A Critical Analysis on Korea’s Tidelands Policy:
From a Sustainable Development Point of View*

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I. Introduction

The Supreme Court of Justice of Korea sided with the Government on March 16, 2006, giving the green light to its plan to finish off the Saemangum tide embankment project. As a result, the world’s longest

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man-made seawall of 33km came into its existence on April 21, 2006 after fifteen years from its ground breaking. The Supreme Court's decision was the final death sentence for all the living organisms in the Saemangum area, which had been barely subsisting on the seawater running through the parts of the dike that had been left unfinished.

Saemangum tidal flat is the only tideland in Korea that is formed at the mouth of river, and it is one of the five major tidelands in the world. Our descendents are now stripped of the milk line of the marine resources of the west coast and will no longer be able to see the magnificent landscape of Saemangum that extends across 20,000 hectares nor its bountiful ground where life is conceived. Besides, we will no longer be able to enjoy the economic benefits from one of the greatest natural capitals of the Korean peninsula.

A week after the Saemangum seawall project was completed, the project advocates and KBS aired a special program titled "The Dignified Air of the World's Longest Seawall", and proposed to benchmark past experience of the Netherlands and Japan.

Living in the 21st century means that we have to prepare ourselves for the ongoing environmental changes. At such critical point in time, is it truly wise to benchmark outdated footprints of other nations that date back 40~50 years? In particular, considering that these countries have revised their policies 20~30 years afterward, is it really fair to say that they are the best practice benchmarks?

What is interesting about the Saemangum Project is that over the 15 years of its project duration, nearly 1 trillion won had been spent for the seawall construction, and yet the completion of the seawall came before the size of additional cost and the usage of the reclaimed land were
made clear. Even before the blueprint based on the public agreement on the future long-term plan was rolled-out, the government moved forward and completed the construction of the seawall.

Will we be able to witness the economic prosperity over the dead body of the life in Saemangum after breaking the virtuous circle of the ecosystem with rubbles and concrete? Will the government be able to overcome the tremendous cost and challenges following the reclamation of Saemangum and realize the exuberant accomplishment it has been touting? For those who had been fighting for environment preservation, citing various development alternatives when the remaining 2.7km of open waterway was still available, what actions can they take now that the seawall is completed?

In this paper, the above mentioned questions are addressed and some criticisms are shared on Korea’s tidelands policy from the perspective of sustainable development.

II. Foundation of Economic Prosperity

The Saemangum Reclamation Project, which was conducted under the great attention of the world citizens, is nothing but a risky venture to prove that economic prosperity can be created over the dead body of life. While the expansive tideland and the lives dependent on it will web away, the Korean government claims that it will be able to introduce a new home for other lives and that it will create farming land, artificial
wetland, city and industrial complex, which will bring economic prosperity to the region. However, even the majority of public, who granted implicit approval by remaining silent on the issue, is skeptical about the government’s promises.

First of all, they do not forget the valuable lessons from Lake Sihwa, which is only half the size of Saemangum. Following the groundbreaking ceremony on February 29, 1987 and the completion of the dam construction in January 1994, Lake Sihwa was presented to the public, only to turn into a huge ditch to everyone’s dismay. On February 11, 2001, the government made an official announcement and abandoned its plan to transform Lake Sihwa into a freshwater lake.

Some 495 billion won was injected in the project to build the seawall for Lake Sihwa, and additional 449.3 billion won was spent by the government from 1996 to 2005 to alleviate the contamination of the lake. If the compensation cost and the damage from environmental pollution are counted, effectively at least one trillion won was squandered on this failed experiment. While spending one trillion won from tax money to no avail on the project, all the construction cost, excluding relocation cost, was registered as generated income in the national account. In reality, however, Korea’s national income is in fact simply accumulating bubbles since the restoration cost to improve the water quality of the lake and all the construction cost created no value at all except the damage to the environment.

Furthermore, although a number of construction works such as steel

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1) http://www.nongbalge.or.kr/process/txt5.html
   http://bada.ocean.pusan.ac.kr/pollution/jusang/solution.html
manufacturing site, waste material treatment facility, transmission line site by KEPCO have already been conducted or proposed in the environs of the lake, the government has yet to present its final policy on all these works.

The issue is that in the process of handling multiple projects, the government has failed to demonstrate a best practice on environmentally friendly development. What is even more disconcerting is that while the government was unsuccessful in its management of the Lake Sihwa Project, it swiftly moved forward to run the Lake Hwasung (previously called Lake Hwaong) Reclamation Project, at the same time with the Saemangum Reclamation Project and it has proclaimed that both projects are environmentally friendly. The Supreme Court's decision simply placed the destiny of the tidelands of Korea's entire west coast in the hands of government that was unable to prove neither its capability nor accountability to the public.

While the Lake Hwasung Project is about one-third the size of Lake Sihwa, greater focus should be on the fact that there were no basic environmental facilities at the upstream of Lake Hwasung. The seawall construction work started in 1991 and ended in March 2002, amid the myriads of disputes regarding the lack of justification for the reclamation work and the ecosystem destruction. As in other projects, the tide embankment was set up first, and then the basic environmental facilities were scheduled to be established by 2005, in accordance to the Comprehensive Measure for Water Quality Preservation at Lake Hwasung. The formation of a freshwater lake and other internal developments such as farmlands will be launched in 2008 to be completed in 2012.

