Anti-Corruption Clean Construction System

1. What was the situation before the initiative? (the problem)
Describe in no more than 500 words, the problem to which the initiative was a solution, including major issues, trends and conditions, as well as which social groups were affected.

Rampant Corruption in the Area of Construction

Korea has taken a number of measures to improve the transparency level of its construction industry since the mid-1990s. However, presently the domestic construction industry scores only 54.21 points out of 100 in terms of transparency, which makes it evident that the situation is still serious.

According to data released by the Supreme Public Prosecutor's Office (SPO) and the Citizens' Coalition for Economic Justice (CCEJ), a revered local civic group, the construction industry was related to 412 corruption cases out of a total of 765 cases, or 53.9%, covered by Korean media between March 1993 and July 2006. In terms of the percentage of corruption cases indicted by the SPO, corruption in the construction industry accounted for 40.4% in 2005 and 25.2% in 2006. .

Unpaid Wages for Construction Workers

Back pay owed in construction is significantly higher than that of other industries in Korea. According to a survey conducted by the Ministry of Labor, 18,000 construction workers reported that they didn't received wages worth 86 billion won in 2011, almost double the amount over the second worst industry in Korea.

However, the reality including the reported cases is likely even worse. It is reported that 68.8% of construction workers have been owed back pay in one form or another. The situation stems from the pyramid structure of the local construction industry. Many construction workers get paid only when payment goes smoothly through a linear payment channel : subcontractors submit payment requests to prime contractors, who then request payment from clients, who make payments to prime contractors, who in turn finally pay subcontractors.

Vagueness in Subcontract Amounts and Non-payment

Contracts require prime contractors to pay their subcontractors within 15 days of the receipt of payments from clients. This system allows prime contractors to use the funds for other purposes during those 15 days, which causes several problems. For instance, when prime contractors go bankrupt before the 15thday,thepaymentdeadline,subcontractorshavenowheretoturntoandneitherdotheirworkers.

Problems with the Direct Payment Scheme

Theoretically, it is easy to require clients to directly pay subcontractors after deducting the portion of the payment due to prime contractors. If this system is implemented, however, prime contractors will lose their power over subcontractors. As a result, work quality by subcontractors might deteriorate and disputes may increase.

Unsystematic Project Management

For a long time, papers were prepared manually. Contractors' various reports including daily, weekly, monthly and so on, were no exception. All of these had to be submitted to clients' offices in person.

The regular reports included many details such as types of work, the progress rate, the amount of materials and the equipment used. However, as these details were difficult to verify,, inaccurate information in the reports was commonly accepted in many cases.

Unsystematic Project Management

Citizens living nearby construction projects are entitled to know when a project is going to be completed. A signboard is often installed at the entrance of a construction site at the beginning of a project, but updates are not posted. Typically, any information on delays cannot be found anywhere, and some projects are totally halted with no information given.

2. What is the initiative about? (the solution)
In no more than 500 words, summarize the achievement(s) implemented; how the impact was measured, quantitatively and qualitatively, and who benefited from it. Please note that the summary should be in narrative, not point form.

The Seoul Metropolitan Government has adopted two systems to address these problems.

1. The New Subcontractor Payment System

The city of Seoul decided to make separate payments for prime contractors and subcontractors, and also made an online system to check if a payment has actually been made to a subcontractor.

This new measure can protect the weakest link in the chain, improve construction work efficiency and increase citizens' convenience through easy access to critical information.

It applies to projects of more than 500 million KRW (about $460,00). Subcontractors register with the online system and can use it immediately. The measure will protect numerous subcontract workers who suffer from greater unstable financial conditions than prime contractors.

In addition, subcontractors do not have to submit copies of their bankbooks to get access to the payment information as they used to have to do. Now they can monitor the remittance into their accounts in real time as banks now allow their funds transfer

information to be available to the subcontractors immediately. The new system saves many people a lot of time and efforts. A prime contractor used to spend significant time and resources preparing documents to submit to the client, who then had to ascertain if those documents were true before the payment was actually made. Now, the new computerized system makes the payment information available to anyone as soon as a payment is made. This saves the client and prime contractor any hassles over documentation and verification. If citizens have any questions or proposals about this system, they can easily bring them to the attention of the city through emails, telephone calls or postings on the city's website. Inconveniences with the system are addressed immediately. System improvement suggestions are adopted through planned internal reviews.

