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Enhancing Transparency and Accountability in the Public Construction Sector in Jordan

Analytical Report and Policy Recommendations

Acknowledgment

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List of Acronyms

ASEZA	Aqaba Special Economic Zone Authority
BoQ	Bill of Quantities
BOT	Build-operate-transfer
CCS	Clean Construction System
GAM	Greater Amman Municipality
GFMS	Government Financial Management Information System
GTD	Government Tenders Department
ICT	Information and Communication Technology
IT	Information Technology
JCA	Jordan Contractors Association
JEA	Jordan Engineers Association
JIACC	Jordanian Integrity and Anti-Corruption Commission
JONEPS	Jordan Online E-Procurement System
JREEEF	Jordan Renewable Energy and Energy Efficiency Fund
MoE	Ministry of Education
MoF	Ministry of Finance
MoH	Ministry of Health
MoICT	Ministry of Information and Communications Technology
MoMA	Ministry of Municipal affairs and Urban Planning
MoPIC	Ministry of Planning and International Cooperation
MoPWH	Ministry of Public Works and Housing
MoPSD	Ministry of Public Sector Development
MoT	Ministry of Transport
MoWI-WAJ	Ministry of Water and Irrigation – Water Authority of Jordan
NBC	National Building Council
OGP	Open Government Partnership
PDTRA	Petra Development Tourism Region Authority
PMIS	Project Management Information System
PPP(U)	Public Private Partnership (Unit)
RSS	Royal Scientific Society
SDGs	Sustainable Development Goals
SoW	Scope of Work
SWOT	Strengths, Weaknesses, Opportunities, and Threats
UNDP	United Nations Development Programme
VO	Variation Order

Executive Summary

Construction industry is one of the largest production activities in Jordan. It occupies a fundamental position in the national economy, and has a significant impact on the GDP, as well as, the creation and sustaining of employment opportunities; GDP from construction averaged 110.61 million Jordanian Dinars from 2003 until 2016¹.

Jordan envisages strong growth in the public construction sector due to the regional surroundings, where immense challenges have been imposed on this sector with the huge refugee influx. The Government is currently coping with challenges facing the rapid demand for improving and expanding the infrastructure to meet the increase in population. According to the Department of Statistics, Jordan's population in 2015 increased largely by refugees arriving from Syria, reaching 9.5 million including 2.9 million non-Jordanians, with Syrian refugees of approximately 15% of the total². Studies demonstrate the urgent need to provide support to infrastructure, where broadening the range of innovative solutions and partnerships can be an option for improving cost-effectiveness and quality of infrastructure, especially at the municipal level³.

Despite the importance of the construction industry in the country's economic growth and its significant role in shaping the quality of life through creating sustainable infrastructure, reducing unemployment rates and protecting environment, it shows poor efficiency in engaging in sustainability. Thus, the need to adopt more sustainable approaches within the construction sector has been emphasised, leading to a more cost-effective and efficient sector that properly serves all other vital sectors in the country, integrates all chains of production and supply, ensures concrete partnership with the private sector and engaging all stakeholders, in addition to creating a more ethical profile for this sector, to ultimately build citizen trust in the process.

Indeed, the construction industry is considered as a key sector for contributing in the achievement of 2030 Agenda for Sustainable Development with the ambitious Sustainable Development Goals (SDGs), which Jordan succeeded in incorporating them into its national policies, in particular the 10-year blueprint for economic and social development of 2015 (Jordan Vision 2025)⁴, focusing on improving public services and achieving sustainable growth by encouraging partnerships in public infrastructure and service projects.

In this context, UNDP in partnership with the Jordanian Integrity and Anti-Corruption Commission, is supporting government's existing efforts to adopt policy options to enhance the integrity and the transparency in the public construction system, mainly project management, building on the Clean Construction System developed by Seoul Metropolitan Government "the Korean Experience", through assessing the available national context and frameworks.

The overall purpose of the study is to assess the current state of construction management systems adopted by relevant national partners, to identify related gaps, challenges and needs and propose key policy options and recommendations for establishing a more open and transparent construction management and monitoring process, leading to enhanced transparency and accountability in the public construction sector and support corruption prevention efforts, building on the Korean Experience. In addition, it will enable UNDP to design a project/programme related to the public construction sector that builds on the resulting recommendations, and in line with the national needs and priorities.