Presently, the seawater flows through Lake Hwasung just like at Lake
Sihwa because no basic environmental facilities (mostly the sewage treatment facility and livestock waste treatment facility), are in place on the Lake Hwasung basin and the seawater is expected to flow through until 2008 when the freshwater lake will be formed.\(^2\) If the government had proven its ability to form and maintain a clean freshwater lake with Lake Hwasung Project, which is about one sixth the size of Saemargum Project, and then proceeded with the Saemangum, the public would not have been so skeptical of the government’s ability.

The problem with the installation of a seawall is not just in blocking the life-giving function of the tideland. All the materials used to build the seawall are the output of damaged nature and mountain. Furthermore, all the materials that will be consumed for filling the tideland to form the freshwater lake (11,800ha), the farming land and others (28,300ha), will be at the expense of additional forest mountains.

According to the entropy rule, every time man forces any change to the nature and consumes it, the overall energy that creates and maintains life will be decreased. Even if we succeed in creating new farmlands, freshwater lake and some wetland by pouring man-made capitals obtained through shaving off more mountains and damaging the nature, a tremendous amount of resources will be further required to maintain this new creation. Also, our descendents will be deprived of the energy and resources to be used for their technological advancement and their own wellbeing.

Economists rationalize such human intervention in the context of cost-benefit analysis. This method is applicable only when the values of the

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\(^2\) http://www.hwaongho.or.krOhsan Hwasung Environmental Association
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subject in analysis are traded in a competitive market. However, most of the values from natural goods are not traded in the tangible or intangible markets and thus cannot be fairly evaluated. We can only accept those development projects that have relatively small impact to the ecosystem and has a large development benefit compared to the cost. Where the size of the development is huge, we must have a deep understanding about the relationship between the economic system and the ecosystem.

The city and industrial civilization is set up with the economic system as its infrastructure. Indeed, it is fair to say that the economic system is the blood vessel of the industrial society through which continuous flow of various resources is made. The economy must consume the ecosystem as the nutrient so that it can provide the resources and it has been eating into the diversity and abundance of the ecosystem.

An economic system is an auxiliary system that belongs to the ecosystem. The Mother Nature is the womb of human existence. The only way for the auxiliary system to be sustained is to share the blood flowing of mother’s womb and not to spin off from the circulation of the ecosystem. No one will be able to deny that we are engaging in the contradiction of demolishing the foundation of our very existence if we gradually block out the circular flows of resources. To this end, countries around the world in the present era, are aiming to upgrade their economic system into a circulatory system, and to build a circular society.

It may seem to be creating new jobs and income at first sight when launching a large-scale civil engineering work. But this results in permanent extinction of the production capacity of the nature due to massive environmental destruction. Hence, such income creation will merely ends up liabilities to our descendents. As such, the development
method and economic prosperity should not be sought from the accumulation of tangible assets, but from intangible and knowledge-intensive approach. Economic prosperity will be sustainable only when we diligently adhere to the principle of minimizing the injection of physical resources and maximizing the circulatory utilization. A development pursuing economic growth should always be an accommodated one that preserves ecological diversity. We can’t help but say that the Saemangum Project falls beyond the boundaries of this definition.

III. Political Arithmetic

What is interesting about the Saemangum Project is that while nearly 1 trillion won was poured over the span of 15 years, no one can provide a clear answer as to why so much tax money and social energy have been spent. All that has been presented to people is the rosy pictures that will come once the seawall is completed. Such pictures tend to include industrial complexes or international trading port, but certainly not of the farming land, which is what it was originally intended for.

One of the most common misunderstandings of the public regarding this project is that they often get mixed up between the size of the Saemangum Project and the completion of the seawall. Since the completion of the seawall is only the beginning of the Saemangum Project, even if the Supreme Court orders suspension of the seawall construction, the sunk cost will be relatively small. Nevertheless, people fail to recognize
this fact. Crane) Furthermore, if the 450 won billion spent for land compensation or fishing right compensation is to be excluded, the cost of seawall makes up just 1/11−1/50 of the total project cost.

In fact, if we look at the US Supreme Court rulings, we can find a case where projects have been suspended even at 95% completion rate. In 1978, the US Supreme Court ruled to protect the snail darter, which is a rare kind of 10cm-long freshwater specie. The Court ordered to stop the construction of the Tellico Dam (a dam built at the Little Tennessee River in the state of Tennessee, US), and this ruling is viewed as having marked the turning point for the US’ policies on dam construction. Over 100 million dollars had been spent and the remaining work consisted of a single final task of closing the floodgate when the Supreme Court ruled to suspend the construction.

Into the 20th century, thousands of dams were constructed in the US, and until the 1960’s and 1970’s, people did not question the value of constructing dams. In fact, dam constructions symbolized the advancement and greatness of technology. The construction of Tellico Dam, however, was suspended right before its completion as the opponents of the dam

3) According to the analysis conducted by the Audit Board in 1998, the estimated construction cost until 2011 is 5,953 trillion won for farming land formation (outerwall construction cost 2.293 trillion, internal development cost 3.66 trillion). If it is to be prepared as a complex industrial complex, as desired by the people of North Jeolla Province, the cost will be 28.5529 trillion (outerwall construction cost 2.293 trillion, internal development cost 26.2599 trillion). Given this, the money spent so far makes up about 1/6−1/30 of the total project cost. Furthermore, if the 450 billion spent for land compensation or fishing right compensation is to be excluded, the cost of seawall makes up just 1/11−1/50 of the total project cost.

http://www.kfem.or.kr/wet/smg/jang/data11.htm

4) http://en.wikipedia.org/wiki/Tellico_Dam

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presented this case to the court. This court ruling became famous and caused the American public to change their perception about the environment.

