On the other hand, it is important to keep the procedure short and simple to be able to check the environmental impacts of all small scale developments. How and to what extent this system has been effective through its 16 years experience needs to be further clarified empirically. Another issue recently recognized by practitioners is the application of LEIR under emergency circumstances. There were some skeptical views on the actual effectiveness of LEIR for temporary disaster waste incineration facilities during post disaster recovery of 2011 Tohoku Disaster. Whether it had merely been a red tape or not will be discussed further.

A Preliminary Hazardous Ranking System for Oil Storage Tanks in Korea

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Keywords: Soil and Groundwater, Inventory, Storage Tanks, Ranking System, Priority List

1 Introduction

National inventory of soil and groundwater contamination is required to identify and manage existing or potential contaminated sites. Using national inventory for oil storage tanks, we developed a preliminary hazardous ranking system of oil storage tanks.

2 Preliminary Hazardous Ranking System

The preliminary hazardous ranking system was developed using environmental impact factors. These factors can be classified in three properties, including contamination source characteristics, local environments, and risk receptors.

Source characteristics were evaluated by scoring tank age, tank location, tank volume, spill overflow control, leakage sensor and 2nd storage structure. Local environments were evaluated by scoring annual rainfall, groundwater hydraulic conductivity, and annual groundwater use. Risk receptors were evaluated by scoring local population, direct distance to surface water, direct distance to drinking water wells.

Scores and weights of each parameter were allocated by analytic hierarchy process (AHP) utilizing the opinions expressed by many experts. Weighted scores of source characteristics : local environments : risk receptors were 60 : 20 : 20. Then, the system was applied to oil tanks around South Korea. Database layers for those factors were constructed, and the system was assessed by weighted

superposition using geographic information system (GIS).

Figure 1 shows one example of the system results which shows priorities of oil storage tanks in Seoul Metropolitan City, South Korea.



Figure 1: Priorities of oil storage tanks in Seoul City, South Korea.

3 Conclusion

- (1) The preliminary hazardous ranking system can be used flexibly for improved management of storage facilities at the regional, national and local level.
- (2) It will help the authorities in prioritizing their environmental management plan, and can also help in allocating the budget available for efficient contamination management.

Acknowledgement

This work was performed by KEI with support of "Vulnerability Assessment to Soil & Groundwater Contamination(2012)" from the Korea Environment Corporation(Keco).

PM2.5 Assessment in EIA of Korea

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Keywords: PM2.5 Assessment, EIA

1 Introduction

New national standard for PM2.5 will be applied in 2005 in Korea. So, there is need to prepare methodology for PM2.5 in EIA

2 PM2.5 Assessment

2.1 Characteristics of PM2.5

PM2.5 is particulate matter of which aerodynamic diameter is smaller than 2.5 microgram. Therefore, PM2.5 can penetrate lung and blood vessel easily. So, it is more harmful than any other air pollutants. Moreover, its production mechanism is very complicated and very closely related sulfate and nitrate salts in air.

2.2 Methodology

The procedure of PM2.5 assessment is as follows ;

1. Calculation of PM2.5 amount generated from EIA target project

2. Calculation of PM2.5 concentration in air through dispersion modeling

3. Comparison with national standard(50 microgram/cubic meter for 24 hour, 25 microgram/cubic meter for 1 year)

4. Set up of mitigation measures

5. Establishment of monitoring plan

3 Conclusion

We are going to use emission factor if there is a national data for PM2.5. If not, PM10 will be used as a surrogate of PM2.5 because there is a relation between concentration of PM10 and that of PM2.5.

