

# Method Development for the Integrated Impact Assessment in Korea - A Case Study for the Construction of Great Korean Waterway -

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## Abstract

Mega-project has great impact on the society as a whole. With a rapid transition toward industrialization, Korea has launched a series of mega-projects so far, including the construction of highway between Seoul and Pusan, the railroad construction for the KTX (Korea Train Express), the Saemangeum land reclamation project, and etc.

Mega-projects cause great public concern over the environment, too. Public complaint against the mega-project was minimal until the '70s due to the traditional Confucian philosophy inherent to the Korean people - subordination. However, the conflict between development and environmental conservation became hard to overcome as the president of Korea announced his intention for the construction of Great Korean Waterway (GKW). Without any detailed construction plan, developers and land owners along the planned construction site are in favor of the project while many environmental scientists and NGOs are against the plan.

Korea has three principal mechanisms on impact assessment (IA): Strategic Environmental Assessment (SEA), Prior Environmental Review System (PERS), and Environmental Impact Assessment (EIA). Nonetheless, Assessment practices seem to follow the regulatory manuals routinely without considering 'scoping' of issues. Consequently, as the intention of waterway construction seems explicit in the current political environment without social compromise, it is going to be very hard to manage different interests through the current process. Thus we need a more comprehensive and integrated approach than the current ROK regulatory guidelines permit – the integrated approach towards impact assessment (IA). This study is to develop a framework for the integrated IA that encompasses impacts on the socio-economic sector, disaster management, traffic sector, and social conflict in general.

## **I. Introduction**

Mega-projects have great impact on a society as a whole. Koreans have witnessed the development of such mega-projects including the construction of highway between Seoul and Pusan, the railroad construction for the KTX (Korea Train Express), the Saemangeum land reclamation project, and etc. There were, however, great concerns since mega-projects were in favor of economic gains, usually ignoring chronic environmental impacts.

Until 1970s, public arguments against the mega-projects were minimal due to the apparent economic benefits. The traditional Confucian philosophy inherent to the Korean people, subordination, also played an important role to keep public distrust to mega-projects minimal.

Recently, the new president of South Korea inaugurated his term and the elected/appointed officials prepared the blueprint of the construction of Great Korean Waterway (GKW). There are many problems to be resolved before launching the project. Among them, resolution of public distrust to the proposal seems to be a key factor to the success of the program.

Public distrust to the proposal seemed to be caused by many factors. It seems that many Koreans feel the proposal should be supported by objective analysis of socio-economic and environmental assessment. The lack of adequate procedural laws on Impact Assessment (IA) for such a proposal is another reason for the objection. Many Koreans feel that the new Korean cabinet should not be so hasty in preparing the proposal of the GKW construction.

In fact, we Koreans have experienced many problems with the previous mega-projects. Such cases suggest that mega-projects require corresponding efforts in developing such a proposal. For the construction of waterways, potential negative impacts may include natural disaster, unstable supply of clean raw water, modification of basin environment and ecosystem, and deterioration of cultural assets through the planned routes. Benefits may include increases of employment rate, increases of transport, boom of tour related business, increase of the amount of inland water, decrease of the emission of air pollutants due to the transportation of products and etc. Nonetheless, incomplete environment assessment and failure to draw out public agreement may eventually cause great social cost.

Korea has three principal mechanisms on impact assessment (IA) - Strategic Environmental Assessment (SEA), Prior Environmental Review System (PERS), and Environmental Impact Assessment (EIA). The proposal of the GKW construction did not follow either of these legal requirements so far. In fact, it is reported that the Korean government is considering the legislation of the special law to facilitate the construction of the GKW. Since there are no public notices for the initiation of the projects so far, current dispute over the GKW project seems very unproductive to the Korean society. Under the current situation, it seems better to discuss issues on the promulgation of comprehensive and integrated system on the IA for the GKW construction, emphasizing the organization of impact assessor, the method of public participation, and the method of eliciting consensus from the public.