People who opposed the construction of this dam cited the National Environmental Policy Act of 1969. Although they succeeded in delaying the construction based on the act, they could not suspend the construction permanently. Then in 1973, the US Congress enacted the Endangered Species Act of 1973 (ESA), and the opponents of the construction found out that a small fish called snail darter inhabited in the Little Tennessee River. After adding this fish onto the endangered species list, they brought the case before the court, which was subsequently taken to the Supreme Court.

The request to stop the construction in order to protect a 10cm-long freshwater fish of perch family failed in the first instance. The Appropriation Committee of the Congress had approved the spending for the continuance of the construction works. But in 1978, the Supreme Court decided to suspend the construction of the dam and to protect the snail darter despite that over 100 million dollars had been injected, and only the last task of blocking the floodgate had remained. The case highlights the court’s determination to carry out the Congress’ belief for biodiversity.

In order to complete Telico Dam, a special act was enacted through the negotiation between the ruling and opposition parties to exchange their political interest. In accordance with the special act, snail darters were relocated to Hiwassee River shedding light to Telico Lake in 1979. However, this ruling regarding the interpretation of ESA was an epochal decision that served to either suspend the dam construction plan or bring down the existing dams in the US.
Contrastingly, the Korean Supreme Court’s ruling merely fueled to the past ill practice of ‘economic development at the expense of the environment’ – a concept that had been dominating the Korean society since the 1960’s. Furthermore, due to this ruling, the highly risky simultaneous developments are likely to spread indiscriminately through out the west coast of the peninsula.

The tideland in Sihwa is already irrevocably lost. On top of this, if the tidelands of Lake Hwasung and Saemangum disappear and currently discussed Janghang tideland is reclaimed, all the major tidelands on the peninsula will disappear, gravely limiting the ecological diversity in Korea. The tidelands are increasingly getting scarcer around the world and their ecological and economic marginal values are also rising. Meanwhile it is an undeniable reality that the Korea’s existing farming lands are being converted into other lands. The demand for farmland is falling, so any new farmland’s marginal value will fall short of the supply cost.

Unlike what has been specified in the proposal for the usage of the reclaimed land, many residents of the region and the local government administrators want industrial complex or a tourism and logistics centric international port to be developed instead. In fact, the Board of Audit and Inspections has pointed out to the Ministry of Agriculture and Forestry (MAF) that the MAF started the publicity and the working-level consultations with the related entities about the development plan for the industrial complex (industrial complex 13,500ha, farmland 10,300ha, etc.) in 1994, which was illegal since the ministry did not take any due process to change the objective of the project.5)

5) http://www.bai.go.kr/
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Still, the lotting-out rate in the industrial complex on the southwest of the peninsula is rather low, and most of the manufacturing businesses continue to move to China, Southeast Asia and North Korea. This brings down the demand for industrial land located far away from the metropolitan area rendering the newly developed industrial complex less attractive among business investors.

The large-scale reclamation project presently underway is the outcome of bureaucrats’ thinking that is still caught up in the paradigm of the past. Sacrificing the ecological diversity which will serve as the source of future growth is an anachronistic mentality, which does not lead to the sustainable development of the society.

Policy makers often engage in these prolonged political arguments in order to secure voters’ confidence and funds for their re-election, without any direct accountability of the future outcome. Corporations’ profit seeking activities and consumers’ decision-making process are based on maximizing profit or utility. When it comes to political arithmetic, however, economic rationale or consideration for the next generation is easily overlooked. They simply seek to mobilize the support of the construction companies and the regional interest groups so they can maximize their votes.

IV. Benchmark for the Reclamation Project

Was the benchmark set up by the advocates of the Saemangum reclamation project really futuristic? If the countries that the government
have selected as benchmarks have revised their policies some 20~30 years ago, isn’t this a good indicator that we are taking a wrong approach?

Lasting competitiveness of agriculture and horticulture industries of the Netherlands and Japan certainly do not originate from the reclaimed farmland. As demonstrated by the diligence of these countries in their endless effort to improve and accumulate knowledge in the agriculture and horticultural areas, the agricultural business is a knowledge-based industry. Korean public knows all too well that Korea has been losing competitiveness in agricultural and fishing industries against China and other countries. Farmers in horticulture industry are well aware of the lagging competitiveness of the domestic horticultural industry and have been paying substantial amount of royalty fee every year.

The Saemangum Project clearly portrays the self-contradictory nature of the Korean agricultural policy. It claims to create new farmlands while it is converting the use of the existing farmlands. This fact is well pointed out in the letter of recommendation for mediation by the Administrative Court. In particular, the Administrative Court strongly criticized the Ministry of Agriculture and Forestry citing the ‘Gimpo Reclaimed Land Usage Change’ case.6)

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6) Initially, the formation of farmland was the objective for the reclaimed land in Gimpo, but as large amount of deficit was recorded year after year with agriculture business alone, Donga Construction, the owner of the reclaimed land continuously engaged in activities to change the land usage in favor of commercial complex and recreational complex. In 1999, as Donga Construction faced insolvency and the ownership over the reclaimed land was handed over to KRC, it presented a plan to alter the usage of the reclaimed land into residential, tourism, logistics, distribution and research complexes, and the government accepted this proposal. The government decided to designate the 5.42 million pyeong of Gimpo reclaimed land as special economic zone, and invest 2.5 trillion won to develop the land into a financial & leisure hub by 2009(Yonhap News, 2005).
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The Court said, "it is clearly a self-contradiction to say that the newly reclaimed land is necessary in order to secure national food self-sufficiency while trying to make changes in the usage of existing reclaimed lands that have been created with much effort. The government is admitting that farming alone cannot offset the development cost". The Court criticized that "no one will be able to guarantee that the usage of Saemangum reclaimed land will not be turned to industrial complex" (Pressian, 2005).

