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2014 Modularization of Korea's Development Experience:

Korea's Volume-based Waste Fee System: A Case Study for Presentation in the Classroom

2014

MINISTRY OF STRATEGY AND FINANCE

KAIST
COLLEGE OF BUSINESS

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Preface

The study of Korea's economic and social transformation offers a unique window of opportunity to better understand the factors that drive development. Within about one generation, Korea transformed itself from an aid-recipient basket-case to a donor country with fast-paced, sustained economic growth. What makes Korea's experience even more remarkable is that the fruits of Korea's rapid growth were relatively widely shared.

In 2004, the Korean Ministry of Strategy and Finance (MOSF) and the Korea Development Institute (KDI) launched the Knowledge Sharing Program (KSP) to assist partner countries in the developing world by sharing Korea's development experience. To provide a rigorous foundation for the knowledge exchange engagements, the KDI School has accumulated case studies through the KSP Modularization Program since 2010. During the first four years, the Modularization Program has amassed 119 case studies, carefully documenting noteworthy innovations in policy and implementation in a wide range of areas including economic policy, admistration·ICT, agricultural policy, health and medicine, industrial development, human resources, land development, and environment.Individually, the case studies convey practical knowhow and insights in an easily accessible format; collectively, they illustrate how Korea was able to kick-start and sustain economic growth for shared prosperity.

Building on the success during the past four years, we are pleased to present an additional installment of 19 new case studies completed through the 2014 Modularization Program. As an economy develops, new challenges arise. Technological innovations create a wealth of new opportunities and risks. Environmental degradation and climate change pose serious threats to the global economy, especially to the citizens of the countries most vulnerable to the impacts of climate change. The new case studies continue the tradition in the Modularization Program by illustrating how different agents in the Korean society including the government, the corporations, and the civil society organizations, worked together to find creative solutions to challenges to shared prosperity. The efforts delineated include overcoming barriers between government agencies; taking advantage of new opportunities opened up through ICT; government investment in infrastructure; creative collaboration between the government and civil society; and painstaking efforts to optimize

management of public programs and their operation. A notable innovation this year is the development of two "teaching cases", optimized for interactive classroom use: Localizing E-Government in Korea and Korea's Volume-based Waste Fee System.

I would like to express my gratitude to all those involved in the project this year. First and foremost, I would like to thank the Ministry of Strategy and Finance for the continued support for the Modularization Program. Heartfelt appreciation is due to the contributing researchers and their institutions for their dedication in research, to the former public officials and senior practitioners for their keen insight and wisdom they so graciously shared as advisors and reviewers, and also to the KSP Executive Committee for their expert oversight over the program. Last but not least, I am thankful to each and every member of the Development Research Team for the sincere efforts to bring the research to successful fruition, and to Professor Taejong Kim for his stewardship.

As always, the views and opinions expressed by the authors in the body of work presented here do not necessarily represent those of the KDI School of Public Policy and Management.

December 2014

Joon-Kyung Kim

President

KDI School of Public Policy and Management

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Chapter 1

Introduction to the Problem

1. A Modern Fairy Tale?
2. A Brief Sketch of Selected 20th-Century Historical Issues
3. The Waste Problem, c. 1990~1994

Introduction to the Problem

1. A Modern Fairy Tale?

At first glance, the story of Korea's Volume-based Waste Fee System (VBWFS) appears simple: as Korea underwent rapid economic development during the last third of the twentieth century, millions of formerly poor citizens became prosperous, consumed more, and thus generated ever-increasing volumes of waste. The country's new consumption habits overwhelmed the existing waste-management infrastructure, creating a looming, potentially horrific environmental crisis. Officials within the relevant government agencies observed how certain other countries had dealt with such issues. They therefore in the early 1990s weighed adopting a requirement for supply-side waste reduction, establishing a comprehensive recycling program, and creating a "polluter pays" regime. If this were a New Deal style fairy tale, the government entities involved might have waved their legislative and executive–order magic wands and made it all so, with happy endings to follow. But such was not the case.

Instead, a raging policy debate quickly emerged, involving officials at all levels of Korean government, environmentalists and other civil society organizations, industries, businesses and ordinary citizens across the country. All participants in the debate probably agreed that major changes were in order, but what those changes should be, who should pay for them, and how, remained hot topics of discussion for a period of at least four years. These events occurred at the same time that Korea was undergoing intensive socio-political "democratic consolidation" at the hands of a newly empowered civil society and a suddenly greatly expanded middle class.

The complexity and scope of the multi-faceted waste problem was enormous. It encompassed a vast production side that included industrial, construction and business waste, as well as the packaging materials provided with many consumer goods. It also incorporated a huge consumption side that was complicated by traditional food and eating habits, urbanization and verticalization of living space, newly acquired habits of consumption, and the citizens' sense of entitlement to free or nearly-free waste removal and treatment. Infrastructure issues were quite vexing, especially the obsolescence and impending exhaustion of Korea's landfills. Powerful "not-in-my-backyard" or NIMBY sentiment got squarely in the way of developing new sanitary landfills and waste incineration plants. Added to this was the oppositional role that Korean civil society organizations had played over the past thirty years or so: government officials in search of society-wide reform held scant hope of obtaining support for their proposed programs from environmental and other citizens' advocacy groups. On this fraught note we open our case study.

2. A Brief Sketch of Selected 20th-Century Historical Issues

2.1. Society, Economy, Politics and Environment

All accounts of Korea's history state that the country remained isolated from much of the world until the late nineteenth century, and only embarked upon a concerted course of modernization under the Japanese colonial regime that began in earnest after 1909. Until that moment, Korean traditional society existed in a fair state of harmony and equilibrium with its physical environment. According to researchers Kwang-yim Kim and Yoon Jung Kim, "careful recycling and reuse of resources was the norm, and the concept of 'wastes' was nonexistent."[1] That situation, as noted by Jae-Yong Chung and Richard J.R. Kirby, had been stable "over the previous millennium. The agrarian economy had not changed for centuries and urbanization remained at a low level." But that changed drastically with Japanese annexation.[2] The Ministry of Environment (ME) has stated that the country's

1. Kwang-yim Kim and Yoon Jung Kim, "2011 Modularization of Korea's Development Experience: Volume-based Waste Fee System in Korea, 2012," a project of Korea's Knowledge Sharing Program. The paper was supervised by the Ministry of Environment, Republic of Korea; prepared by the Korea Environment Institute; its research was supervised by the Korea Development Institute School of Public Policy and Management; and supported by the Ministry of Strategy and Finance, Republic of Korea, 23. This document is the main source of data and discussion throughout the case study to follow; it will be cited hereafter simply as Kim and Kim.

2. -Yong Chung and Richard J.R. Kirby, *The Political Economy of Development and Environment in Korea* (Routledge 2002), 141.

forest ecosystems in particular "had been devastated by overhunting during the early part of the 20th century, the ravages of the Korean War, and illegal cutting." Although much of the forests have been restored since the 1970s, biodiversity remains a serious problem, and "industrialization, urbanization, and the indiscriminate use of natural resources [continue to] endanger the existence of many species of wildlife."[3] Throughout the colonial period and thereafter, urbanization, industrialization and population growth affected the environment in numerous other adverse ways, most notably with regard to air, water and soil pollution. The waste creation/disposal/management problem grew hand-in-hand with the others.

In economic terms, Korea possessed significant exploitable resources, but these remained undeveloped until the Japanese colonizers began their concerted program of export-oriented extractive industry and intensive agriculture, along with light manufacturing. Even with such economic expansion, most of the population lived in considerable poverty until long after liberation from the Japanese in 1945.

Poverty persisted in Korea, greatly exacerbated by the wholesale devastation generated by the Korean War (1950~1953). Following the end of the war, the Republic of Korea, also known as South Korea, and hereafter simply as Korea, existed for a generation largely as a client of the United States and as an artifact of the Cold War. The ostensibly democratic government of Syngman Rhee (in fact not democratic at all) pursued various attempts at economic improvement, including an intensive program of import-substitution industrialization. But the country, its politics hopelessly corrupt, remained grindingly poor for most of the next generation. GNP per capita was only $67 in 1953; that figure rose to $87 in 1962, and to $288 by 1971.[4]

The Rhee administration did, however, provide "a basis for the emergence of an altogether new entrepreneurial element," according to Chung and Kirby. Rhee, unfortunately, applied the country's economic energy in the direction of "plundering" surpluses in U.S. aid intended for postwar reconstruction rather than harnessing the power of the state for economic growth.[5] In the wake of widespread civic and labor unrest, Rhee was deposed in April 1960. The short-lived Second Republic remained mired in economic backwardness, stagnation, and political unrest—a situation ripe for radical change, which began quickly to take shape following Park Chung-hee's coup d'état in 1961.

3. Ministry of Environment (ME), *Environmental Protection in Korea*, 1997, 12~13.

4. *Korea Statistical Yearbook*, Suh, 1992, 14.