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Factoring in Climatic Extremes into Environmental Impact Assessments

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Keywords: EIA, Climate Change, Climate Risk, Climate Adaptation

National governments and development agencies have invested considerable effort in recent years to develop methodologies and tools to screen their projects for the risks posed by climate change. However, these tools have largely been developed by the climate change community and their application within actual project settings remains quite limited. An alternate and complementary approach would be to examine the feasibility of incorporating consideration of climate change impacts and adaptation within existing modalities for project design, approval, and implementation. Environmental Impact Assessments (EIA) are particularly relevant in this context. This paper outlines a process to integrate climate risk into EIAs, as developed for a report for the Organisation of Economic Co-operation and Development (OECD) 'Incorporating Climate Change Impacts and Adaptation in Environmental Impact Assessments'. Lessons learnt from integrating climate risk into EIAs for new infrastructure and development in different sectors in various jurisdictions of the world are discussed. The key elements explored include:

- identifying information that is essential to decision makers for making informed decisions under the uncertainty of climate change impacts;

- understanding and prioritising climatic risks;
- optimising the right timing and scale of various adaptation options; and
- benefiting from climate adaptation opportunities.

Other guidance and best practice principles developed by professional organizations for EIA practitioners such as the International Association for Impact Assessment (IAIA) are also reviewed and discussed.

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An Analysis of Factors Influencing Community Acceptance on Geothermal Power Development—The Cases of Yanaizu-Nishiyama and Oguni Geothermal Power Plants

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Keywords: Geothermal power, Site selection, Community acceptance, Consensus building

1 Introduction

Although Japan is very rich in geothermal resources, the geothermal power development has stagnated due to the high construction cost, development regulations in natural parks and opposition campaigns of the local residents. In the near future, the community acceptance is most likely to be the biggest issue on the geothermal power development in Japan. The purpose of this study is to clarify some factors that could influence community acceptance.

2 Methodology

In this study, we did a comparative analysis of an existing case and a cancelled case. In the case study, we analyzed each case from viewpoints of geographical conditions, development process, required procedures, stakeholders and changes of local people's opinions.

3 A case study analysis

Regarding the existing case, we surveyed all of the geothermal power plants in Japan, and we chose Yanaizu –Nishiyama (hereafter abbreviated as YN) case based on some conditions. The case of YN is a comparatively new project for commercial use, which EIA was implemented and the site is located in Natural Park. As for the cancelled case, we examined the project through newspaper articles, and found that it was driven to the cancellation due to the local people's opposition. As a result, we found several other projects that were put on hold, and we chose Oguni since this project started at about the same time as YN, and the construction process had moved

ahead partway. From the analysis, we discovered that both project sites included the land owned by local residents, and the distance between the site and the nearest hot spring was not so different. Therefore, we couldn't find any significant difference in terms of the required procedures and the geographical conditions. With regard to stakeholders, in the case of Oguni, the stakeholders were greater in number and more complex than those of YN because local residents who opposed to the project included the hot spring owners in the neighboring town as well. In addition, local residents use geothermal resources for hot spring business as well as various other ways, such as heating, cooking and farming. In both cases, at the beginning stage, local residents had concern about some negative impacts on the hot spring. In the case of YN, the developer, the local hot spring association and the town office came to an agreement to assure of preserving the hot springs at an early stage. On the other hand, in the case of Oguni, it was observed that the hot spring water was decreasing when discharge examination was carried out.

3 Conclusion

We have found that there are some noticeable differences among the cases we have analysed. They are: the diversity in the use of geothermal resources in the local areas, the concreteness of information that could affect the risk recognition of the local residents, and the process of the risk management by developers. We find it necessary to survey other cases for further research.

Standardization of Basic Data of Emission Inventory of Power sector

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Keywords: thermal power plant; EIA; CEM; Standardization; Emission inventory

1 Introduction

In 2010, Appraisal Center for Environment & Engineering (ACEE) carried out some research on the construction and application of pollution emission inventory. It tried to present the technical methods and management techniques of pollution emission inventory in China. Combined with the national CEMS data, EIA data, and pollution sources census research, the national hierarchical grid sources of pollution will be established. Up to now, EIA Indicators Database of China's thermal power construction project, a national key sources online monitoring database, has been completed. It laid a solid foundation for building the thermal power industry pollution emission inventory in China.