Also, note to what happened to the Seosan reclamation project that had taken off in 1979 with the initial purpose of 'land expansion and food self-sufficiency'. The reclaimed area for this project was so large, at 31 million pyeong, that it was said that 1 pyeong could be given out to each and every individual in South Korea. It involved a size of land that is 35 times larger than Yeoido (1/4 the size of Saemangum). Building of a tourism & leisure type corporate city, however, is already underway on the farmland that accounts for 15% of the Seosan reclaimed land, which was designated as TaeAhn Corporate City in August 2005. According to this plan, a sports complex, marine theme park, 8 golf courses, international hotels and a foreign golf college will be constructed by 2010.

Such farmland reduction policy of the government simply proves the point that the marginal value of farmland no longer holds competitiveness in Korea. As such, the Saemangum Reclamation Project can no longer be justified as a way of securing more farmland. For the advancement of agricultural business in Korea, is the expansion of more farmland through reclamation the best investment option we have? Or is it wiser to stop the project and to concentrate on innovation of the agricultural produce
distribution structure and to transform the agriculture into a knowledge-based industry? The answer to this question appears to be crystal clear.

1. Policy Change in the Netherlands

Since the 1920's, the Netherlands had untiringly put its effort on the expansive reclamation projects for a half-century, to prevent flood and gain larger territory. Nevertheless, the global leader of land reclamation has changed its policies since three decades ago.

Dutch citizens, who have great pride in having won the struggle against the nature, are most proud of Zuiderzee seawall running round Lake IJseeel in the North Sea and Markerwaard. In Dutch, Zuiderzee refers to the Zuider sea, which means the ‘south sea’ (located south of the North Sea). This was originally a freshwater lake, but was linked to the sea as its northern entrance was swept away by the 1787 storm surge. Then, it was restored into a freshwater lake in 1932 by building a 32km long seawall.

Key issues of the Netherlands’ national policy were always the safety of the coastal zone (establishment of seawall), the reclamation (securing of agricultural and residential land) and the environment (water quality control). Since the 1970’s, there had been a serious debate on the priority among these three issues. As a result, its people have started to realize that the value of sea and tideland is greater than that of the farmland.\(^7\)

This complete reversal of the national policy is summarized in the following three events that took place after the 1970’s.

\(^7\) http://www2.knag.nl/pagesuk/geography/engels/news99/engelstekst.html
Geography of Netherlands, IDG BULLETIN
(1) The Delta Project which was started in 1960 to build eight dams experienced a few major changes to its original plan. The Delta Project was adopted following the flood that caused 2000 casualties in 1953. The main and only goal of the project was to secure safety by preventing any recurrence of flood disaster. Any damage to the marine resources and wild ecosystem had not been considered at the time, and there was only the discussion on the level of compensation to the fishermen.

But in the 1960’s, people started to pay more interest in the preservation of the nature. In 1972, the Environmental Atlas of the Southwestern Netherlands was published, and the atlas led people to learn that the abundant biodiversity exists in the Delta area as the land, river, and the sea comes together in this expansive piece of land, causing the seawater to mix with freshwater. This region also turned out to be the fuel tank for over 500,000 passage birds that migrate to Africa every year. If the Delta Project were continued, the tide and salt water would have disappeared, resulting in irreversible damages to the environment in the Delta region.

On the same year, the second largest dam, the Brouwersdam was completed, and the construction of the highlight of the Delta project (piece of resistance), the 8km long Eastern Scheldt dam was started. According to the original plan, it was to be completed in 1978, twenty five years after the great flood.

But then, the fishermen and oyster farmers, ecologists and environmentalists fiercely opposed the blocking of Eastern Scheldt, and alternatively proposed to reinforce the dams around the mouth of the river. After years of debate, in 1974, the government adopted the compromise plan to build an open-type storm surge barrier where the 62
floodgates can be closed when there is flood. The construction started in 1972 was completed in 1986, at five times greater cost of construction than initially estimated. The floodgates are always open, except for about twice a year on average, when there are raging waves. This 1974 decision was an epochal turning point which was followed by many decisions that benefited the wild life and the environmental preservation. Tunnels were bored to Lake Grevelingen and Lake Veerse, which were locked out by the dam, to allow the flow of seawater to enhance water quality, and their originally intended functions as the freshwater lakes were scrapped. Also, through expansive research, discussion and environmental impact assessments, the floodgate on Haringvliet was also modified to an open system whereby it will be open for 95% of the time. The free passage of fish is guaranteed at all times even when the floodgate and lockgates are all closed.\textsuperscript{8)}

Consequently, the arrangement of the freshwater lake in the Delta region substantially changed. During the planning stage, only the Western Scheldt was to contain seawater, but in the end, only a few places on the east of Delta region remained as freshwater lake, by reflecting the demands of fisherman and environmental activists. In essence, the Dutch government, together with its citizens, had found a way to minimize the damage to the nature and environment, while securing the safety of the region as planned.

(2) While the famous Zuiderzee reclamation project was completed, the reclamation of Markerwaard was cancelled.