5. Chung and Kirby, *The Political Economy of Development*, 53~55.

Under Park's first Five-year Economic Development Plan, labor-intensive industrial development quickly began to transform Korea's economy, but at great cost to the environment and the rapidly urbanizing population, which according to Chung and Kirby meant "appalling living and working conditions for ordinary Koreans." Of special note, "heavy and chemical industrialization combined with decentralization policies [which] both worsened and spread Korea's environmental problems."[6] This occurred despite the environmental protection provisions built into the country's constitution and subsequent legislation. As ME has pointed out, Article 35 of the Constitution gives all Korean people "the right to live life in a healthy and pleasant environment…" that includes "the basic right to clean water, clean air, and the natural beauty of the land." Moreover, the government passed specific enabling legislation in 1963—the Pollution Prevention Act, the country's first true environmental law—although it failed to provide "regulatory measures and practicability." A major revision of the Act in 1971 addressed emission standards and related issues, but citizens' concerns about pollution only grew over time, until a much stronger Environmental Preservation law was passed at the end of 1977, with the goal of preventing pollution. That law was reformulated in 1990 as six separate laws, all intended to address "the ever-worsening condition of the environment caused by industrialization in the 70s~80s…. As of May 1997, there are 24 environmental laws under the jurisdiction of the Ministry of Environment."[7]

Loved by many and reviled by many others, Park Chung-hee and his successive five-year plans for Korea's economy worked to great effect, although it must again be emphasized, at great cost to the Korean people's civil liberties and human rights, and to the environment. The most popular interpretation of the Park era stresses "the Miracle on the Han River," whereby the central government undertook a program of "guided capitalism" that entailed direct governmental participation in the economy closely modeled on Japan's postwar economic reconstruction. Historian Dan Oberdorfer (in agreement with many others who have studied this period) argues that Park took "personal charge" of his visionary development projects, "chose the firms that would be awarded contracts… and provided or withheld credit through government banks…."A few large well-organized and diversified commercial-industrial conglomerates—the *chaebol*—closely-held by tightly knit families, came to dominate the national economy, all with Park's open blessing. A further boost to economic growth came with normalization of relations with Japan in 1965, a highly unpopular proposition to most Koreans at the time; this resulted in many hundreds of millions of dollars of Japanese aid to

6. Ibid., 143.

7. ME, *Environmental Protection*, 43.

Korea plus billions of dollars in Japanese direct investment.[8] Ongoing major aid packages from the United States, heavy industrialization in Korea, and global economic restructuring combined to change the quality of life, indeed its structure and culture as well. Very slowly but surely, Korea began to prosper.

Kim and Kim argue persuasively (again, as do many others) that "environmental concerns were superseded by developing interests… [which] significantly threatened the environmental sustainability of the country's development." In a word, development trumped environment, a problem made much worse by Korea's high population density and "low environmental capacity."[9] Rural-urban migration accelerated sharply during the 1960s as millions of Koreans sough work in the rapidly expanding industrial centers. Sprawling squatter settlements suddenly blossomed in Korea's cities, causing what Chung and Kirby have called "foul living environments" due to the "juxtaposition of industrial and residential functions and the universal use of [high-sulfur anthracite] coal domestically.…" These authors describe living and working conditions to be positively Dickensian in their squalor, exploitation, and environmental degradation. Cognizant of the quickly deteriorating environmental conditions resulting from "especially severe industrial pollution," the Park government initiated in the late 1960s plans to relocate many of the country's factories, all the while in close partnership with the private sector, "externalizing the costs of production to society and the environment."[10]

As pollution-related health problems around some of Korea's principal industrial sites began to appear in the 1960s, an indigenous environmental movement started to take shape. Under the authoritarian rule of Park Chung-hee, nascent civil society groups struggled for their very existence against government-imposed restrictions, but citizens still managed to organize themselves to protest severe industrial pollution, although their efforts at that early stage lacked cohesion and continuity. Their principal activity at that time revolved around campaigns for compensation for damage caused by uncontrolled toxic industrial emissions that had poisoned the air, soil and water in the vicinity of the country's burgeoning factories. As Du-Wan Ku and others have pointed out, the early environmental activists lacked "a concrete ideology and organizational structure except for the victims' movement."[11]

8. Don Oberdorfer, The Two Koreas: *A Contemporary History* (Basic Books, 2001), 34~37.

9. Kim and Kim, 22.

10. Chung and Kirby, *The Political Economy of Development*, 142~3.

11. Du-Wan Ku, "The Structural Change of the Korean Environmental Movement, *Korean Journal of Population and Development* 25 (1), July 1996, 161; and Miranda A. Scheurs, "Democratic Transition and Environmental Civil Society: Japan and South Korea Compared," *The Good Society* 11 (2) 2002, n.p.

The significance of this brief story rests on four key points: first, despite government repression, citizens began openly to express their desire for a cleaner environment; a more focused and coherent movement would emerge in several stages in subsequent years. Second, even as Korean workers' material wealth and comfort began slowly to increase under the Park administration's development policies, the early environmental movement, such as it was, railed against the government and its policies—a clear manifestation of Korean civil society's early efforts to begin to democratize the polity in opposition to government practice. In Du-Wan Ku's words, "The Korean environmental movement started from the collective action of victims."[12] Civil society, in fact, maintained its oppositional stance until quite late in the game. Third, by the late 1970s, the government itself began publicly to recognize the seriousness of the pollution problem, signaled by its initiation of an environmental protection movement of its own, although at this time its principal concern was with "garbage littered by hikers, not industrial development by the government or business enterprises, which destroyed the environment on a large scale."[13] Chung and Kirby assert that although the environment had become a "hot issue" by the late 1970s, "the government was unwilling to take regulation seriously," instead pushing for "the more 'efficient' utilization of environmental resources." Moreover, the state placed "tight controls on media coverage of environmental issues," going so far as "suppress[ing] opposition and prevent[ing] it from coalescing into a political force."[14] Government "concern," in other words, remained a far cry from the real need to deliver a workable framework for environmental justice that would serve all Koreans.[15] Finally, an inescapable irony emerges from reasoned consideration of these first three points: Over the long term, the sources of Korea's environmental problems were industrial and business enterprises and "the government" (to be fair, that large latter category includes the Japanese colonial administration, the American military occupation, the Rhee and Park regimes, and subsequent administrations into the 1980s and 1990s). And yet when the VBWFS

12. Ku, ibid.

13. Ibid., 162.

14. Chung and Kirby, *The Political Economy of Development*, 143~4.

15. Kim and Kim offer a useful set of attributes to define environmental justice: transparent administration, provision to local residents of unbiased information about waste facilities, multi-lateral policy making, real assurances regarding the security of pollution treatment techniques, and suitable regulations (34).

was proposed in the early 1990s, under the rubric "the polluter pays," the polluter was the Korean citizen/consumer.[16]

2.2. Korea's Environmental Movement

The relationship between the evolving environmental movement, government agencies, ordinary citizens, democratization, and later "democratic consolidation," became ever more dense during the ensuing decades. By the mid-1990s—the moment of the introduction of the VBWFS idea—the roles played by the actors in these events changed in some surprising ways. It is therefore useful to examine briefly the ways and means by which the environmental movement itself evolved during the 1970s and 1980s.

Ku calls the years between 1980 and 1987 the "second period," notable for its anti-pollution focus. The year 1980 marked a key milestone along Korea's road to democracy. Hardly two months after Park Chung-hee's assassination in October 1979, General Chun Doo Hwan seized power and established military dictatorship anew in Korea. Between that moment and Chun's election to the presidency at the end of August 1980 (thanks to Chun's extraordinary political maneuvering, including approval by a "rubber-stamp college of electors"), the country experienced an intense spasm of democratizing fervor that came to an abrupt end with the Gwangju Uprising in May of that year.[17] Despite military suppression, a new democratic-nationalist movement emerged, one part of which was a distinct environmental anti-pollution wing. Ku points to a coalition of radical Protestant and Catholic clergymen that created the Korean Pollution Research Institute in 1982, along with several other explicitly environmentalist organizations, mostly regional in origin and focus, that established themselves by 1987. Ku distinguishes these from "the professional environmental organizations led by youths [who] strongly identified themselves as part of the nationalist-democratic movement.[18] Of particular interest is the fact that the national

16. The irony to which I allude is one of the main themes running throughout Chung and Kirby's *The Political Economy of Development and Environment in Korea* (2002). The authors are strongly critical of the successive administrations that drove rapid industrialization, urbanization and other elements of economic development at the great expense of human and civil rights and the environment. Their analytical framework emphasizes the centrality of the relationship between "state actions... [and] accumulation strategies on the one hand, and hegemonic projects and associated alliance strategies on the other (31)." Korea's sudden emergence as a high-consumption middle-class society during the 1980s and 1990s had devastating consequences on the environment, but the authors repeatedly point to the constraints upon citizens' life choices and political opportunities under generations of undemocratic governance. Thus they hold government, business and industry far more accountable for Korea's environmental woes than they do the rank-and-file population.

17. Oberdorfer, *The Two Koreas*, 163.

18. Ibid., 163.

government "regarded the anti-pollution movement as an anti-government movement," and attempted to keep the regional groups from allying with the professional organizations.[19]

According to Ku's chronology, a new environmental movement took shape between 1988 and 1991, another intensive and far more successful period of real democratization. With the collapse of the Chun regime after June 1987, citizens became much more active in environmental matters. A wholesale change in "the political opportunity structure" gave rise to the birth of numerous professional as well as citizens' organizations. The earlier "victims' movement" exerted more influence than ever, but as Ku points out, "changed in quality in that the campaign for damage compensation expanded to include a damage prevention movement" that extended far beyond local and regional interests, "to the general issue of the life and health of all citizens." With increasing democratic consolidation, the nationalist-democratic movement faded from view, but other issues of great importance to Koreans, as expressed for example by the Citizens' Coalition for Economic Justice (CCEJ), as well as the YWCA and the YMCA, took up the environmental cause.[20]

Many of the organizations that took root during the late 1980s expressed strident ideological positions, inspired by such statements as the Pollution Research Institute's 1986 Anti-pollution Declaration, which asserted in no uncertain terms that

> Pollution represents the integrated problem of all contradiction in our society. Pollution, the product of monopoly, oppression, and the division of the Korean Peninsula, destroys our life, consciousness, and the fatherland we stand on.… The termination of the anti-popular [Chun] regime, which imports the pollution industry on behalf of multinational corporations and allows the pollutions emission of monopoly capital, is the shortcut solution for the problem of our country.… Democratization has an inseparable relationship with the solution of the pollution problem.[21]

The YMCA and CCEJ articulated their own harsh critique of the status quo, although as Ku points out in a more recent essay, such organizations "criticized the anti-pollution movement's radical strategies and insisted upon more professional and public-oriented activities."[22] They found fault not only in the government's poor regulatory regime, but

19. Ibid.

20. Ibid., 163~4.

21. 1986 Anti-pollution Declaration: *Pollution Study*, Vol. 13, July 20, 1986 [*sic*], quoted in Ku, 167.