2 Research method

2.1 Research Scope

The thermal power pollution source emission data used in this paper mainly come from the EIA basic database, including CEMS and national thermal power construction projects (EIA). Research scope includes all the 31 provinces, municipalities and autonomous regions in mainland China.

2.2 Standardization of Coordinates Positioning

Thermal power pollution sources coordinate positioning is a key part of building a thermal power pollution emission inventory. The main methods, which are used to locate, contain original query, administrative divisions coding positioning, zip code positioning, and map positioning.

3 Conclusion

Compared to the existing emission inventory, basic datum in this study have been greatly improved: (1) the basic data of EIA pollution source inventories of thermal power construction project would lay the

foundation for establishing and annually updating the new national thermal power industry emission inventory database. It also built basic datum for developing national pollution reduction policy, strategy and plan environmental impact assessment; (2) It is the first time in China to establish the basic data for national online monitoring pollution inventory of thermal power industry. It broke the bottleneck of traditional emission factor method, significantly improved the resolution of the national pollution emission inventory, and provided a unified national thermal power industry pollution emissions inventory; (3) The EI data is based on the statistics from Ministry of Environmental Protection. During the period of data reviewing and processing process, EIA data and CEMS data can mutually supply and compare with each other. All the above can greatly ensure the reliability of data.

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Poster Session

Towards Sustainability with an Economy based on Natural Capital, a Decentralized System Connected via IT and SEA	Yurika AYUKAWA	Chiba University of Commerce
The trend of the environmental impact assessment study in South Korea	Taehyoung KIM	Korea Environment Institute
Research on Pollutant Control Plan Based on Marine Environmental Capacity in SEA	Yingxian LONG	South China Institute of Environmental Sciences, MEP.
Spatial soil erosion evaluation and sustainable land use planning for a fast developing city	Wenting ZHANG	The Chinese University of Hong Kong
Optimization and Scenario Analysis of Industrial development and Environment in Bohai Sea Rim Area	Lu LIN	The Chinese University of Hong Kong
Games for Change - A new approach to engage the public on EIA by gamification	Andy CHUNG	XNT Limited, Hong Kong

Towards Sustainability with an Economy based on Natural Capital, a Decentralized System Connected via IT and SEA

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Keywords: Sustainability, Climate Change, Biodiversity, Smart Grid, Decentralization

1 Introduction

We face 3 great environmental threats today, which are too much use of natural resources, loss of biodiversity and climate change. These threats are results of the pro-economic growth system since the end of the World War II. The wealth of a nation is evaluated by GDP, which is an index to show how much cash flows a country has achieved. Important elements are mass production using up all natural resources, mass consumption, and mass dumping of wastes making the world no longer renewable or sustainable. A way forward towards more sustainability consists of recognition of nature as our most fundamental capital, and shifting from use of fossil fuels and nuclear by applying several economic tools. This could be achieved by policy level SEA.

2 E-compact City, as One Approach

2.1 Natural Capital based Economy

The e-compact city is a concept of a sustainable society with small independent and decentralized cities connected via IT. Everything is kept within the limits of the environment of its local natural resources. Natural environment, fresh water, forests, biodiversity, stable weather all have economic values. Prices will be put on these via cap&trade emissions trading scheme, carbon tax, biodiversity offsetting, access & benefit sharing of genetic resources, polluter pays principle, and strategic

environmental impact assessment, etc. In each e-compact city, an inventory system is made, to know how much natural resources people could use. With this inventory, an environmental cap will be put on each activity based on SEA. All activities each day, each week, each month, each year must be within the environmental cap, which will be evaluated by the limit of “1”, relating to “One planet earth”

2.2 Decentralized Energy System with Smart Grids

In the e-compact city, energy is 100% renewable natural energy, and a switch is made from the huge centralized system of today to a decentralized and diverse system using Smart Grids, cogeneration, heat pumps, etc to use energy resources in the most efficient way. Denmark is going ahead with demonstration projects in small towns and cities, led by government’s 2050 Vision, and EU Directives. The objective of these vision and directives is to avoid dangerous climate change.