\textsuperscript{8)} http://www.deltawerken.com/Haringvliet-Dam/327.html
According to the Cornelis Lely's original plan that started in 1981, Markerwaard region, a key part of the Zuiderzee construction, was slated to convert into the largest coastal reclamation land with a size of 600 km². But with the reclamation of Southern Flevoland in 1968, people began to question the true need for another coastal reclamation. Those who sided with the reclamation claimed that it was an ideal occasion to leverage the opportunities for agriculture, leisure activities, urbanization, and second domestic airport near the megalopolis of Randstad with a high population density.

The opponents, on the other hand, claimed that the reclamation would greatly reduce the size of key freshwater sources in the Netherlands, causing irreversible damage to marine life, birds and wild life, and limit the opportunities for water sports. While the debate was getting more heated, the embankment of the northeastern side of Markerwaard was completed in 1975 as planned, and the road built on top of the embankment became the access road that shortened the distance between the central and the northwestern regions of the Netherlands. However, the size of the reclamation dramatically shrank, and in 1991, the government decided not to reclaim Markerwaard at all. Then, in 2002, it officially declared that there are no more reclamation projects in its national land development plan at least until 2020, thus adopting a policy of no-more reclaims.

(3) The reclamation plan for the Waddenzee region was completely scrapped, and instead, it was designated as an internationally protected national park. When the policy makers planned for the reclamation of Zuiderzee in the 19th century, their intension was to fully reclaim the
Waddenzee and this idea did not leave their mind for the subsequent 100 years.

But since 1970, skeptics and critics, alike voiced their concern about the reclamation of Waddenzee. It was perceived that the farmland formation cost will be tremendous and even if the reclamation was successful, the quality of the land would be poor. More importantly, the opposition became fiercer because people started to form a consensus about the ecological value of the Waddenzee.

The tideland that reveals itself twice a day is the infinite food source for hundreds and thousands of birds. It is the stopover for many migrating birds moving towards the north or the south. Also, there are many otters in the Waddenzee. For these reasons, the plan to reclaim the Waddenzee was scrapped, and there is continued international effort to preserve it against many factors that threaten the ecological health of the region, such as contamination, oil field exploitation and military training.

As such, until the 1950’s and 1960’s, reclamation was viewed positively, but today, the Dutch humbly reflect on themselves about the limitations of human knowledge and submissively admit that the value of marine region is greater than what is created through reclamation. The government is now focused on reversing the reclamation projects of the past and restoring the wetland, by repurchasing the reclaimed land and relocating the residents while bringing down the embankment to allow the influx of seawater. In the Zeeland area, wetland restoration work is underway on some 50,000ha, and additional 50,000ha is to be restored within the next decade.9)

2. Japan’s Reclamation Projects and Wetland Preservation Effort

1) Isahaya Reclamation Project\(^{10}\)

The reclamation of Isahaya bay (Nagasaki prefecture) in Ariake Sea attracted much global attention and was compared with Korea’s Saemangum Project. The Isahaya tideland had been referred to as the ‘gem of the sea’ or the ‘womb of Ariake Sea’. It was Japan’s largest stopover place for passage birds. The idea of Isahaya bay reclamation project was first conceived in the 1950’s, and the actual plan was decided on in 1986. Then, in 1997, the mouth of the bay was blocked by a 7km embankment and the 3,550ha of wetland lost its lifeline. Some 253.3 billion yen was injected to this project which aimed to create 816ha-farmland and to protect the flooding of the sea.

The initial project objective was to create farmland, but as the country faced oppositions from fisherman and the accumulating rice inventory led to the change in the usage of existing farmlands, the allegation that additional farmland was needed could not gain support. While the reclamation project aimed at creating farmland was cancelled in 1970, a slightly different reason of ‘Comprehensive Regional Development for Southern Nagasaki’ was cited to draft a multi-purpose reclamation plan that focused on industrial water and city water supply. However, in 1982,

\(^{10}\) http://www.jawan.jp/e/news/051107cog9-rpt.html Japan Wetlands Action Network (JAWAN) was founded in 1991 and has since been working to preserve such major wetlands as Isahaya, Wajiro, Fujimae and Sanbanje, as well as others.
this second project objective was also abandoned. That is, it was pointed out that there was no demand for industrial water, and that the water quality was already lower than the level necessary to attain reclamation permission due to continued discharge of sewage wastewater that had deteriorated and polluted the water quality of the reservoirs.

The third attempt was called the 'Comprehensive Reclamation Plan to Prevent Flood in Isahaya Bay'. The main purpose for the changed plan, was to prevent the flood by the reclamation of 1/3 of Isahaya bay creating 1,500ha of farmland and 1,700ha of freshwater lake (about 1/12 the size of Saemangum Project). Heavy rains in July 1999, however, in spite of the completed tidal barrier forced 92,000 citizens to evacuate and 600 million yen worth of property damage was incurred. It was criticized that its objective of preventing flood was a mere excuse, and the project became a well-known symbol of Japan's wasteful public works.

In the 1990's, as the Liberal Democratic Party faced growing opposition on the issues of the anti-environmental public projects, it adopted the restoration of nature as its main slogan, by either abandoning or cutting down the budget for some of its public projects. The most dramatic action taken by the government was its abandonment of the reclamation and freshwater lake project for Lake Nakaumi, which sits in between the Tottori prefecture and Shimane prefecture. The Nakaumi Project consisted of creating a 2,540ha-land and turning it into fresh water, which had been suspended from time to time due to oppositions, but on going for four decades. In 2002, when the construction was almost completed, the unified opposition from the nearby region was so strong that the project had to be abandoned. At the time, in exchange for scrapping the Nakaumi Project, the government sped up the construction work in the
Isahaya bay.