22. Do-wan Ku, "The Korean Environmental Movement: Green Politics Through Social Movement," in J. Broadbent and V. Stockman (eds.) *East Asian Social Movements*, Nonprofit and Civil Society Studies (Springer Science + Business Media, 2011), 205.

also in "the absence of civic ethics, [and] a distorted economic structure, ideology, and culture."[23] I believe that this point of view was instrumental in the policy debate surrounding the VBWFS proposal, in that it implied, if not emphasized, the need to change citizen behavior for the sake of environmental sustainability. Ku supports this notion, asserting that during this third stage, citizens'-movement organizations began to advocate lifestyle changes, including "garbage selective collection [*sic*] and the recycling campaign."[24] Leftist environmentalism gave way to a "realist environmentalism that accepted institutionalist reform and environmental managerialism."[25] Here, Ku alludes to what I earlier characterized as a looming environmental disaster—the meteoric rise in municipal waste that accompanied Korea's economic miracle between the 1960s and 1990s. As more and more Koreans earned the disposable income needed to consume the goods deemed essential for an affluent middle-class lifestyle, they generated a staggering amount of garbage that existing methods and infrastructure could no longer handle effectively.

3. The Waste Problem, c. 1990~1994

Kim and Kim trace the origins of Korea's waste problem to the "arrival of industrialization and the transformation of living styles" beginning in the 1960s.[26] They note that municipal waste generation amounted to 37,716 tons per day in 1981, or 1.77 kg per capita, considerably greater than Germany (0.7kg) and Japan (0.8kg) at that time. A large component of Korea's waste was ash from coal briquettes, widely used as cooking and heating fuel; high-moisture food waste, a particular artifact of Korean culture, was another major contributor to the rapidly growing problem. By 1985, Koreans generated 57, 518 tons of waste per day (1.95kg per capital) of which coal ash comprised 47.5%.[27]

"Proper management of generated waste" was the hallmark of the regime before VBWFS; thereafter it became "optimum generation and treatment of waste," which represents just a hint of the paradigm shift that was proposed in 1994.[28] As Kim and Kim go on to demonstrate, "proper management" had utterly failed to head off the incipient

23. Ku, "The Structural Change," 169.

24. Ibid., 175.

25. Ku, "The Korean Environmental Movement," 210.

26. Kim and Kim, 23.

27. Kim and Kim, 23~4. The authors do not distinguish between "municipal waste" and "total waste" on this page, and the difference between the two figures noted clearly suggests a tremendous increase over just four years, if indeed they are comparing "apples to apples."

28. Ibid., 24.

crisis. The new regime, to be anchored by the proposed VBWFS, would include a massive recycling system, incineration, and an "extended producers responsibility" mandate, all with the ultimate goal of creating a zero-waste society by 2044 that would no longer need to rely on landfill.

The pending exhaustion of Korea's landfills by the late 1980s provided the wakeup call for a radical restructuring of the way the country handled its trash. Until that time, local governments employed workers to use human-powered wheelbarrows to collect household wastes from receptacles placed in front of residences on designated days. According to Kim and Kim, such collected wastes were transported to neighboring fields or paddies, used in embankments, or dumped in landfills. "At all times, the landfill method was simply open dumping, and such practices continued until the late 1980s."[29] The case of Seoul's Nanjido landfill suggested the urgency of the need for fundamental change. Created on an island on the Han River in an area that was marginal to the city in 1978, between its inception and 1993, 92 million tons of trash, divided between household, construction and industrial wastes, were built into "two massive mountains of garbage measuring over 90 meters in height."[30] During a period of rapid urbanization, the city grew up around the dump; what was once marginal land had become prime urban space. One newspaper account notes that Nanjido was "once a beautiful island known for its array of flowers, cabbage, radish, cantaloupes and peanuts, which were widely cultivated…." But after fifteen years of dumping, "the island was transformed into a huge mountain of garbage which depicted a mirror image of a pyramid, 34 times larger than The Great Pyramid of Giza in Egypt."[31] Since its closure in 1993, the site has undergone massive rehabilitation, slated for final completion in 2020. But that is another story. For purposes of the present discussion, Nanjido came to stand for the exhaustion of existing landfill sites, the disappearance of urban land suitable for use for future landfill, the power of negative public sentiment in Korea (cf. "NIMBYism," below), and the considerable environmental damage caused by indiscriminate dumping: thus the need for a new waste paradigm.

In lock-step with Nanjido's lifecycle came local residents' increasing awareness of the fragility of the environment, marked by rising opposition to the establishment of new waste processing infrastructure such as incinerators, landfills, and intermediate

29. Ibid., 29.

30. Ibid.

31. Yongkyu Kwon, "South Korea's dumpsite becomes sanctuary, "*Trinidad and Tobago Guardian*, Monday, May 9, 2011. http://www.guardian.co.tt/business/2011/05/08/transforming-landfill-eco-park, accessed 1 November, 2014.

processing plants.[32] When localized, such sentiment is frequently referred to derisively as "NIMBYism"—NIMBY being the acronym for "Not In My Back Yard." NIMBYism is often equated with elitism, as when residents of affluent neighborhoods object to potentially obnoxious developments within their immediate vicinity. But NIMBYs often have valid concerns; with regard to waste management, those might well include toxic emissions, such as dioxins from incinerator exhaust; methane emissions from rotting organic wastes—a prime greenhouse gas; toxic leachates descending to the water table, and more. Kim and Kim point out that the urgency of the waste situation resulted in government plans in 1987 to build garbage incineration plants, sanitary landfills, and intermediate treatment plants "all over the country"; however, investment costs, rising land prices, and the civil complaints of residents stood in the way of implementation. Shortly after the VBWFS was proposed in 1994, the government in 1995 passed a law for the comprehensive "Promotion of Installation of Waste Disposal Facilities and Assistance etc. to Adjacent Areas," but NIMBYist pressures account for twenty-five amendments to the Act between its introduction and 2008.[33]

NIMBYism may also arise when local communities distrust impositions on them from more remote political entities such as provincial or national governments. In these cases, local residents may feel that the distant government has infringed upon their individual rights or failed to communicate policy needs and concerns effectively; Kim and Kim suggest that this was indeed the case in Korea as the trash situation approached crisis level. Paradoxically, "when the local autonomy system was introduced in the early 1990s, waste management, waste reduction and recycling became more complex."[34]

32. Kim and Kim, 32.

33. Ibid.

34. Ibid. 34.

Box 1-1 | A Visit to the Nowon-gu Resources Recovery Facility

Waste management officials in the Nowon-gu municipal office explained to me that NIMBYism was strongly in play when the city announced its intention to build a much-needed trash incineration plant squarely within the confines of Seoul's second-largest residential gu (autonomous district). Residents and civil society organizations staged strident and persistent demonstrations against the plant, backing down only when they received ironclad assurances of the plant's environmental friendliness, including a promise of odor- and toxin-free emissions, as well as construction of a community activity center adjacent to the plant. Nowon-gu officials today point to the plant's efficiency and throughput with obvious pride, noting its complete integration within the community since its inauguration in 1997.

Information based on personal interview with Nowon-gu waste management officials (including KDI School masters candidate Jungjai Kim), 9 October 2014.

As Korea's mass-consumption society emerged full-blown after 1990, the trash problem only continued to grow. Some of the statistics cited by Kim and Kim seem ambiguous. For example, according to a table taken from the Dong-A Ilbo newspaper in 1966, total waste (municipal plus industrial) generation increased from 145,374 tons per day in 1990 to 158,376 tons per day the following year, then declined to a low of 141,383 tons in 1993 before bouncing back to 147,049 tons per day in 1994. But over the same four-year period, per capita generation fell from 2.3kg per day to 1.3kg per day. Comparisons of Korea to other countries are less ambiguous: with regard to municipal waste in 1988, Koreans discharged 1.8kg per person per day, while in the U.S. it was 1.3kg; in Japan 1.0kg; in the U.K. and Germany, 0.9kg. The food-waste comparison is at least equally striking: Korea—0.52kg; Japan—0.37kg; Germany—0.27kg; and U.K.—0.26kg.[35]

Leaving aside the question of pre-VBWFS weight measurements, the impact of Korea's newfound culture of consumption requires consideration. Kim and Kim explain the food-waste situation in terms of both traditional habits and those that emerged with the post-Miracle consumption patterns, whereby Koreans tend to serve excessive amounts of food at home and in restaurants as a sign of hospitality. Also, preparation of traditional Korean foods such as kimchi generates "a lot of vegetable waste."[36] More troubling in the realm

35. Ibid., 32.

36. Ibid., 33.

of the new consumption is the large-scale increase in other municipal organic wastes such as paper and textiles, along with inorganic wastes containing harmful substances such as batteries, light bulbs and plastics—ubiquitous in home appliances. Add to the mix disposable razors, toothbrushes, plastic bags, wooden chopsticks, wet paper towels, paper cups, other paper products, and Styrofoam. These items and materials decompose very slowly if at all, whether landfilled or reclaimed. Kim and Kim point out that when incinerated these materials can generate toxic gases such as dioxin, and thus any disposal scenario "incurred the fierce opposition of local residents and environmental groups."[37]

37. Ibid.

Chapter 2

The Enormity of the Problem

1. Selected Forces Generating Major Change in Korea, 1909~1994
2. Paying a Fair Price
3. Evolution of the Legal and Administrative Framework Regarding Waste