2. Construction Allimi & One-PMIS

The city of Seoul has established One-PMIS (Project Manager Information System), whereby all stakeholders in a project can monitor project information in real time. The client, contractors and consulting engineers will post key information on the project such as the project outline and progress reports.

The Construction ALLIMI (informer in English) website provides the public with all the necessary information about projects happening in the city.

Project drawings and documents are all available on the One-PMIS website. The status of personnel, materials and equipment mobilized on a particular site can also be checked. As a result, construction resources can be managed effectively and corruption during the project implementation stage is prevented.

The information that the general public needs to know about a project—the project outline, pictures of work in progress and web camera images to check the construction site in real time—is disclosed to the public. This information disclosure obligation applies to all parties involved in a construction project.

Questions about construction projects are raised and quickly answered on SNS connected to the system.

The construction industry in the city of Seoul has become transparent. Citizen's rights to know about changes to the urban environment are respected, and they have recovered their sovereignty related to major undertakings in the city.

3. Who proposed the solution, who implemented it and who were the stakeholders?
In no more than 500 words, specify who contributed to the design and/or implementation of the initiative, including relevant civil servants, public institutions, organizations, citizens, NGOs, private sector, etc.

1. Subcontract Payment System

Awareness of the Necessity and Formation of a T/F Team

The establishment of the system was initiated by the Seoul Metropolitan Infrastructure Headquarters, an associate organization of the city of Seoul, which is responsible for the management of all construction projects ordered by the city.

The public servants in the office agreed that a new system was needed to guarantee that prime contractors paid their subcontractors; the payment failures were creating terrible problems for the subcontractors as well as their workers, equipment renters and construction materials suppliers.

A task force team was formed with public officials in charge of construction contracts and computerization in order to develop a computerized payment system that would monitor the payment flows from start to finish.

Private Sector's Involvement and Feedback from Subcontractors

In April 2011, the city of Seoul contracted with Paycoms, a systems integrator, for the development and installation of a computerized system to monitor the prime contractors' payment to their subcontractors. Through the contract, the city of Seoul could mobilize the expertise of the company's programmers, financial experts and risk managers.

For about a year, the company's experts and the city's construction officials did their best, holding numerous meetings with subcontractors to get their opinions about what a new system should include. The result was the development of a subcontract payment management system that can be used for not only subcontractors but also construction workers and small-scale heavy equipment renters.

Agreement with Banks for Real-time Payment Information

The subcontract payment management system ensures that payments to subcontractors are made on time and the payment information is accessible in real time to all the parties concerned.

The city of Seoul made an agreement with two respected banks for the provision of payment information so that payments to subcontractors can be checked online.

2. Construction Allimi and One-PMIS

Awareness of the Necessity for a Construction Process Management System and Formation of a T/F Team

The city of Seoul decided that in order to prevent shoddy construction work largely due to construction corruption, it should know the precise input of manpower, equipment and materials in construction projects. A computerized construction process management system was needed. All the construction information would be disclosed to the public to secure the transparency of the city's construction administration. In January 2011, the city formed a task force team with the purpose of establishing One-PMIS (Project Management Information System) inside Seoul Metropolitan Infrastructure Headquarters.

Intervention of Private Enterprise to Set Up a Professional System

The city of Seoul signed a contract with SangAh Management Consulting Corporation, a professional project management information system developer, in April 2011 to develop a system for city administrators.

Contributions by Each Party to Develop an Integrated System

Prime contractors must input all the detailed project information into One-PMIS. Consulting engineers check the information and submit it to the client through the computerized system. Public officials review the information and approve or disapprove it. The approved information is stored in the database, which is accessible to the public in real time. Each party to a project has a role to play, collaborates with each other, and develops the new system.

4. Describe how and when the initiative was implemented by answering these questions

a. What were the strategies used to implement the initiative? In no more than 500 words, provide a summary of the main objectives and strategies of the initiative, how they were established and by whom.