But since the year 2000, 'the disaster of Ariake Sea' has caught public attention. It was aggravated day after day, like the color change of the seaweed cultivated in the Ariake Sea. With growing protest of the fishermen community, the Ministry of Agriculture and Fisheries (MAF) formed a re-evaluation committee in 2001 and investigated the project. The committee recommended opening the floodgate for a period of time in order to conduct environmental impact on the water quality and marine lives. The MAF promised to give serious consideration to the committee's decision, and in April 2002, it opened the floodgate for a month for a short-term investigation. However, the MAF decided to set aside the mid-to-long term impact assessment in May 2004, which is ultimately important for the complete assessment of the project. The MAF, instead, adopted a technical, engineering fix like the dredging of the bottom and pouring large quantities of sand and steps to improve the quality of the reservoir water.

This was a typical, capital intensive bureaucratic and technological countermeasure to solve the disturbance in the ecosystem incurred by irresponsible decisions. The leading expert committee independently formed with the members of the academia criticized that such approach was a mere symptomatic treatment and not a fundamental solution to restore the abundant life of the sea. However, in the bureaucratic approach, there is no retreat or regression - there is only moving forward with the plan (Gavan McCormack, 2004).

Upon a lawsuit against the government filed by a group of local citizens and fishermen, the Saga District Court ordered in August 2004 to suspend the construction. Until then, no Japanese court had explicitly
ruled to suspend any government-led public project, so this ruling was viewed as the successful establishment of the iron trilateral relationship among the bureaucrats, politicians and construction companies’ on the defense" (Gavan McCormack, 2004).

However, the Japanese government, unable to accept the court’s dismissal of its objection, appealed to Fukuoka High Court, and on May 16, 2005, the Fukuoka High Court ruled to withdraw the ruling on suspension of the construction. Then, at the 3rd appeal raised to the Supreme Court by the fishermen from four coastal prefectures on the provisional disposition request to suspend the construction work, the Supreme Court confirmed the decision made by the Fukuoka High Court.

On September 30, 2005, it dismissed the appeal raised by the fishermen and sided with the Fukuoka High Court which nullified the Saga District Court’s ruling to suspend the construction. After the completion of the barrier in 1997, this project proceeded with the rest of the work following the decision made by the High Court. Meanwhile, having suffered from 13 consecutive years of suspended pen shell fishing at the Isahaya Bay, a group of fishermen engaged in an investigation to identify the reason for shrinking size of the pen shells. Accordingly, on July 29, 2005, 1,147 fishermen from Ariake Sea separately brought a similar case before the court (Nagasaki Newspaper, 2005).

According to McCormack, It is no secret that the public projects are the hotbeds for strong network among the bureaucrats, construction companies and the politicians. About 90% of the 654 civil engineering or construction contracts related to Isahaya reclamation that took place between 1996 and 2000 were concluded through appointment rather than bidding competition, and more than 400 former Ministry of Agriculture
and Fisheries or local government bureaucrats were employed to facilitate the construction of these constructions. It is needless to say that the donations and political support from these companies, benefiting from the construction contracts or its subcontract and the workers of the related companies, served as a strong foundation for the Liberal Democratic Party in Nagasaki Prefecture. As such, the power of the economic and political interest groups is always stronger than that of the fishing industry (Gavan McCormack, 2004).

2) Japan’s Effort to Preserve Wetland

At the 7th Ramsar Conference in 1999, a resolution was adopted to double the number of Ramsar sites from 1,000 to 2,000 in 6 years, by 2005. While the Japanese government also announced its resolution to increase the number of Ramsar sites from 11 to 22, it had merely increased the number of sites to 13 by the year 2005. Meanwhile, such tidal areas as Isahaya Bay, Hakata Bay, Sone tideland, Yoshinogawa river mouth, Fujimae and Sambanjae, which qualify as Ramsar sites according to the international standard, are being continuously damaged by public projects conducted by the Japanese government. This has prompted international criticism.

Nonetheless, Japan’s Ministry of Environment was praised for forming the National Wetland Committee in order to designate 20 new Ramsar sites by 2008, with an objective to reach 33 designated Ramsar sites. Also, a special group among Diet members was formed to support the

12) As of 2005, 1,524 wetlands around the world are being addressed as special management areas listed on the agreement.
expansion of Ramsar sites. In this manner, previous stance of indifference of the Japanese Diet towards wetland conservation movement was turned around, and it is now expected to take the lead in enacting laws for wetland conservation.

In Japan, various restoration movements are being well received by the public. For instance, the ‘Kushiro Marsh Nature Restoration Committee’ was organized in 2004 for the project to restore the river that flows through Japan’s first Ramsar site, the Kushiro marsh. The focus of this project is to stop and prevent the accumulation of silt in the marsh, which was caused by the 1981 project that artificially straightened the river, so that the drainage capacity in the local farmland area would be enhanced. However, the NGOs are keeping keen eyes on this restoration project to ensure that this one does not follow the past practice.