The Enormity of the Problem

How might we sum up the big picture so far? Consider the following chronological/topical outline, telescoped and incomplete as it may be:

1. Selected Forces Generating Major Change in Korea, 1909~1994

a. The Early Years

i. Colonization and annexation by Japan, which brought with it infrastructure development, export-oriented agriculture, and extractive and light manufacturing.

ii. Also important to this phase, environmental degradation, political repression.

b. Liberation, War, U.S. Occupation, Division of the Korean Peninsula, the First Republic

i. Economic and environmental devastation;

ii. Political corruption and dependence on U.S. aid;

iii. Birth of a "new entrepreneurialism";

iv. Import-substitution industry;

v. Continued grinding poverty.

c. The Park Chung-hee Era

i. Emergence, evolution and dominance of the chaebol;

ii. Export-oriented industrial development, especially heavy and chemical industries;

iii. Intensive infrastructure development;

iv. Rapid economic development clearly at the expense of human and civil rights and the environment;

v. Slowly rising affluence and new habits of accumulation and consumption;

vi. Emergent environmental consciousness and oppositional civil society.

vii. Among other serious environmental problems, major issues with generation, disposal and management of wastes.

d. The Blossoming of the "Miracle on the Han," Democratization and Environmentalism

i. Consolidation of and alliance of democracy, civil society and environmental movements;

ii. Emergence of an affluent modern middle-class consumer society;

iii. A more ideological environmental movement, still positioned in opposition to the government; concerned with victim compensation, pollution control, and environmental justice.

iv. A waste-management regime on the verge of exhaustion and collapse.

e. Attempts to Establish an Effective Waste Generation/Disposal/Management Regime take Shape—The Next Big Element of the Story

So far, this discussion of the impending environmental crisis in dealing with Korea's municipal wastes has considered the landfill issue in some detail, as well as incineration. "Separate collection" and recycling were two further methods needed to complete a fully functional contemporary waste-handling regime. Separate collection—in other words, requiring consumers to separate moist food waste, recyclable waste (e.g., paper, cardboard, plastics, bottles, metal cans, etc.), and non-recyclable waste for separate collection—entered the discourse during the late 1970s, but problems with insufficient infrastructure, vague standards, and "conflicts between garbage haulers" arose as obstacles to effective

implementation. The fact that no infrastructure to handle recycled materials existed at the time generated annoyance and skepticism among the public. Separate collection, Kim and Kim note in the present-perfect tense, became compulsory in 1991, accompanied by stiff fines for violators. Even so, the authors claim that "separate collection has not taken root among citizens."[38]

2. Paying a Fair Price

To establish a comprehensive, fully functional, effective and efficient waste handling regime, Korea would need to put the many different pieces in place and satisfy the needs, desires and demands of many different constituencies, and all in ways that would ensure environmental sustainability. Pressure to create such a system had been building for years, and as events took their course, the inevitable question landed on the table: Who would pay for it and how? This issue indeed rests at the heart of any analysis of political economy. Kim and Kim suggest that the money question was at least as contentious as any other in this matter. As of 1994, Korea had not yet achieved fiscal self-reliance with regard to waste handling. At that time, collection fees covered only 15% of the cost of disposal (cost: KRW 962 billion; fees collected: KRW 142.8 billion). Citizens paid a waste fee calculated by a formula based on the building area enclosed by apartment houses and a property tax on detached houses. The amount paid by households was tiny, about KRW 5000 per month (approximately USD 4.60, at the current rate of exchange).[39] The assumptions supporting this formula were false—"there was," according to Kim and Kim, "no direct relationship between the generated waste and waste fee, and it failed to encourage waste reduction."[40] As then-director of the Ministry of Environment's division of waste management Dr. Jae-Kon Shim put it, this situation produced a "heaven for trash" for households, which could dispose of as much refuse as they wanted, placing it in front of their houses and in the streets. "Heaven," however, caused sanitation problems in apartment-complex basements thanks to growing "mountains of trash" that attracted rats, cats and cockroaches. The waste problem had by now become extremely urgent.[41]

38. Kim and Kim, 35.

39. Jae-kon Shim, interview by Abraham J. Shragge and Hye Jin An, October 31, 2014. Translated by Hye Jin An.

40. Kim and Kim, 37.

41. Shim interview, op. cit.

Increasing volumes of waste, scarcity of suitable property for new landfills, lack of modern waste treatment technology and facilities, snowballing related (and unrelated) environmental threats, exploding NIMBYism, oppositional civil society, inadequate funds to deal with all this. What was the country to do? Kim and Kim offer a succinct answer: "revolutionary measures" were needed. The first step in the coming and utterly necessary paradigm shift was "reducing waste volumes to be treated before the waste was discharged…. The primary focus should be on how to reduce waste volumes before generated or discharged rather than how to treat waste efficiently…." Moreover, such needed to be accomplished in an environmentally sound manner, and that would surely generate more social cost. Thus in the 1990s, the new paradigm for "Sustainable Waste Management" entailed reducing volumes of potential waste before they were even generated, controlling demand for waste services, concerted recycling of wastes, and shared responsibility between government entities at all levels of governance in cooperation with consumers and producers. Of special importance was the enhancement of "public awareness of waste issues and inducing ordinary people to participate in activities for reducing waste volume"—the essential involvement of civil society.[42] The authors depict the paradigm shift as detailed in the following table:

Table 2-1 | Paradigm Shift of Waste Policy as of 1990

	Before 1990	1990s
Paradigm	Service Supply	Demand Control
Goal	Expand Treatment Facilities	Reduce Waste, Increase Recycling
Tools	Fixed Rate Waste Fee	- Volume-based Waste Fee System - Deposit-refund System - Waste Charge System - Packaging Waste Reduction - Control over the Use of Disposable Goods

Source: Kim and Kim, 38.

42. Kim and Kim, 37.

3. Evolution of the Legal and Administrative Framework Regarding Waste

Between 1961 and 1992, dealing with waste issues in Korea underwent numerous legal and administrative changes, as Kim and Kim have detailed. The following is a brief chronological enumeration of some of the most important items:

- 1961: the Waste Cleaning Act, to treat waste and excreta.
- 1963: the Environmental Protection Act.
- 1977: the Environmental Protection Law—overall environmental and sanitation regulations, including waste treatment.
- 1986: the Waste Management Act—classification of wastes, governmental and citizen responsibilities, waste management plans, standards and rules for waste discharge and treatment procedures, certification for treatment of certain wastes, etc.
- 1992: Act on the Promotion of Resources Saving and Recycling—roles and responsibilities of enterprises and citizens for promoting waste recycling; waste labeling system; separate collection and discharge of recyclable wastes; regulations for the reduction of packaging waste; Waste Charge System.

From this list we learn something of the extent to which the Korean government became increasingly concerned about the waste problems in the country, and how government brought enterprises and citizens increasingly into the discourse over time. As demand for a more comprehensive and environmentally effective waste system evolved, the question of finance appeared ever more urgent. Kim and Kim note that "financial viability was very low," and that even with "dramatic" budgetary increases occurring after 1990, as <Table 2-2> demonstrates, not nearly enough money was made available for the urgently needed and desired system.[43]

43. Ibid., 44.

Table 2-2 | Waste Management Budget 1987~1995

(Unit: 1 million KRW)

Year	Total	State Budget	Local Budget	Loan	Municipal Bond	Etc.	Fee Collection
1987	155,726	500	145,590	9,636	-	-	16,319
1988	153,041		146,361	3,094	-	2,777	28,118
1989	191,111	1,012	187,131	30	-	2,329	32,726
1990	377,379	119	370,504	6,756	-	-	53,182
1991	507,799	5,320	492,673	4,616	200	4,690	71,633
1992	662,127	3,750	606,867	3,565	7,711	40,234	78,790
1993	888,571	9,682	861,442	-	7,833	9,560	97,095
1994	1,049,935	19,818	984,159	-	11,811	34,147	142,800
1995	1,173,971	41,242	1,105,791	-	26,867	71	

Source: Kim and Kim, 44.

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Chapter 3

The Function and Meaning of the Volume-based Waste Fee System

The Function and Meaning of the Volume-based Waste Fee System

1. Changes on Many Levels

Despite the fact that VBWFS was envisioned merely as "an economic incentive to resolve the waste problem," and as "a method to reduce waste," Kim and Kim argue persuasively that "in practical terms, [the idea] wielded huge influence on politics, economy, society and culture as an important economic instrument in the environmental sector." The program was certainly meant to produce some major beneficial environmental outcomes.[44]

Stated in brief and simple terms, VBWFS was intended to require consumers to purchase and use special, official trash bags available from any of a multitude of accessible retail outlets. The special bags were to be imprinted with the mark of the local government, and as Kim and Kim point out, "[as] such, the waste bag …[would be] like an official document because it carries the mark of the city hall or borough office."[45] The program called for the bags to be available in several sizes, and the proposed rules clearly specified what wastes may and may not be placed in the bags. Waste collections times would be set by local municipalities; apartment dwellers would place their bags in a special container within their apartment complex, and residents of single-family homes were to place their bags in front of their houses at specified times, to be picked up by regularly scheduled garbage trucks. The cost of the bag, while not exorbitant, would represent citizens' only payment for collection, treatment and disposal of their trash. Thus the program carried a built-in economic incentive: the less waste households or small businesses generated, recyclable and otherwise, the less they would have to pay for its removal and treatment.