3 Conclusion

If the concept of an e-compact city could be realized, the index of wealth or happiness will be “1” and sustainability could be achieved..

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The Trends in Studies about Environmental Impact Assessment in South Korea

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Keywords: EIA, Trend (within 5 keywords)

1 Introduction

This paper aims to analyze the studies and reports published in Korea over the recent five years, 2008 ~ 2012, in relation to environmental impact assessment and introduce the trends. In this study, most of the research papers came from the Korea Environment Institute (KEI), a national research institution for environmental policies. Most of the papers came from the Korean Society of Environment Impact Assessment to identify the trends in research.

2 Trends in Research of Environmental Impact Assessment in Korea

2.1 Trends in Reports Related to Environmental Impact Assessment

The KEI published 106 research papers between 2008 and 2012. There were 57 studies related to improved environmental impact assessment and related techniques, taking up 53.7%. This reflects major functions of the KEI as an agency studying national policies. The details of these research papers reveal that a paper titled, 'A Guideline to Select the Sites for Photovoltaic and Wind Power Plants in Consideration of Environmental Aspects' invited many more studies on new and renewable energy. The implementation of the Integrated Environmental Impact Assessment Act in July 2012 led to institutional studies aimed at substantiation and advancement of strategic environmental assessment. Also, the importance of follow-up monitoring was recognized with the presence of large-scale national projects such as the Four major rivers Project and researches related to follow-up environmental management are a major area. What is to be noticed is that in terms of Official Development Assistance (ODA) projects, the studies and projects maintain that the roles of environmental impact assessment must be strengthened. Such research papers are expected to facilitate a

discussion that environmental impact assessment shall play its role sufficiently as a tool to help decision making when conducting ODA projects.

2.2 Trends in Papers Related to Environmental Impact Assessment

The number of papers registered with the Korean Society of Environment Impact Assessment over the five years from 2008 to 2012 is 270. The number of publications was 28 in 2007. It was 72 in 2012, indicating a continued increase. Based on the results of exploration of areas of these papers, unlike research papers presented by research institutions studying national policies, there were papers on very diverse environmental issues and specific areas. Studies to improve environmental impact assessment and related techniques took up 18.9% while 70.4% pertained to specific areas and others and 5.2% covered analyses of basic data. 5.5% pertained to analysis of environment-related impacts. Considering the diversity of these studies, papers about climate were published after 2009, taking up 4.4% over the recent five years. This is where the consideration of climate change is necessary when we assess environmental impacts.

3 Conclusion

In Korea, environmental impact assessment has continuously developed with the reflection of the demand of our time. Over the recent five years, major issues in Korea's environmental impact assessment included advancement under the single Environmental Impact Assessment Act, environmental impact assessment considering climate change and health, recovery of the original functions of environmental impact assessment through strengthened environmental monitoring, roles of environmental impact assessment in relation to new and renewable energy development, and finally, reinforced roles in the currently insignificant but important ODA.

Research on Pollutant Control Plan Based on Marine Environmental Capacity in SEA

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Keywords: SEA, marine environmental capacity, numerical model, discharge area

1 Introduction

Beibu Gulf Coastal Area (BGCA) has an extensive shoreline of about 4063.5km and is also close to China's second largest bay, Beibu Gulf, which is widely considered to be the area with "the last clean sea" and "the Gulf Area with the most biological diversity" in China. In recent years, growth has created inevitable conflicts with the marine environmental resources, placing them under tremendous pressure. How to control pollution and protect marine environment is particularly important in BGCA SEA.

2 Methods

2.1 Marine environmental capacity

Based on the tidal and water quality numerical model, the marine environmental capacity of three types of pollutants in the main discharge area in BGCA is calculated. Results indicate that due to the different hydrodynamic and diffusing conditions, environmental capacity varies significantly in different discharge areas (see Fig.1).



Figure 1: DIN environmental capacity in 24 discharge areas in BGCA

2.2 Available levels analysis

According to the planning scenario around the gulf the potential discharges of COD, DIN and oil are estimated and compared with its marine capacity. The results show that the environmental capacity of DIN will be seriously overloaded, which would lead to 25% and 33% of the discharge areas overloaded in 2015 and 2020 respectively.