Strategy 1: Establishment of an Anti-corruption System

The first strategy for the anti-corruption clean construction system was to establish a system preventing fundamental construction corruption. The city wanted to ensure that construction work was completed as planned, false reporting on the input of materials was prevented, and shoddy construction work did not occur. The system also wanted to ensure that payment was made to subcontractors and workers on time, and that nobody is allowed to exploit the construction funds for any other purpose.

Strategy 2: Gradual Implementation

The city of Seoul adopted a gradual approach to the implementation of the system on site to give all the parties concerned enough time to adapt to the new system. The subcontract payment management system was implemented in two stages. The focus of the first phase was to ensure that prime contractors make payments to their subcontractors on time. The second phase pursued the guarantee of on-time payment to construction workers and equipment renters.

In addition, starting from 2013, the city is planning to apply both One-PMIS and Construction Allimi to projects worth 200 million KRW or less.

Strategy 3: Development of an Easy to Use System

The city of Seoul developed an easy computerized system that can be run in a variety of environments so that it can be used not just in Seoul or across the nation but also in almost any corner of the world.

Strategy 4: Communication with Project Participants

In the development stages, the city of Seoul did its best to get the opinions of the potential users of the computerized system through user education sessions and meetings with them. The city arranged for them to express their opinions on the system via the system website, the project manager's e-mail or by telephone calls to the manager.

The city emphasized that the system has numerous benefits for contractors. Through the implementation of the system, they can be paid on time. In addition, they can save time and efforts because they don't have to visit a client's office to submit documents to get paid. Due to the improvements, the city also argued they can make contributions to the development of our society by ensuring clean construction business practices. The persuasion worked and they fully collaborated with the city government on the development of the system.

Strategy 5: Connections to Other Computerized Systems

The city of Seoul pursued the connection of the new computerized system to existing public systems such as 'E-Hojo,' Seoul City's financial management system, 'G2B,' the national contract information system and 'GIS,' a geographical data system. The purpose was the integration of various information systems. As a result, the new system not only worked as the construction contract and management portal, but also played the role of an alert system about construction corruption and construction site accidents.

b. What were the key development and implementation steps and the chronology? No more than 500 words.

1. Subcontract Payment Management System

The city of Seoul implemented the subcontract payment management system in two stages to reduce confusion on the part of prime contractors and because of practical constraints on the ground. The purpose of phase one was to make the payment to subcontractors separate from that of prime contractors and to render the payment information available in real time. The system development work was done between April and October 2011. Due to this work, most paperwork, such as checking whether a payment has been made or not and the printing out of receipts, can now be done online. . In December 2011, the mayor of Seoul and the presidents of Woori Bank and the Industrial Bank of Korea signed an cooperative agreement to ensure payments on time to subcontractors by sharing banking information which allowed the goals of phases one and two to be met.

Phase two began to be implemented in May 2012. The payment to construction workers, small-scale equipment renters and materials suppliers started to be guaranteed.

At this stage, it became available to check if a payment has been made in real time as well as if employee contracts, equipment rentals and material deliveries have been properly done.

2. Construction Allimi and One-PMIS

The establishment of Construction Allimi and One-PMIS began in April and was completed in February 2012. The procurement of computer systems was just the beginning. More important was how the parties to a project would register their information and how the information could be used most effectively.

In April 2012, the city of Seoul organized the Working-level Operation Council with 60 people from the city's affiliate organizations and 25 district offices to discuss how to run One-PMIS efficiently. The major agenda items included getting opinions aboutsystem implementation, the operation guidelines, the operation evaluation plans and an expanded implementation of the system at the district level.

In May 2012, the city had Seoul Metropolitan Infrastructure Headquarters set up the Construction Information Department that would be in charge of the operation of Construction Allimi and One-PMIS.

The department handles citizens' grievances about various projects in real time and attempts to detect safety hazards and accident factors in advance. The department provides education service as well. So far, nearly 300 people from more than 20 offices or communities have had chances to learn about this   system.

c. What were the main obstacles encountered? How were they overcome? No more than 500 words.

The city of Seoul's anti-corruption clean construction system was the first such project in Korea. There was nothing to benchmark it against. It was hard to predict what problems may arise. The system was about the payment of money. Risks were abundant including system glitches, stability and security. The city has overcome many obstacles and solved many problems as is described below.