44. Kim and Kim, 46.
45. Ibid., 47.

The fact that residents would have to pay anything at all more than the minuscule tax levy that prevailed under the old system seemed to present a perverse incentive to evade the proposed regime by dumping household and small-business trash illegally. As momentum within the Ministry of Environment gathered to promulgate VBWFS, questions about how to deal with illegal dumping entered the discourse with increasing intensity. Most pressing among them were the following:

- How to prevent trash disposal in "inappropriate places" such as remote hillsides or valleys?
- How to enforce use of the official bags as opposed to using any non-standard bag that might be readily at hand?
- How to prevent illegal incineration?
- How to prevent households or businesses from dumping their trash in receptacles in public places such as street locations, parks, amusement venues, resorts, stadiums, and others?

Under the proposed VBWFS, small businesses that generate limited wastes were to be governed by the same rules as ordinary consumers; larger businesses and industries would have rules of their own they must follow. Of great importance to the viability of the VBWFS idea was the concomitant recycling system, which would require residents "to separate the recyclable waste into recyclable item disposal bins"; these items are also collected at regular designated times. Food wastes were to be placed by apartment dwellers into food-waste-only bins, and "regular household residents [would] discard them in food waste-only bags." According to the plan, these would be collected every day or every other day "depending on [the] municipality's capability."[46]

2. The Situation Comes to a Head

During 1994~1995, several powerful forces converged to shape the future of Korea's environment, at least with regard to the waste problem: the growing environmental consciousness among Korean citizens; the increasing influence of civil society organizations, especially environmental NGOs; the maturing "democratic consolidation"[47] then underway

46. Ibid., 65.

47. For a thorough analysis of this concept, see Sunhyuk Kim, "South Korea: Confrontational Legacy and Democratic Contributions," in Muthiah Alagappa, ed., *Civil Society and Social Change in Asia: Expanding and Contracting Democratic Space* (Stanford University Press, 2004), 138~163.

since 1987 that included the establishment of a local-autonomy system; and the positioning and engagement of certain government officials. With particular regard to civil society, Kim and Kim assert that "the most important factor for the successful implementation of [VBWFS]" would be the "cooperation of the public," which might only occur by the collaboration of many disparate yet like-minded groups that helped engender the public's critical need for "ownership" of the program. The "active involvement of local residents," the "shift from perfunctory committee gatherings" to meaningful face-to-face encounters between citizens and officials, and "intensive educational sessions" in municipal district offices would be vital for the proposal to go forward.[48]

According to environmental activist MiHwa Kim, environmental groups and government agencies, normally at loggerheads on almost every issue, had managed to find at least some common ground in the recent past as they had battled over the Nanjido Landfill site. Environmental NGOs had gained public recognition thanks to their opposition to Nanjido, and discussions between these groups and government officials, both at the national and local level, now seemed as if they might take a turn for the better, with particular regard to questions about promoting consumer recycling efforts and a promising volume-based waste fee system that government officers had observed overseas. The dialogue over the latter idea, however, remained fraught: citizens opposed the increased cost of waste collection they would face under such a system, and for their part, government officers feared an increase in illegal dumping, both as a result of the cost to consumers for the proposed expense of purchasing the mandated trash bags and the fact that public trashcans might be removed from the streets to avoid their inappropriate use for household waste.[49]

The Ministry of Environment's Dr. Jae-kon Shim had studied programs then in place in Japan, Switzerland and Germany. He felt that the German one, which charged households based on the volume of trash they produced, to be most appropriate to the circumstances in Korea. He noted that a principal difference between Germany and Korea was trash trucks' access to households. Given Korean cities' narrow streets and dense residential development on steep hillsides, Korea would need to devise particular methods for households to place their trash outside for convenient pickup. This was the subject of intensive discussions between various government officers. They eventually settled on the use of trash bags rather than cans, but on this point environmental NGOs voiced their opposition to the proposed plastic material of the bags, which on the one hand would have to be strong enough to hold

48. Kim and Kim, 87, 99.

49. MiHwa Kim, interview by Abraham J. Shragge and Hye Jin An, September 6, 2014. Translated by Hye Jin An.

up outdoors under rainy and snowy conditions over periods as long as three days, but on the other hand would have to biodegrade over a reasonably short period so as not to add to the existing trash problem.[50] Other problems loomed large in Dr. Shim's mind at the time, not least among them his repeated but unsuccessful efforts to gain the ear and support of Korea's president, Young-sam Kim. There was also the matter of bringing around local governments to back implementation and enforcement of such a program should the great day ever arrive. Given citizens' objections to the anticipated cost and "tiresomeness" of the proposed rules, including the requirement that they separate out recyclables by themselves and use appropriately designated trash bags for everything else, the enforcement question, with particular regard to prevention of illegal dumping, seemed to defy solution.[51]

Recycling was of special interest to another key player at the time, Professor June Woo Park, who in 1990 had just returned to Korea from an extended period of study and work in the U.S. Professor Park helped found the Academy of Environmental Economics, part of the purpose of which was to reform Korea's environmental regulatory regime by applying market incentives. As an advisor to the central government, Professor Park sought to encourage citizens to do their part by expanding recycling activities, but as the recycling business itself was not profitable, it seemed clear that a subsidy was needed. There was no room for such a subsidy within the government's budget. Under his guidance the Academy studied other possibilities for about a year, and established the principal of "Extended Producer Responsibility (EPR)," which was already in place in Germany and elsewhere overseas. Under this program producer industries—in other words, those who made the products that became trash, such as packaging—would underwrite the needed recycling subsidy. Not surprisingly, the producer enterprises organized themselves to object strenuously; their opposition threatened to stall the effort indefinitely.[52]

Professor Park also worried about the thorny issue of efficient collection of consumer waste. Under the existing regime, it was left to waste collectors to separate the aggregated household wastes. This was a costly process; better to have the consumers do it themselves by separating out the recyclable waste from the rest. Consumers, moreover, would be called upon to separate wet food waste from other refuse. The very idea seemed burdensome and bothersome to citizens: how to incentivize the process?

50. Shim interview, op. cit.

51. Ibid.

52. June Woo Park, interview by Abraham J. Shragge and Hye Jin An, October 14, 2014.

Perhaps most vexing of all were the combined political and social objections that emerged as the plan for VBWFS took shape. It seemed that nobody liked the plan. For some households, the cost of trash removal would surely double or even triple. The Minister of Internal Affairs resisted the idea, as did representatives of "all" the local governments, who at that time were under the control of the ministry. The newspapers and other organs of mass media insisted on the impossibility of VBWFS as it appeared to be an unfairly regressive tax, affecting the poor much more heavily than the rich.[53]

In sum, by 1994, Korea's waste problems seemed on the brink of boiling over. Even so, the several classes of stakeholders so far identified that included government officials high and low, environmental and other civil society groups, and citizens of all descriptions, seemed hopelessly to disagree with one another about what to do. There were proposals on the table to establish a "producer responsibility" law to reduce the generation of waste on the supply side; to implement a thoroughgoing recycling program; to build several high-tech, environmentally friendly incineration plants and "sanitary landfills"; and a Korean version of a tried-and-true volume-based waste fee system. Clearly necessary at this point was consensus, from bottom-to-top and top-to-bottom, if the country was to stave off disaster. No one doubted the need for radical reform of the waste systems then in operation, but radical reform appeared too large and bitter a pill to swallow for many of the stakeholders.

Note to students and instructors:

The three chapters above provide brief background discussions on several important aspects of Korea's social, political, economic and environmental history, leading up to a set of major problems in dire need of solution. Students should at this point be prepared to imagine themselves as participants in the events described. Based on the number of students participating, local context of the classroom activities, and other considerations that instructors and administrators may include, the activities might focus on the long-term processes discussed above, or on a more limited contemporary framework. In any case, the main goal of the teaching module is to give students the opportunity to grapple with the issues, seek realistic solutions, and arrive at a workable consensus, all based on the facts as presented.

In the chapter that immediately follows, the narrative continues through the historical resolution of the problems. I recommend that students read this chapter, ***but only after they have concluded their classroom activities***. Then they and their instructors may make useful comparisons to what the students accomplished vis-à-vis the actual events.

53. Ibid.

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Chapter 4

A Happy Ending, After All

A Happy Ending, After All

1. Reaching Consensus

In 1994, thanks to strenuous efforts exercised by many different parties to the problems discussed in the first three chapters, a deal was struck to implement a pilot VBWFS program in thirty-three localities around Korea for a period of one year. If the pilot succeeded, the program would be applied nationwide. If the pilot failed, VBWFS would be cancelled. Civil society groups agreed to monitor the pilot projects, interviewed citizens affected by it, transmitted information about problems with the program to government officials, and as they began to witness success, advocated for its wider acceptance. At the end of the year, most of the initial problems with VBWFS had been solved, so it was established nationwide in 1995.

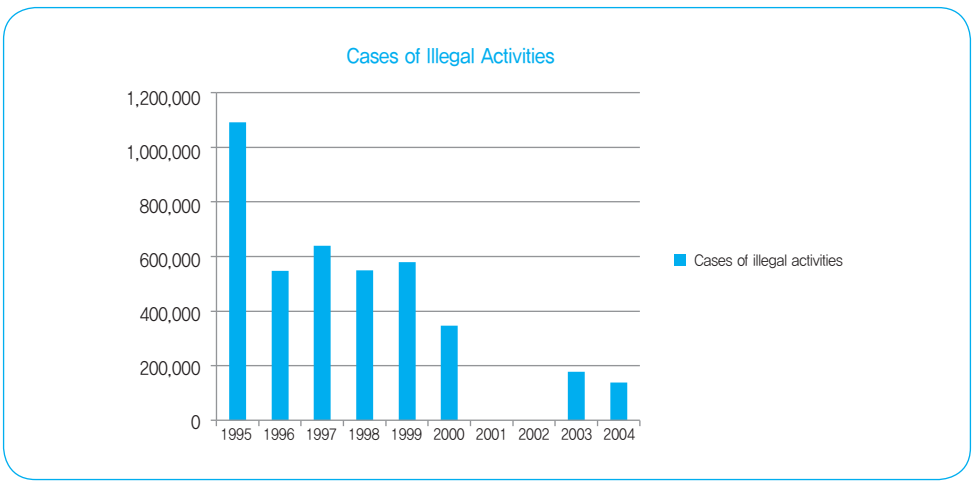
The pilot projects were funded by the Ministry of Environment, but the civil society organizations involved raised individual donations and earned some money for their operations from product sales. But the CSO staff earned no wages at the time; they were people who cared about and valued the state and its interests—real altruists.