Since Japan’s Environment Office was reorganized and elevated to become the Ministry of Environment in 2000, wetland conservation movements in Japan has changed. Although effective preservation policies are not being implemented due to the lacking authority in comparison to the Ministry of Agriculture and Fisheries or the Ministry of Land, Infrastructure and Transport, policies unlike as in the past are more inclined to conserving the environment when it comes to coastal areas and rivers. Also, the new ministry made it mandatory to reflect the opinions of the affected communities, with respect to reclamation and dam construction projects.13)

In Japan, there is no legal mechanism to directly preserve the wetland, so the only method to effectively protect wetland is to designate as many


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of them as possible as Ramsar sites. The NGOs organized to conserve wetlands came together with the Ministry of Environment and drafted the '500 Important Wetlands of Japan' list in 2001, to use it as an unofficial reference for protecting unregistered wetland sites. Japan's Wetland Preservation Network aims to register the top 100 wetlands from this list as Ramsar sites by 2026.

V. Conclusion

According to the recent research conducted by the Ministry of Environment, approximately 600,000 wisps and plovers stopover at Saemangum tideland during their migratory journey in spring and autumn. The 'International Wetland Protection Committee' recommends protecting any area where more than 20,000 waterfowls arrive as important wetland. According to this criterion, Saemangum tideland is a very important wetland for waterfowls, exceeding the international criteria by tenfold. The bird site at the mouth of Dongjin River and the tideland in front of this are designated as the 'International Waterfowl Network' subscribed wetlands. The network was launched in Brisbane, Australia, at the 6th Ramsar Agreement Member Forum held in 1996. Korea subscribed to this network by registering the wetland at the mouth of Dongjin River in 1997.

Furthermore, precious birds like spoonbill, yellow spoonbill, whooper swan and black-headed plover, which are designated as 'natural monuments' by the Cultural Heritage Administration, are found in the Saemangum
tideland. Also, it is the home to many internationally protected species as well as ‘endangered species’ as designated by the Korean Ministry of Environment. These include beangese, mallard duck, spoonbilled sandpiper, Nordmann’s greenshank, Far Eastern curlew and saunder’s gull. From the legal aspect, the Saemangum tideland is a must-protect site according to the ‘Wetland Conservation Act’, ‘Natural Environment Conservation Act’ and the ‘Cultural Properties Protection Act’.14)

Korea became the 101st member of the Ramsar Agreement on July 28, 1997, and has registered sites including Upo marsh in Changnyeong, South Gyeongsang province, Jangdo wetland in Shinan-gun, South Jeolla province and Yong marsh in Daem Mountain, Gangwon province. However, not a single tideland that is internationally recognized of its value has been registered as Ramsar site. This is because ministries within the Korean government, such as the Ministry of Agriculture and Forestry and the Ministry of Construction and Transportation, still regard tidelands as subject to massive reclamation projects.

For over a century, people have engaged in the experiment of creating new farmlands and cities by changing the form of nature through

14) Journalist Nam Joon-gi jknam@naeil.com Tomorrow Newspaper April 4, 2006. In terms of size alone, the tidelands in Garorim Bay in South Chungchung and Hampyeong Bay in South Jeolla are greater, but only a small number of snips and waterfowls are found in this area. This is because there is a relatively small number of benthic organisms, the foodstuff for the snipes and waterfowls, exist in these areas. In the recently disclosed ‘Saemangum Estuary Natural Ecosystem Investigation Report’ (Ministry of Environment. 2004), it stated that “when Saemangum disappears as the result of reclamation project, given the types, size and ecological characteristics of the migratory birds of this region, they won’t be able to move to other tidelands, so it is deemed unlikely that the respective species will manage to survive.”
reclamation. But all regions of the world have been gradually scrapping the massive reclamation projects since the 1970's and active movements to reverse the reclamation and restore the nature are on the rise. Even Italy, which has a long history of reclamation, changed its direction to restore its Po Delta Region, and the U.S. started to restore the San Francisco Bay area back to a wetland. However, in Korea, major tidalans in the west coast might disappear within a decade. National agriculture authorities are following the footsteps of Japanese bureaucrats, and the development is driven by the political interest group, forming coalition for reclamation and busily fulfilling its own profits under the facade of public good and regional development.

While the 'coalition for reclamation' has crossed the Rubicon, buoyed by the Supreme Court's decision, it is very likely that the cohesive power of the coalition for reclamation will weaken as time goes by. Although the interested parties share the common interest until the completion of the seawall, a new conflict and confrontation is likely to rise among the related government ministries, local governments and residents or the outstanding issues in the future. As already known, the cooperating parties in the 'coalition for reclamation have different motives while pursuing in the same goal. The development approach proposed by the North Jeolla province has already been adopted by Taean Corporate city, thus it has little room for competitiveness. Also, as mentioned in section III, an industrial complex is likely to be shunned by the entrepreneurs. Furthermore, the idea of building an international scale logistics harbor base is also not convincing since both Gwangyang Port and Busan New Port, which have been generously funded by the government, are being subjected to a fierce competition of the Chinese new ports. If North Jeolla
province's proposal is adopted, water quality will deteriorate, and as pointed out by the Board of Audit and Inspection, the development cost will skyrocket, further exacerbating the economic feasibility of the project.

The technical bureaucrats, who have not attained success in forming a freshwater lake even in smaller sized projects, affirm that they will succeed in forming large-scale freshwater lake at Lake Hwasung and Saemangum. However, when they leave their positions in a few years, they will not be held accountable for anything as we have seen with the failed Lake Sihwa Project, hence their pledges are unreliable.