Basically, we believe the impact assessment on the project should be multi-disciplinary as well as inter-disciplinary. By multidisciplinary, we mean it should include all major areas related with the GKW construction such as environmental sector, socio-economic sector, traffic sector, disaster management sector, and public conflict sector. The objective of this study is to develop a conceptual framework for the Integrated Impact Assessment method in Korea for the GKW construction.

## II. Issues on the Construction of Great Korean Waterway

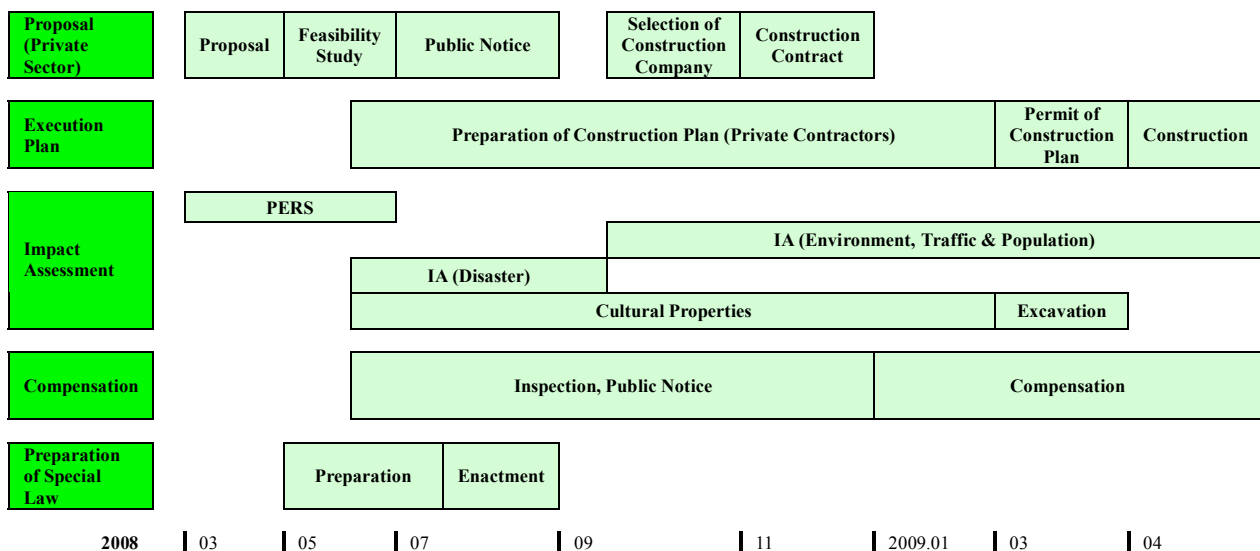
### 1. Cost and Benefit of the Project

Since the Great Korean Waterway (GKW) proposal is not prepared yet, the BC analysis is not possible at this stage. So far, the unofficial rate of BC varies from 0.3 to 1.3, depending on the assessors <sup>#1), #2)</sup>. However, previous experiences of biased BC analysis on mega-projects caused great distrust to Korean people since the ration of BC tended to decrease over time. The objectivity of BC analysis is under great dispute. Since the economic analysis is one of the most important factors in the proposal, this portion should be conducted by independent economic analysis group.

### 2. Construction Schedule

The new Korean government has not publicized the proposal yet. However, official documents for the construction plan are available through the media. Figure 1 shows the GKW construction schedule of the government. Note that any formal proposal and plan for the GKW construction are not available yet.

Environmental professionals believe that Environmental Impact Assessment (EIA) for the GKW project may need more than a couple of years. According to the government plan of Figure 1, the construction will start in 6 months from the initiation of EIA. Duration of Impact Assessment (IA) on other issues seems not so different. To make it worse, the government seems to consider promulgating special law to make the GKW construction easier. Such that, many Koreans have great concerns over the hasty decision-making procedure on the mega-project.



**Figure 1. Execution Plan for the Construction of the Great Korean Waterway**  
(Source: The Hankyoreh Daily News, 3/28/2008)

### **3. Uncertainty**

Potential impacts on the socio-economical environment are under great dispute because the disparity of economic gains among interested parties. In addition, the net economic benefit to the society as a whole is still an open question.