According to the multi-stakeholder consultation, the public construction sector in Jordan suffers from several challenges, namely, unnecessary variation orders, project financing and late payments, absence of violation/penalty record system for contractors and supervisions, lack of effective knowledge documentation, document management systems, and standard BoQs, slow response of the engineer/supervision. The cause and

¹ For more information, please visit [General statistics Department](#)

² Jordan Times, 30 January 2016 <http://www.jordantimes.com/news/local/population-stands-around-95-million-including-29-million-guests>

Jordan Statistics Department http://census.dos.gov.jo/wp-content/uploads/sites/2/2016/02/Census_results_2016.pdf

³ For more information, please see <http://reliefweb.int/sites/reliefweb.int/files/resources/118-undpreportmunicipality.pdf>

⁴ For more information, please visit <http://inform.gov.jo/Portals/0/Report%20PDFs/0.%20General/jo2025part1.pdf>

effect of these challenges are discussed in the study and correlated to the application of the CCS, in terms of implantation of KPIs.

The study findings and conclusions are based on the brainstorming, discussions took place and recommendations presented in the multi-stakeholder consultation sessions and workshops conducted by the Consultant with the focal points of each relevant institutions, including MoPWH, MoMA, MoF, GAM, MoPIC, MoICT, JEA, JCA, ASEZA, PDTRA, PPP, Audit Bureau, MoPSD, engineers and contractors, as well as, the meetings and the webinars held with the Seoul Metropolitan Government.

The study concluded the main prerequisites and challenges required to develop a sustainable implementation of a CCS in Jordan. New legislations are needed to mandate the application of the system in Jordan. Moreover, proper public construction information disclosure laws and regulations are required to foster transparency and integrity. It is important to note that the implementation of the on-line information disclosure system (similar to Allimi system of the Korean Experience) may face constraints, given the limitations of the currently effective information disclosure laws and regulations.

The study also concluded that there is a need to institutionalize an electronic public construction project management and information dissemination system in Jordan, which shall serve as a tool to prevent corruption by fostering integrity and accountability in the sector. Deploying a public dissemination system is pivotal to achieve transparency.

The proposed CCS project is very promising in terms of curbing several weaknesses and challenges that face the public construction sector in Jordan, such as:

- 1- The need to deploy a comprehensive electronic enterprise resource planning and document management systems in the main ordering bodies. This became a necessity in Jordan and it is a main pillar of implementing a CCS.
- 2- The complicated development of a total construction asset management system, which links the Jordan Online e-Procurement System (JONEPS), with the construction management system (PMIS) and the national capital financial budgeting system (GFMIS). Although integration between database systems is doable from the technical point of view, several logistic, regulatory and administrative complications have to be addressed by the proposed Multi-stakeholder steering committee.
- 3- Slow response of engineer and supervision to claims, variations, payments and other requests by contractors.

The project is a step towards meeting Jordan international commitments under the United Nations Convention against Corruption (UNCAC), and all national visions and policies including, the Royal vision to improve the public administration and complete an electronic government programme by 2020, in addition to all existing national policies including Jordan Vision 2025, the National Integrity Charter (2013), the National Integrity and Anti Corruption Strategy (2017-2025) and OGP Action Plan (2016-2018), and most recently Jordan Economic Growth Plan (2018-2022), which put urge to invest in infrastructure to achieve economic growth.

The possibility of attaining sustainable long-term implementation is still compromised by several gaps that need careful attention, namely:

- 1- Fully transparent disclosure of information of public construction projects is not guaranteed. This is due to the limitations imposed under the Law No. (47) for the year 2007 on Ensuring the Right of Access to Information, which are related to state secrecy in addition to the ineffective application procedures.
- 2- Despite the feasibility of implementing the CCS depending on the contractual relationship, explicit law for CCS has to be issued to enforce the implementation of a full online “enterprise” resources and project

management system, backed up with automatic informative disclosure system, which releases adequate information to attain transparency in terms of milestone work progress and financial transactions.