As the construction continues, the fishing industry in the west sea will be badly hurt in the wake of the diminishing tideland and new lawsuits will follow concerning the change of project objectives and poor water quality. In the end as this grim scenario unfolds, we will not only end up leaving our descendents with a huge loss on the balance sheet for Korean natural asset, but also a tremendous cost that the public will have to shoulder will be registered as if real income were created in the current national income account.

In the Netherlands, following a prolonged discussion on pros and cons of reclamation, open type seawall was adopted to strike a balance among the available alternatives. A comprehensive approach was taken to encompass all the relevant issues including water quality control, environment, fishing industry, marine recreation, agriculture, logistics and other industries. It has proven that a compromise can be reached among the myriads of differing interests related to large-scale national projects.

It is a clear global trend to move away from the large-scale reclamation projects where massive amounts of concrete and tarmacs are injected, and move towards smaller-scale projects that are more in harmony with
the environment. Today, we are gradually realizing that at the center of the continued prosperity of the ecosystem, is the circular mechanism, symbiosis among the species and individual entities. We are also learning at the same time that the key to sustainable development is to internalize this circular mechanism of ecosystem in our economic system. Environmental problems arise from squandering the scarce natural resources, and the only way to prevent environmental pollution while enhancing the competitiveness of the society and the industry is to increase the productivity of resources through their circular usage. In this way, the environmental conservation and economic prosperity can become the two faces of a coin, and our society can move toward a knowledge intensive, dematerialized society.

The formation of a circular society is essential for greater competitiveness, and it can be achieved only when the society as a whole shares the view of respecting life based on deep understanding of the ecosystem. Korea is still in its initial stages of becoming a circular society in terms of its legal infrastructure, eco-industrial development, and construction of an ecological city. As there will be no future for us if we fail to cultivate our traditional culture and our historic heritage, we will lose the sight of the true development if we fail to conserve our tideland.

Korea will host the 10th General Assembly of the Parties to Ramsar Agreement, which will be held in South Gyeongsang province in 2008. The coalition for the environment must start building strategic options to best leverage the 10th General Assembly of the Parties to Ramsar Agreement, so that the vast majority of the public will support the preservation of tideland. The members of the coalition for the environment have a great responsibility and a challenging mission to achieve.
A Critical Analysis on Korea’s Tidelands Policy

In preparation for the upcoming 10th General Assembly of the Parties to Ramsar Agreement, we should engrave the following vision and principle to the general public: economic prosperity should be pursued not through accumulation of physical material but with a dematerialized, knowledge intensive approach, and developments pursuing economic growth should conform to the conservation of ecological diversity.

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요 약

한국의 갯벌정책에 대한 비판적 소고:
지속가능한 발전의 관점에서

문석웅

본 연구는 한국의 갯벌 간척 정책에 대한 개판과 더불어 문제점을 밝히고 미국, 네덜란드 및 일본의 관련 정책들과 비교하고 있다. 세안금 프로젝트의 특이한 점은 방조체 공사와 보상금 등으로 15년간 1조 원에 가까운 비용이 지출되었지만 향후 간척지의 용도와 추가비용 규모에 관해서는 사실상 확정되지 못한 상태에서 방조체가 완공된 점이다. 시의호에서의 역사적 실패사례에도 불구하고, 방조체 완공을 허용한 대법원의 판단은 서대초직인 편향적 개발관상의 정책을 용인함으로써 한반도의 모든 주요 갯벌이 사라지게 되고 한국의 생태적 다양성을 크게 위축시키는 결과를 초래할 것이다.

미국 대법원은 실제로 프로젝트의 95% 이상이 진행된 상황에서조차도 공사의 중지를 명령함으로써 미국 방철제의 희가적 전환을 불러 왔다. 간척의 대표국가인 네덜란드가 제출된 간척을 중단하고 역간척을 추진하며, 기존의 방조체도 해수유동이 가능한 시스템으로 개조하기 시작한 지 30여 년이 되었다. 일본은 국내습지들을 잃은 사이트에 대거 등록하는 정책을 추진함으로써 갯벌의 보전을 강화하고 있다.

한국도 대규모 간척 정책을 중단하고 생태적 다양성을 보전하는 자연에 대한 순응적, 소규모의 지식집약형 개발과 순환형 사회를 지향하는 정책전환이 필요하다.

주제어: 세안금, 갯벌 정책, 간척사업, 지속가능한 발전
A Critical Analysis on Korea’s Tidelands Policy:
From a Sustainable Development Point of View

Seogwoong Moon

Korea’s tidelands policy is examined and criticized in the paper. Korea’s major tidelands in the west coast might disappear within a decade. The anachronistic development is driven by the political interest group, forming coalition for reclamation and busily fulfilling its own profits under the facade of public good and regional development. But all regions of the world have been gradually scrapping the massive reclamation projects since the 1970’s and active movements to reverse the reclamation and restore the nature are on the rise.

In 1978, the U.S. Supreme Court decided to suspend the construction of the dam and to protect the snail darter despite that over 100 million dollars had been injected. This court ruling became famous and caused the American public to change their perception about the environment. In the Netherlands, following a prolonged discussion on pros and cons of reclamation, open type seawall was adopted to strike a balance among the available alternatives. Japan’s Ministry of Environment was praised for forming the National Wetland Committee in order to designate 20 new Ramsar sites by 2008, with an objective to reach 33 designated Ramsar sites.

Away from the large-scale reclamation projects, Korea has to move towards smaller-scale projects focusing on the knowledge-intensive and circular economy society that are more in harmony with the environment.

Keywords: Saemangum, tidelands policy, reclamation, sustainable development