Impacts on the physical environment are much more complex to quantify than those on the socio-economic one. Other impacts on natural environment and on the cultural assets seem similar.

When confronted with an uncertain situation, the best policy would be erring the safe side. In other words, many officials on environmental health and safety seem to prefer safety rather than to say sorry (i.e., “better safe than sorry”).

## **III. Conceptual Framework for the Integrated Impact Assessment for the GWK Construction**

### **1. Current Legal System of Impact Assessment in Korea**

There are three major laws/regulations of Impact Assessments in Korea. They include Strategic Environmental Assessment (SEA) <sup>#4)</sup>, Prior Environmental Review System (PERS) <sup>#5)</sup>, and Environmental Impact Assessment (EIA) <sup>#6)</sup>.

One of the problems of the IA legal system of Korea is that they are separated without any organic cohesion <sup>#7)</sup>. Application and management of the IA are conducted independently agency by agency, too.

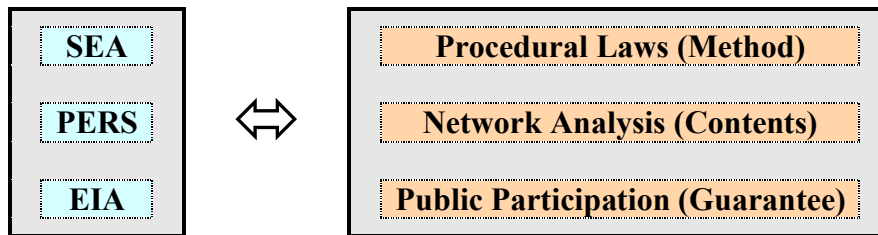
### **2. Conceptual Framework for the Integrated Impact Assessment**

In this study, integration means combining forms and contents of impact assessment. And both should guarantee procedural democracy.

The Korean regulatory system on the Impact Assessment (IA) has necessary elements for the integrated IA including PERS, SEA, and EIA (Figure 1). The issue is how to sieve it horizontally and vertically. The Korean Government announced its intention to amend the Impact Assessment law within this year <sup>#8)</sup>.

We recommend employing network approach <sup>#9)</sup> to improve the current ROK legal system - the GWK project requires more comprehensive IA approach than current Korean regulatory system permits. It is believed that almost all effect categories should be scrutinized for the need of further analysis. For example, the integrated model should be able to screen out minor impacts to focus on other important impacts, including economic impact, social impact, transportation impact, disastrous impact, impacts on cultural heritage and archeological resources and etc., as well as environmental impact.

When multi-disciplines on Impact Assessment (IA) should be integrated, an Incident Commander System (ICS) to respond an emergency situation will be helpful. In other words, the assessor should be able to manage professional resources to conduct comprehensive impact assessment which is impossible under the current IA regulatory system in Korea.



**Figure 2. Integrated Impact Assessment Framework for the GKW Construction**

#### IV. Conclusions

A democratic society should try to protect its people from risks in the area of environmental health and safety (EHS). Many laws are designed to guarantee this objective. In addition, procedural laws are necessary for people to exercise their rights.

Legal system for Impact Assessment (IA) should be shaped similarly. Legal objectives should be achievable by predefined process (procedural laws). Legal objectives that are not equipped with reasonable method are useless. In this aspect, the Korean regulatory system on Impact Assessment (IA) needs reform and it is underway.

Based on the analysis of the current regulatory system of impact assessments in Korea, the revision of the regulation should provide the basis of integrated impact assessments. The characteristics of the integrated system should, at least, include the following components;

- 1) The fragmented IA system in Korea should be integrated and each regulation should be complementary to realize the fundamental objectives of impact assessment.
- 2) The scope of Impact Assessment (IA), especially on mega-projects, should be comprehensive to include all the potential impacts. We recommend employing network analysis into the regulatory system.
- 3) Similar to the Incident Commander System (ICS), the impact assessor should organize human resources to perform the Impact Assessment better. In this regard, predefined and limited Korean legal clauses interfere with the conduction of a sound Impact Assessment.

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