The most important effort to prevent serious obstacles from emerging was continuous communication between all the parties concerned. The city raised problems that were anticipated in the system development and operation at various meetings between concerned bodies in the public and private sectors, such as the Subcontract Improvement Council and Citizen Satisfaction Council, in order to check the standpoints of contractors, NGOs and construction labor unions. All the opinions and proposals from every meeting were used to develop the system and solve the problems. Through such processes, the city of Seoul was able to come up with a system which satisfied not just the city itself, but all potential users.

The second most important effort was to brace for any system failures. In the case of the subcontract payment management system, system failures could mean significant financial losses. Thus, measures were taken that could restore the system to normal within four hours.

The third focus of our attention was system security. A cross-checking system was adopted. For the subcontract payment management system, a single account would be used for one project, and all the deposits and withdrawals would be made through this one account with the approvals by all the parties concerned for each bank transaction. Finally, the system was equipped with the following innovative measures. First, the system was configured to prevent data forging or falsifying, and when an incident occurs, to analyze the problem and address it quickly. The entire system work log is stored, so a quick analysis of any accident can be possible. Second, measures were taken to prevent information leakage and strengthen system security through the encryption of IDs/PWs, and personal and financial information. Furthermore, information about to be stored in a database was encrypted and a database server access control system was set up.

Also, in order to prepare for unexpected glitches, a duplicate server was built and the RAC (Real Application Cluster) of the DB server were duplicated.

d. What resources were used for the initiative and what were its key benefits? In no more than 500 words, specify what were the financial, technical and human resources costs associated with this initiative. Describe how resources were mobilized.

Collaboration with Various Agencies and the Private Sector

The establishment of the anti-corruption clean construction system required input from professionals in a variety of fields like IT, finance and construction. The task force team at the city government was composed of personnel from computer science, finance and construction engineering. The team members maintained close relations with the personnel of the system development company to address any issues immediately.

NGOs and various agencies and institutions expressed their opinions at various stages of the system development such as planning, design, realization and operation.

Adoption of Innovative Technologies and Work Processes

It was possible to make this system by adopting innovative technologies in construction work processes. Owing to these innovative technologies, the city of Seoul even has two patents for the subcontract payment management system. The first one, which deals with the technology to check the cash flow for subcontractors linked to banking system, was registered in June 2010. In October 2011, another patent, which deals with payments to employees, material suppliers and equipment rental shops, was registered.

The city of Seoul is continuing to add more diverse features related to payment and construction process management to the established system.

4D Simulation Technique Instrumental in Decision Making

One-PIMS has adopted 4D simulation. On a 3D screen, the actual work progress is shown in 3D simulation realized through the connection to the PERT/CPM project management system for more precise construction process management.

As 4D simulation shows the progress of a project in 3D images, the decision makers can make critical decisions in a much more timely manner.

Digital Map using GIS Shows Exact Work Locations

Construction Allimi, designed to provide citizens with basic construction information, is equipped with a digital map based on GIS and shows exact work locations along with information on project overviews.

Citizens can check construction related information on the map and ask questions, if necessary. The map is also connected to Seoul's SNS Open Channel and its Mobile Service and Electronic Civil Affairs Service for more effective communication with citizens.

5. Is the initiative sustainable and transferable?
In no more than 500 words, describe how the initiative is being sustained (for example in terms of financial, social and economic, cultural, environmental, institutional and regulatory sustainability). Describe whether the initiative is being replicated or disseminated throughout the public service at the national and/or international levels and/or how it could be replicated.

Computerized System based on Expanding Internet Infrastructure

Seoul's subcontract payment management system, Construction Allimi and One-PIMS, are Internet-based computerized systems. Therefore, they can be used wherever there is an Internet infrastructure.

Almost all the countries in the world are implementing anti-corruption policies and information disclosure regulations. They are also strongly pushing for an improved Internet infrastructure. More people depend on the Internet and will continue to do so. Therefore, it is expected that the demand for these systems will continue to rise both at home and abroad.

Remarkable Improvement with Less Fiscal Expenditures

The new construction management system uses innovative technologies and the Internet to streamline the existing construction work processes. There is no fiscal burden besides the expenses incurred for the establishment and operation of the system.