- 3- There are more than one central Ordering Body in Jordan responsible for public construction. This complicates the implementation, as one system might not fit all. The piloting phase could be attainable if only one of the main entities in Jordan responsible for the main public construction projects is considered, namely, MoPWH, MWI-WAJ or GAM.
- 4- Multiple stakeholders are involved in the public construction management process, including construction management entities, auditing authorities, financial management and national budgeting and regulatory authorities. This requires special tailoring the system in a manner that fits the needs of each of those parties.
- 5- Specifications, documentations, BoQs, progress reports and claims are not standardized in Jordan. Systematic standardization of project documents and forms is necessary for proper implementation.
- 6- ICT electronic signature system is not yet fully mature (business to government well-tested local modality).
- 7- The project requires applying a penalty point system on Contractors/Engineers, which would help in tackling challenges related to delay and quality of delivered works as the system helps in eliminating service providers with bad record of accomplishment.
- 8- The project requires strict implementation of public safety measures. Public safety in construction projects is currently regulated by codes, specifications and civil defense regulations, and there is not yet a law that specifically and comprehensively address such measures. Penalties are not necessarily imposed if safety regulations are breached; contractual and non-contractual liability may be enforced in case of accidents occurred due to negligence in accordance with the Civil Law only.
In addition, the project requires development of detailed as-built drawings to reflect final public safety audit measures after construction.

Integration of the Korean Experience in Jordan needs to be carefully studied, as several differences have to be taken into consideration for successful implementation. A significant difference is that the Korean experience is based on decentralized authority of Seoul city, while the construction system in Jordan is still based on centralized governmental management system; which involves several stakeholders with defined hierarchy and level of authorities. Moreover, successful implementation of this project requires several factors that build on and reinforce available infrastructure:

- 1- Ensuring decision makers' buy-in on this project to avail enabling environment required for proper implementation of the system including necessary legislations;
- 2- Full engagement of stakeholders through pursuing bottom-up inclusive approach given that project objectives are still defined by top management, but the team members (scenarios and intermediate level), who will be doing the work, are requested to provide input as to how the project goals will be met;
- 3- Establishing a dedicated unit in each ordering body, linked to a steering multi-stakeholder committee;
- 4- Implement an informative automatic information public disclosure system;
- 5- Develop a user friendly oriented system powered by a robust ICT infrastructure; and
- 6- Pursue long-term incremental implementation process based on sustainable measures, such that, each step is feasible technically and financially.

Overall, supporting the Government to establish a more sustainable, efficient, transparent, accountable, and inclusive mechanism for public construction management will be through harnessing advanced information technologies supported by institutionalized and open policies. This will help in capacitating all relevant stakeholders

of the public procurement and construction system, strengthening partnerships with private sector and increasing citizen participation in the public administration, to ultimately enhance quality, efficiency and cost-effectiveness in the public construction sector, as well as, fostering transparency and integrity in the sector.

The study identified the main gaps and solutions, in terms of transforming the Korean Experience from one central hosting governmental unit, as in Seoul Metropolitan Government, to multiple hosting entities, as in MoPWH and GAM. The main challenges related to institutionalizing the CCS in Jordan is also identified. Laws and regulations that should be implemented to foster the new system is identified, especially, issuing a new law for CCS, amending Law No. (47) for the year 2007 on “Ensuring the Right of Access to Information”. The study also identified the institutional development and organization structure requirements for the establishment of Jordan Clean Construction Units, in addition to capacity development requirements in this respect. In the case of initiating a pilot phase of implementation of CCS in Jordan, further on-line sessions orientation/preparatory on the Korean CCS and other related matters can be facilitated with the Seoul Metropolitan Government using the training center, which is planned to be developed at the JIACC, to be followed with study tour visits, as needed.

CHAPTER I: STUDY OVERVIEW

Introduction

Since 1999, Jordan embarked on a broad reform process that aims to contribute to the achievement of sustainable development. Important steps have been made in the past few years to promote democratic governance, with a clear focus on anti-corruption and enhancing transparency and accountability, through rectifying international and regional conventions, including United Nations Convention against Corruption (UNCAC) (2005) and the Arab convention against Corruption (2012), in addition to the adoption of comprehensive policies and national plans, and setting up of strong governance institutions.