One downside to the full implementation of VBWFS was the removal of pubic trash bins from the streets, done to prevent illegal dumping. And as Korea has become a more popular tourist destination in recent years, trash on the street has become a notable problem.

To address the anticipated problem of illegal dumping that was sure to occur once residents had to pay for their trash removal, the Ministry of Environment implemented a rigorous penalty system, to be enforced in part by ministry officials who were given the power to issue citations requiring expensive fines to violators. Local government officials, as well as

various other individuals, were deputized to monitor and cite violators. A vast network of closed-circuit television cameras was installed to help with enforcement. After six months, Dr. Shim noted in our interview, "the situation was very much improved," as <Figure 4-1> below suggests. The issue of street trash, once public trash bins had been removed, presented the public with "a good opportunity to adopt environmental consciousness."[54]

Figure 4-1 | Cases of Illegal Dumping Nationwide



Source: Korea Environmental Policy Bulletin, "Volume-based Waste Fee System in Korea," January 2006, 17.

When asked what advice he might offer developing countries now grappling with their own waste crises, Dr. Shim suggested that per capita GDP (PCGDP) was a critical issue—people had to have enough disposable income to afford a program such as VBWFS. In countries with PCGDP below USD 10,000, citizens would find it difficult to care about the environment and pay for its stewardship. If, however PCGDP was above USD 30,000, government should pay for waste management through taxation. In 1994, when VBWFS was under discussion, PCGDP was USD 9,800, "now or never," in Dr. Shim's opinion. Korea, he believes can provide valuable lessons to other nations in these matters, particularly in Southeast Asia. Taiwan, Japan and parts of China have already adopted a VBWFS similar in many ways to Korea's.[55]

54. Shim interview, op. cit.

55. Ibid. Different country-specific PCGDP criteria should be considered when this case is presented overseas.

One of our interviewees, Professor June Woo Park , provided further insight into the ultimate success of VBWFS. He found the combined political and social objections that emerged as the plan for VBWFS took shape to be especially difficult to overcome. So he held a conference with members of the Ministry of Environment, telling them that no one policy can solve every problem, but that VBWFS would so greatly enhance efficiency that it should be tried, even if that meant some sacrifice in equity—in fact, there was no other way. Professor Park next recommended mobilization of the NGOs, a novel suggestion given that NGOs had neither the habit nor inclination to work with government. He was able to turn that around by procuring some research funding to support a newly-formed federation of local NGOs to monitor and evaluate the VBWFS pilot over a period of one year—"the first time in Korea's history that NGOs worked with government." And Professor Park promised the NGOs that if their evaluation was negative, he would halt VBWFS.

The federation, called "People for Solving the Waste Issue," mobilized local citizens to help monitor and evaluate the experiment, augmented by participation of local government officials. To obtain the buy-in of the local government officials, Professor Park's team organized the aforementioned workshops on Jeju Island, where attendees socialized, learned, relaxed, and adopted a reward system for successful implementation of VBWFS. According to Professor Park, unknown to the local government officials, the reward system generated competition between localities, in the end a highly effective "race to the top."

While the NGOs and local citizens alike were negative and resistant to VBWFS at first, their opinions turned around in only a month's time. Six weeks into the pilot program, the NGO group reported strongly in favor of the program, saying, "This is necessary for Korea; we will support the system and change it." Although Professor Park is unable to explain why the turnaround occurred so quickly, he is quite sure that the NGOs having observed how well the waste-bag system worked in practice, their ability to educate the public on both the ways and means of, as well as the environmental necessity for such a major innovation, and devolution of power to local governments—a major step along the road to the consolidation of democracy in Korea, and a real triumph for civil society—combined to create the sudden and favorable tipping point.

At the end of our conversation, Professor Park reminded us that Professor Shim, discussed above, was "the true hero" of VBWFS. As he maneuvered the process between national government, local government and NGOs, risking loss of his job to obtain a meeting with the President of Korea, Dr. Shim received "many threats" on his life by waste

dealers operating on the fringe of society who feared loss of income should VBWFS be implemented. Civil society is not for the faint of heart![56]

2. Insights from Korea's Experience for Developing Countries

2.1. A Brief Digest of Korea's Waste-prevention and Minimization Achievements

According to a 1997 report by the Korea Environmental Institute, the country's waste minimization and recycling programs by that time had quite surpassed the United States in several significant ways:

- VBWFS had already "resulted in a 27% reduction in waste generation and a 40% increase in recycling."
- Recycled content in glass, paper, plastic and steel products was required to appear on labels of goods containing these materials, along with "the environmental features of those products for consumers."
- Thanks to a program urging more use of refillable containers, "for example, more than 50% of detergents were then being sold in refillable bottles."
- National legislation had been adopted "requiring national and local waste management and reduction plans, promoting recycling, and fostering an environmental technology industry."
- Green Vision 21 had been adopted, "which seeks the transition for Korea from 'a model country of economic growth to a model country of environmental preservation.'"
- Finally, the presence of "growing and active citizens' groups and non-governmental organizations that promote stronger environmental standards and greater waste reduction."[57]

56. Park interview, op. cit.

57. Korea Environmental Institute, "Waste Prevention and Minimization," December 1997, 125.

2.2. Recommendations for Developing Countries

Statistics document the further success of environmentalism in general and VBWFS in particular in Korea, as <Table 4-1> below suggests. Thus Kim and Kim offer valuable suggestions to help developing countries implement a similar system for the benefit of their people, present and future generations. Of primary importance: "rational policy and abundant resources for enforcement, as well as monitoring and supervision of the targets of the policy." The authors go on to highlight the centrality of local governance, the value of multi-stakeholder participation, transparency and good communication, and the establishment of "an arbitration organization responsible for actually coordinating the policy conflict [inevitable to arise] between the citizens and the government."[58]

Table 4-1 | Household Wastes before and after VBWFS

(Unit: tons/day)

Year	Recycled Waste	Landfilled Waste	Incinerated Waste	Total
1994	8,900	47,000	2,218	58,118
1995	11,300	34,000	2,474	47,774
2005	27,246	13,402	7,753	48,393
2010	27,753	8,797	10,609	49,159

Source: Korea Zero Waste Movement Network.

With the clear benefit of hindsight, Kim and Kim note that "lavish spending became a social problem" in Korea, followed ineluctably by the waste problem detailed in earlier pages. Thus they suggest that developing nations create a "sound consumption culture" that values simplicity and the "spirit of sharing" over competition and emulation (what Americans might call "keeping up with the Joneses").

Comprehensive public-awareness education is a key ingredient in implanting a progressive policy such as VBWFS[59], as is a concerted program of waste separation and recycling. Suitable collection, transportation and waste-fee regimens must be put in place. There are no real surprises here, and the interest expressed in such ideas by KDI School students from Indonesia and elsewhere in Southeast Asia testify to potential benefits and applicability.[60]

58. Kim and Kim, 104~5.
59. Ibid., 106.
60. Ibid., 107~11.

3. Final Thoughts

The acceptance and implementation of the Volume-based Waste Fee System in 1995 represent an indisputable triumph for Korean civil society from several points of view. In combination with other elements of waste management then under consideration, such as reduction of packaging and concerted recycling, diverse and contentious forces worked together to solve a vexing environmental problem that transcended environmental issues. Koreans' trust in their newly democratized government; the government's ability to decentralize some of its powers in favor of local entities; civil society organizations' unforeseen willingness to work hand-in-hand with government; citizens' capacity to change their habits for the common good—these all speak to the "paradigm shift" at the heart of Kim and Kim's argument. Adoption of VBWFS brought with it some new problems, most notably an increase of trash on the streets as public trash receptacles were removed to help eliminate illegal household dumping. The beautiful dream that emerged at the time, of a "waste-free Korea" in the near future, remains a dream, but since then, Korea has taken many meaningful incremental steps along the way. The real environmental consciousness that accompanies the dream is clearly worth pursuing. Korea and Koreans learned a great deal from the experience, and many others around the world will do well to study the lessons that came from it.

A list of the most useful lessons might include the following:

1. When examining a major societal problem, environmental or otherwise, seek to understand the complexity of its origins. In the case of the waste management issues that emerged in Korea between the 1960s and 1990s, institutions and people at many different levels ranging from the president of the nation to government ministries, to the country's industries, to municipalities, to apartment complexes, to individual citizens took part in the process. While VBWFS was an essential element of the long-term solution to the problem, labeling it "polluter pays" implies blame upon consumers alone, a far too simple understanding of the issues.

2. Major historical questions must be considered to understand the big picture. In the case of VBWFS, the whole history of the political development of modern Korea comes into play—a large and complex subject in its own right. Before a policy such as VBWFS can take root in another country, that country's political development similarly must be explored.

3. Institutions and human interactions that occur below the level of government—what social scientists generally label "civil society"—will always have essential parts to play in the development, implementation, acceptance and success of all-encompassing policies such as VBWFS. Those who study civil society tend to agree that it functions best in "high-trust" polities that concomitantly support high levels of "social capital," which emerges from abundant "voluntary associations." In turn, these qualities engender the best and most lasting effects in more as opposed to less democratic societies.[61] In other words, the evolution and strength of democratic institutions is an important set of issues to consider before implementing a policy such as VBWFS.