Contribution to Environmental Protection through Reduced Traffic

All work is done online. A paperless office reduces budget expenditures, and construction progress can be checked without people having to drive somewhere. Payment can be made without the need for traveling to agencies, other contractors' offices or banks, thus reducing air pollution. Low-carbon green growth becomes more possible.

International Attention & Recognition as a Solution to Common Construction Corruption around the World

Seoul will continue to build infrastructure like roads and bridges. Transparency is critical in the project management and the payment processes of these construction projects. The new construction management system will continue to be implemented in Seoul.

Other cities and provinces in Korea can apply the system easily. In fact, many institutions have come to use Seoul's system as a benchmark. So far, 19 domestic agencies and 30 foreign countries' institutions have sent their officials and personnel to Seoul. All of them have responded very positively to the Seoul system.

In October 2012, the system was praised for its efficiency, low-cost and high quality at the 2012 Global e-Government Forum participated in by 50 countries. In November 2012, it received plenty of attention at the 15thInternationalAnti-corruptionConference(IACC)hostedbytheIACCCouncilandTransparencyInternationalinBrasilia,Brazil.

In mid-November 2012, the Seoul system was chosen as one of the 40 excellent programs at Guangzhou International Award for Urban Innovation co-hosted by UCLG (United Cities and Local Governments), Metropolis (the World Association of Major Metropolises) and Guangzhou Municipal Government, China.

System Dissemination at Home and Abroad

Domestically, the Korea Hydro & Nuclear Power Corporation, under the auspices of the Korea Electric Power Corporation, the city of Suwon, the provincial capital of Gyeonggi-do and SK Telecomm, one of the biggest wireless telecommunications operators in Korea, are currently using the system. The Ministry of Land, Transport and Maritime Affairs, the Ministry of Knowledge Economy, the city of Busan and the city of Incheon are considering adopting the system.

Overseas, Johannesburg and the Road Traffic Management Corporation, South Africa, are discussing with Seoul about their adoption of the system and applying other anti-corruption measures taken by Seoul to their country.

6. What are the impact of your initiative and the lessons learned?
In no more than 500 words, describe the key elements that made your initiative a success.

New Perspectives on Public Service for the Disadvantaged

A few programs under the banner of anti-corruption clean construction began because of the new perspective of the Seoul municipal government that wanted to solve construction related grievances from the perspective of the disadvantaged, and fostered shared growth.

Ways were sought to guarantee payment to subcontractors and construction workers in the context of building a society where the underprivileged are protected and each and every citizen matters.

For too long, the weak parties to construction contracts have not been taken care of by the public sector. An innovative and transparent management system has been developed and implemented as a fundamental solution. The result is the creation of an exemplary system that is effective in preventing construction corruption which has resulted in recognition at home and abroad.

In the meantime, in the process of the implementation of the system designed largely to protect subcontractors, the city of Seoul took active measures that consider other disadvantaged groups of citizens as well, such as the disabled and the elderly who needed extra measures on the part of the city of Seoul for their easy access to the system's information on the computer.

Thus, for the blind, every image on the website has been supplemented with text information. For the deaf and the elderly, all voice information has been supported with subtitles.

For those with upper-limb disabilities having difficulties using a mouse, special arrangement has been made so that they can use their computers with just keyboard strokes.

Such efforts to embrace the underprivileged were recognized by organizations such as the Korea Blind Union, and the system website was chosen by the association as the best website for accessibility. The initiative of the city of Seoul, therefore, also opened doors to an improved environment for the lives of those who are disadvantaged in their use of the computer.

Paradigm Shift in Construction Culture with Public Initiatives

Public works are funded with taxpayers' money. Citizens, therefore, are entitled to know whether the works are being done properly or when they will be completed, as they are the real clients of the works.

Construction Allimi and One-PMIS are participating in the efforts of the municipal government to return project ownership to citizens.

The arrangements are regarded as the groundwork for transparent municipal administration by putting an end to the previous practices that kept work progress and resources information secret, and instead disclosing all the basic information on projects such as the project overview, photos of major processes, and web camera site videos for public viewing.

This new system has proved that a government by encouraging communication between interested parties can bring transparency into the private sector, in this case the construction business. In the construction field, the new system has not only improved

the payment process but also the overall management of projects, specifically in the areas of financial inputs and resources and materials.