2.3 Pollutant control plan

Based on the available levels analysis, the pollutant control plan is proposed in the area where the marine capacity is inconsistent with the developing strategy. The plans include different aspects, such as adjusting the scale and structure of the developing strategy, changing ways of discharging sewage, improving wastewater reuse rate to reduce emissions.

3 Conclusion

By taking the Beibu Gulf as an example, the research framework of pollutant control plan in SEA is discussed. Based on the marine environmental capacity, the pollutant discharge mass control plan is proposed, which provides a scientific reference and an effective approach for the marine environmental sustainable development in bay area.

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Spatial and temporal soil erosion evaluation with regard to land use changes for a fast urbanizing city Shenzhen, China

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Keywords: Shenzhen, soil erosion, GIS, land use change, universal soil loss equation

1 Introduction

Soil erosion is a major environmental problem worldwide (Pimentel *et al.* 1995). Addition to the natural factors, a direct reflection of human activities, the land use changes, makes huge impact on soil erosion. This study used the Universal Soil Loss Equation (USLE) model to evaluate the annual soil erosion for Shenzhen, a fast developing city with the assist of the Geographical Information System (GIS) and Remote Sensing (RS) technique.

2 Methods

2.1 Case study area

Shenzhen (22°27'N to 22°52'N, 113°46'E to 114°37') is located at the east of the *Pearl River Delta Region*. It has been developed as the *Shenzhen Special Economic Zone* in 1979. During last 20 years the urban area has expanded accompanied with the decrease of ecological land which leads to a severe soil erosion condition.

2.2 Soil erosion evaluation

The well-know USLE was proposed by Wischmeier (Wischmeier 1976) and it has being widely used from then on (see equation 1).

$$A = R \times K \times LS \times C \times P \quad (1)$$

where A ($t\ ha^{-1}\ a^{-1}$) is the predicted average annual soil loss, R ($MJ\ mm\ ha^{-1}\ h^{-1}\ year^{-1}$) is rainfall and runoff factor, K ($ton\ ha^{-1}\ per\ unit\ R$) K is soil erosivity factor, LS (dimensionless) is the slope length and slope steepness factor, C (dimensionless) is the

cover and management factor, P (dimensionless) is the conservation practices factor. Figure 1 displays the spatial distributions of R , K , LS , C .

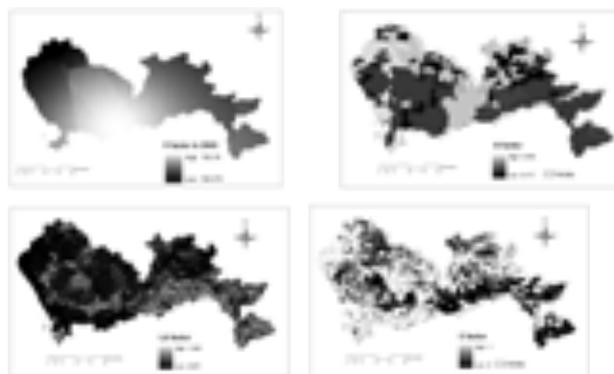


Figure 1 Spatial distribution of USLE factors for Shenzhen

3 Conclusion

According to the outcomes of soil erosion, it is found out that the land use changes of natural land to built-up land are the leading cause of Shenzhen's severe soil erosion. Other factor that makes a huge effect on soil loss from place to place is steep slope since Shenzhen is full of mountain area. The spatial and temporal variation of soil erosion in Shenzhen is meaningful for the land use planning in terms of soil erosion control.

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Adjusting regional industrial development strategy under local environmental constraints

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Keywords: SEA, Industrial structure, Linear Programming, Environmental carrying capacity, Scenario

1 Introduction

The primary issue in sustainable development is how to maintain environmental high quality with as little economic sacrifice as possible. The author proposes a linear programming method to optimize the structure of regional industrial economic scale. The method is employed in the thirteen coastal municipalities in the Bohai Rim area (denoted by BRA) based on the constraints of regional environmental carrying capacity of water and air. Scenario analysis is then conducted to examine impacts of various environmental constraints.