4. Consideration of the needs and interests of many different stakeholders must be considered before a program such as VBWFS can take root. A concerted dialogic process, whereby unequal stakeholders can voice their concerns, must occur, and all stakeholders must have some realistic hope that enough of their needs and concerns will thus be met, leading to the consensus needed for successful society-wide policy implementation.

5. The parties to such a dialogue must be flexible if consensus is to occur. Holding to established oppositional ideological views at all costs will likely result in failure. The precept suggested by a major actor in Korea's VBWFS, Professor June Woo Park, that no one policy can solve every problem, should be kept in mind. Perfection is a wonderful goal, but unrealistic in the world of public policy.

61. Three out of many suitable sources are worth citing here: Alexis de Tocqueville, *Democracy in America*, J.P. Mayer (ed.), Harper and Row, 1988, Chapter 5, "On the Use Which Americans Make of Associations in Civil Life," 513~517; Robert Putnam, "Bowling Alone: America's Declining Social Capital," *Journal of Democracy* 6.1 (1995), 65~78; and Francis Fukuyama, "Social Capital in the Global Economy," *Foreign Affairs* (74) 5 (September~October 1995), 89~103.

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Graph 1 | Municipal Waste Generation, GDP, and Population, OECD Countries, 1980~2020

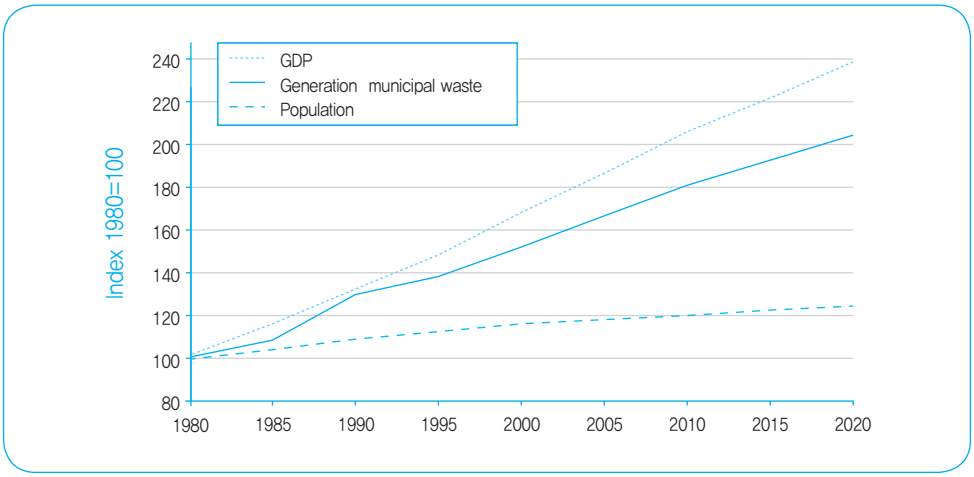


Table 1 | Household Wastes Before and After VBWFS.

(Unit: tons/day)

Year	Recycled Waste	Landfilled Waste	Incinerated Waste	Total
1994	8,900	47,000	2,218	58,118
1995	11,300	34,000	2,474	47,774
2005	27,246	13,402	7,753	48,393
2010	27,753	8,797	10,609	49,159

Source: Korea Zero Waste Movement Network.

Figure 1 | Waste Management Process Change Following VBWFS Enforcement (Ahn et al., "Waste Management in Korea," 5)

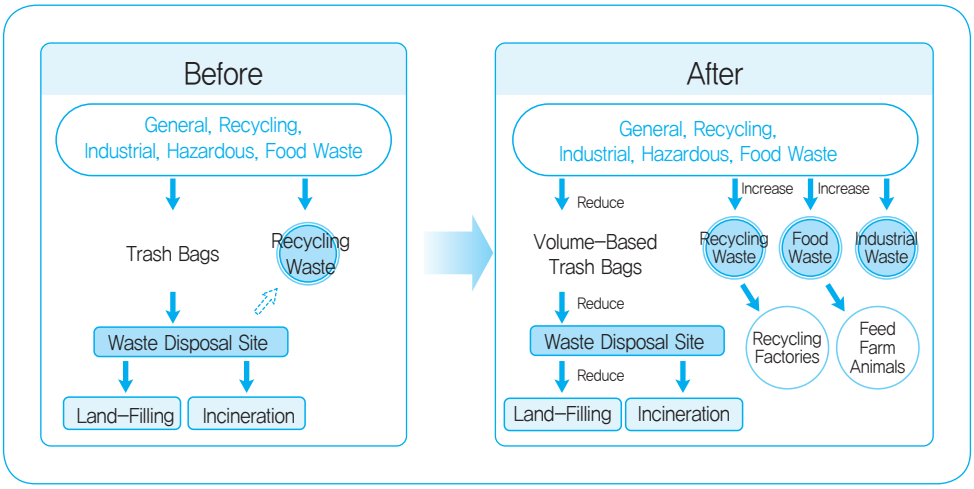
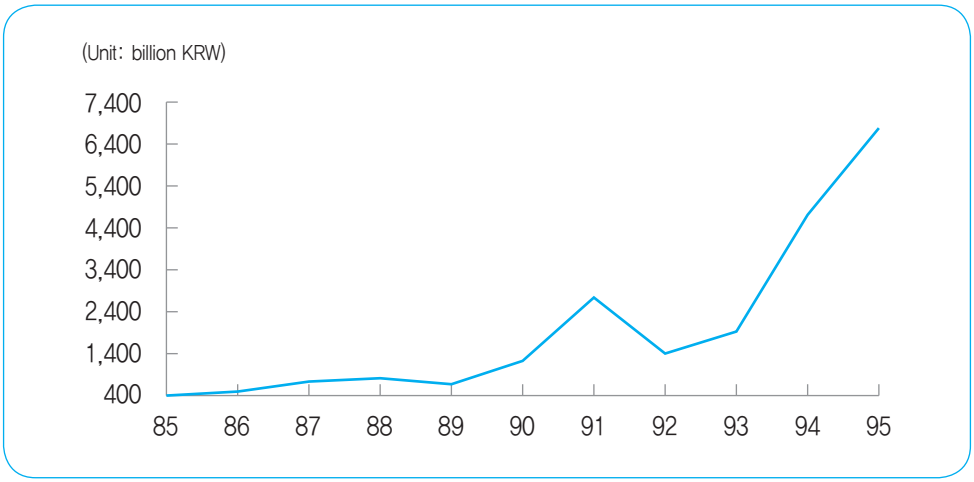


Table 2 | The Amount of Waste Generated and Recycled in Korea, 1994~2004 (Ahn et al., 7)

Year	Generation			Recycling	
	Quantity/Daya		Quantity/Person	Quantity/Year	Rate
	(tonne/day)	Change (%)	(kg/day/person)	(tonne/year)	(%)
1994	58,118		1.30	8,927	15.4
1995	49,774	-17.8	1.06	11,306	23.7
1996	49,925	4.5	1.10	13,084	26.2
1997	47,895	-4.1	1.04	13,907	29.0
1998	44,583	-6.9	0.96	15,566	34.9
1999	45,614	2.3	0.97	17,394	38.1
2000	46,438	1.8	0.98	19,167	41.3
2001	48,499	4.4	1.01	20,922	43.1
2002	49,902	2.9	1.04	21,949	43.9
2003	50,736	1.6	1.05	22,938	45.2
2004	50,007	-1.4	1.03	24,588	49.2
10 Year Performance 1994~2004	-8,111	-14.0%	-0.27	+15,661	+33.8%

Graph 2 | Increase of Budget for Environmental Sector (Kim and Kim, 27)



Source : Fifty years of Korean environment, Ministry of Environment, 1996, 24p.

Table 3 | Lifestyle of Korean and Consumers' Awareness (Kim and Kim, 29)

Consumer's Awareness	Living
- Conspicuous and over consumption - Sensitive on trend and aesthetic sense - Consumer conformity - Design, appearance, brand	- Prefer apartment - Younger generation (city) and Older generation (house with garden) - Regard on environment - Prefer wide-space - Raising concern on house interior
Food	**Clothes**
- Freshness, Brand - Gourmet dinning - Well-being food	- Color and design 〉 practical use - Fashion and style - Brand consciousness

Source : Nam, Eun young (2007), Korean Consumer Culture in 1990s: With focus on consumer consciousness and behavior, Society and history.

Table 4 | Waste Generation in Korea, 1990~1994 (Kim and Kim, 32)

(Unit: tons/day)

Year	Total	Municipal Waste	Industrial Waste	Generation per Capita(Kg)/ Day
1990	145,374	83,963	61,412	2.30
1991	158,376	92,246	66,130	2.30
1992	144,535	75,096	69,439	1.80
1993	141,383	62,940	78,443	1.50
1994	147,049	58,118	88,931	1.30

Source: 12 Newspaper Dong A ilbo, 1996.6.3.

Table 5 | Waste Generation 1994~2000 (Kim and Kim, 92)

(Unit: tons/day)

	1994	1995	1996	1997	1998	1999	2000
Total	58,118	47,774	49,925	47,895	44,583	45,614	46,438
Recycle	8,927	11,306	13.085	13,907	15,566	17,394	19,167
Final Treatment	49,191	36,468	36,840	33,988	29,017	28,220	27,271
Generation per Capita	1.33	1.07	1.11	1.05	0.96	0.97	0.98

Source : Korea Environmental Policy Bulletin, Volume-based Waste Fee System (2003).