2 Methodology and case study

2.1 Methodology

In environmental science, optimization techniques are a powerful set of tools that are to establish methods that control the environmental quality as little economic sacrifice as possible (Greenberg, 1995). In this study, the objective of the optimization model is the maximization of the total industrial output value in a region consisting of a set of municipalities. The constraint functions include two groups: one stands for industrial economic scale; the other one stands for environmental carrying capacity. Industrial economic scale is limited within targets of provincial and municipal governmental plans, which represents the most intensive development of heavy industries. For environmental constraints, there are air and water pollutant considered. To analyze the mitigation of environmental stress gradually, three

scenarios are set up to represent low-constraint target, medium-constraint target and high-constraint target respectively.

2.2 Case study

The case study area includes thirteen municipalities surrounding the only semi-closed ocean in China Bohai Sea. It is the coastal part of the Tianjin, Hebei, Liaoning and Shandong provinces (Figure 1). It



Figure 1: Territory of the study

covers 129,224 km² and has a 4% of the national population. It produces about 8% of the national total GDP. The area has become one of the regions of China experiencing the biggest economic boom since 2005.

3 Conclusion

The study suggests integrating linear programming and scenario analysis is a powerful method to analysing the relationship between industrial development and regional environmental stress.

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Games for Change: The Emerging Role of Social Media and Gaming Tools in EIA & SEA Public Consultation

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Keywords: social media, gamification, ECO, greenxity, Green ICT

1 Introduction

According to Zhang [1], public participation can make positive contributions to the quality of the EIA as well as the associated decisions made upon, if the public is effectively engaged in the process. From paper reports to their digital version on the web, from 2D graphics to 3D interactive tools, the proponents have been using information & communication technology (ICT) to inform, consult and organize the public, particularly when the proposed projects, plans and policies are contentious.

Entering the era of a networked society, this paper discusses how the ways of communication are changing with the use of social media and gaming tools to facilitate public participation in EIA & SEA.

2 Discussions

2.1 Why Social Media?

Nowadays, nearly one in four people worldwide use social networks, and the number of social network users is still growing. Public participation programmes simply cannot exclude the use of social media. Some of the potential benefits, according to Brice [2], include: (i) enhancing connectedness with broader and more community members, (ii) having opportunities to respond quickly and provide credible,

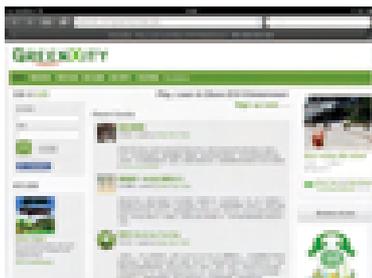


Figure 1: GreenXity ECO Social

factual information, and (iv) utilising a variety of new media.

2.2 Why Gamification?

Zichermann & Cunningham [3] define gamification as “the process of game thinking and game mechanics to engage users and solve problems”.

Social platforms sharply focusing in ECO, such as GreenXity.com, provide very unique and highly relevant environment for the public to obtain and share their thoughts [4]. The more the members properly participate, the more credits they earn, so as their social reputation in form of badges and status towards the top of the ECO ladder – becoming the ECO King!

3 Conclusions

Social media and gaming tools, when used properly, benefit EIA and SEA public consultation programs and contribute to successful project planning and outcomes.

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Technical Visit “ATTRACTIVE METROPOLITAN TOKYO”

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10:30 Asakusa Area Old Japanese temple and traditional town

11:30 Lunch

12:30 Tokyo Sky Tree Town

13:00 Finish

Venue

Chiba University of Commerce (CUC)

1-3-1 Konodai, Ichikawa-shi, Chiba, 272-8512

Conference room, 3rd floor, Main Building-



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