Graph 3 | Composition of Household Waste, 1995 (Kim and Kim, 33)

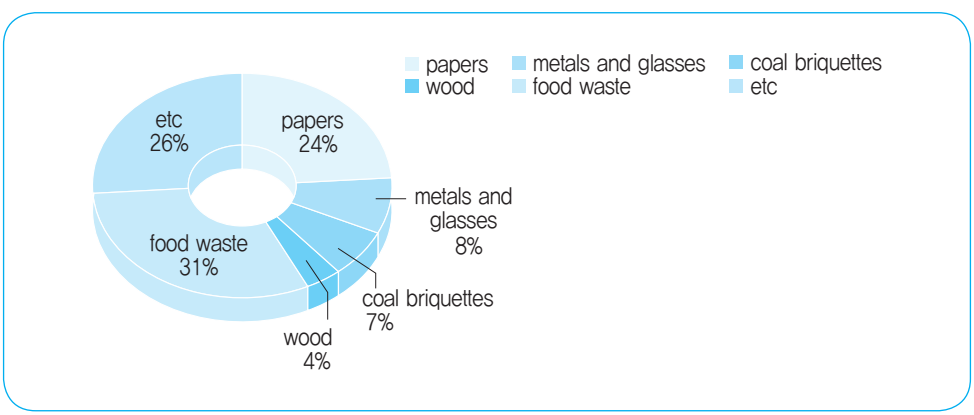
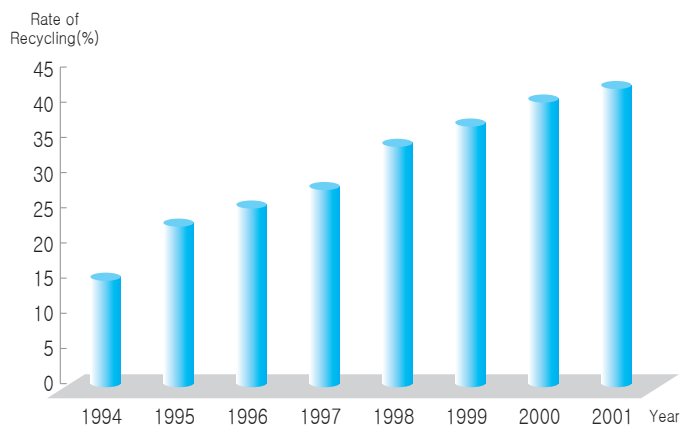


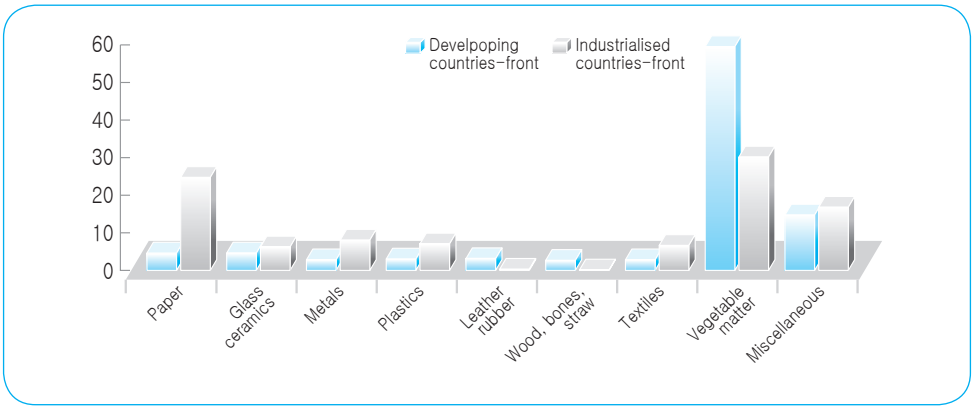
Table 6 | Change in Waste Generation, 1994~1996 (Kim and Kim, 60)

	1994	1995	1996
Total (ton/day)	58,118	47,774	46,194
Recycled (ton/day)	8,927	11,306	11,468
Discarded (ton/day)	49,191	36,468	34,726
Per Capita Generation (kg/person. day)	1.3	1.05	1.01

Graph 4 | Trend of Recycling by Year (Kim and Kim, 94)

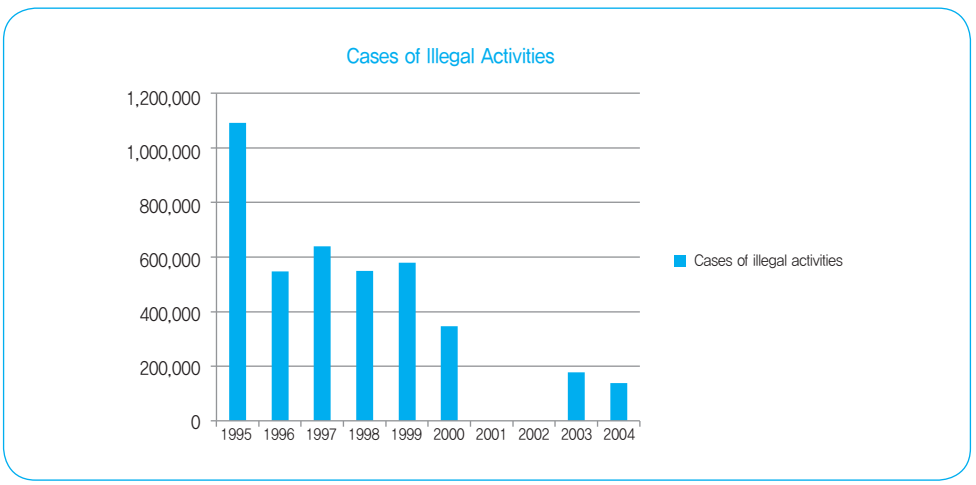


Graph 5 | Composition of Municipal Waste in a Typical Developing and Industrialized Country (Kim and Kim, 108)



Source: Practicalaction.org.

Graph 6 | Cases of Illegal Dumping Nationwide



Source: Korea Environmental Policy Bulletin, "Volume-based Waste Fee System in Korea," January 2006, 17.

Table 7 | Sales of VBWF Bags Nationwide (Kim and Kim, 119)

(Unit: 1,000 sheets)

Region \ Year	1995	1996	1997	1998	1999	2000	2001	Change (%)
Seoul	434,816	325,634	293,670	244,478	249,352	270,881	278,980	-35.8
Busan	131,226	97,360	91,235	66,583	60,166	64,668	60,571	-51.6
Daegu	87,865	68,875	67,691	41,422	47,748	45,108	43,464	-50.5
Incheon	96,806	70,411	60,739	45,529	48,650	50,785	47,707	-50.7
Gwangju	46,222	40,096	31,685	25,328	25,055	26,206	24,155	-47.7
Daejeon	55,769	39,285	36,076	29,224	38,239	28,782	30,239	-45.8
Ulsan	-	-	24,716	21,506	23,291	24,099	25,329	-
Gyeonggi-do	283,715	221,387	223,890	204,673	201,202	217,234	211,335	-25.5
Gangwon-do	47,845	35,909	28,478	24,163	25,987	25,752	28,858	-39.7
Chugcheong buk-do	33,699	26,652	26,701	23,283	24,352	24,699	24,658	-26.8
Chungcheong man-do	37,385	28,950	28,778	24,047	29,987	30,494	29,194	-21.9
Jeolla buk-do	51,115	32,083	31,366	25,726	27,613	21,933	30,074	-41.2
Jeolla nam-do	52,251	38,559	34,516	29,235	29,507	33,516	31,113	-40.5
Gueongsang buk-do	81,299	59,968	50,298	43,461	48,226	43,359	46,758	-42.5
Gueongsang nam-do	114,872	97,022	65,945	55,557	56,274	63,620	59,870	-47.9
Jeju-do	35,079	9,579	10,056	9,129	9,832	10,349	11,466	-67.3
Total	1,589,964	1,192,770	1,095,841	913,344	945,481	981,485	988,770	-37.8

Source : Korea Environmental Policy Bulletin (2003) Volume-based Waste Fee System.

Table 8 | VBWF Bag Sales in Selected Korean Cities, Large and Small Sizes, 2001 (Kim and Kim, 120)

	5ℓ (a)	10ℓ (b)	20ℓ (c)	50ℓ (d)	100ℓ (e)	Small Size Bag, %	Large Size Bag, %
Seoul	11,976	76,772	105,159	30,689	28,885	76.5	23.5
Busan	8,333	26,509	14,912	3,180	767	92.7	7.3
Daegu	1,667	14,783	15,250	4,255	1,952	83.6	16.4
Incheon	1,517	15,830	21,319	5,733	2,123	83.1	16.9
Gwangju	1,244	8,483	8,482	3,005	1,360	80.7	19.3
Daejeon	2,660	10,186	12,414	5,070	3,160	75.4	24.6
Ulsan	888	7,545	7,658	3,551	1,450	76.3	23.7
National Total	68,475	297,419	375,502	125,987	98,988	76.7	23.3

Source : Korea Environmental Policy Bulletin (2003) Volume-based Waste Fee System.

Table 9 | Organic Waste in Korea, 2006 (Kim and Kim, 122)

classification	Type		Volume	Sources (year)
Organic Wastes	Total		75,499,006	
	Food wastes		4,736,496	Municipal waste data, MOE (2006)
	Sewage sludge		2,560,959	Sewage data, MOE (2006)
	Wastewater sludge		4,198,303	Disposal data, MOE (2006)
	Human excreta	Excreta	1,454.2	Sewage, excreta and livestock wastewater treatment data, MOE (2000~2003) Sewage data (2004, 2005)
		Septage	16,246.5	
		Subtotal	17,700.7	
	Livestock excreta	Feces	20,620,460	Sewage&livestock wastewater treatment data (1999~2002)
		Urine	13,447,728	
		Wash water	16,140,034	
		Subtotal	50,208,222	
	Plant&animal remnant		908,558	Industrial general waste data, MOE (2006)
Waste Wood	Forest site waste wood		354,051	Forestry Administration
	Disposed waste wood		2,666,727	MOE data

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