While emphasis on law enforcement and corruption prevention approach remain as one of the country's priorities in its efforts against corruption, a clear shift towards enhancing the national integrity and accountability systems have raised to the surface as a fundamental factor to achieve comprehensive sustainable development. This was formally reflected in several key policy documents including the National Integrity Charter of 2013⁵ refers to accountability as a key pillar of national integrity, emphasising that all officials and decision makers in the state, private sector and civil society institutions are subject to accountability before the public opinion and its institutions without any exception. It embeds into its Executive Plan an independent pillar related to revising the regulatory structures (legislations, regulations and procedures) of the public procurement processes, and improving integrity through enhancing monitoring mechanisms in this regard, harnessing the most up-to-date information technology and other technologies to achieve national goals.

Jordan 10-year blueprint for economic and social development "Jordan Vision 2025"⁶, includes basic principles promoting rule of law and equal opportunities, and put emphasis on information disclosure to citizens, in particular, as an important foundation for better and effective transparency and accountability. Jordan Vision 2025 also focuses on improving public services and achieving sustainable growth by encouraging partnerships in public infrastructure and service projects

In 2016, Jordan adopted its new national strategy for integrity and anti-corruption (2017-2025) that aligns with the National Charter and Jordan Vision 2025. One of the strategy key pillars is "reinforcing the nation integrity system and strengthen integrity principles and standards with the aim to establish a national environment resistant to corruption. Programmes proposed under this strategy to achieve this pillar focus among other aspects, on encouraging government to automate its systems for better services.

Jordan has adopted important steps to improve its information disclosure policies, as a fundamental pillar to support its national goals in improving people livelihoods and achieve sustainable development. Efforts in this area date back to the nineties, where the ICT sector has grown tremendously since then and was able to establish a comprehensive regulatory framework and providing an enabling infrastructural environment. In addition, Jordan adopted a Law on access to information since 2007 to facilitate provision of information to public, which is, albeit insufficient, a step forward in promoting transparency. Jordan reiterate its commitment to amend this Law in its third OGP National Action Plan (2016-2018). The Action Plan also prioritizes the improvement of accountability system through strengthening grievance mechanisms.

National policies as well, place emphasis on a number of vital sectors in Jordan, that need to be recognized and accorded the priority and attention needed to improve its impact on the national economy and social benefits. Particular attention has been given to public procurement and construction system in the national reforms, where the National Integrity Charter explicitly identifies government tenders and procurement as one of the sectors that need reform through adopting specialised and effective monitoring systems that can detect and combat corruption, curb conflict of interest and guarantee integrity. The Government is in the process of preparing a 10-

⁵ For more information, please visit <http://www.mopds.gov.jo/en/PDF%20Files/NIC%20Booklet%20English%20Published.pdf>

⁶ For more information please visit <http://inform.gov.jo/Portals/0/Report%20PDFs/0.%20General/jo2025part1.pdf>

year action plan to accelerate the growth of the construction sector in Jordan, which has been designed to ensure that the sector can contribute to the realisation of the national broader goals as outlined in the Jordan 2025 vision⁷. Construction sector is envisaged to grow by 15% to achieve the GPD growth of 5% throughout 2018-2022⁸.

The Jordanian Integrity and Anti Corruption has brought sectoral approaches into focus through conducting corruption risk assessments and developing adequate responses. Efforts so far made in that direction included, among other sectors, public construction and procurement as a vital sector. Despite the progress thus far, it has been recognized that more efforts are still needed to support the national strategies aimed at enhancing integrity and accountability systems, and reducing corruption.

In this context, UNDP in partnership with the Jordanian Integrity and Anti-Corruption Commission, is supporting government's existing efforts to adopt policy options to enhance integrity and transparency in the public construction system. This comes as part of UNDP's efforts in e-Governance and anti-corruption, and aligns the JIACC's mandate to monitor the national integrity system in all sectors in Jordan, including the public construction sector. The study is leading to enhanced transparency and accountability in the public construction sector and support corruption prevention efforts building on the Korean Experience.

These efforts come in the right timing with the Royal vision to improve the public administration and complete an electronic government programme by 2020, emphasizing the responsibility of each ministry for implementing this programme, and stressing that the provision of transparent and effective services to citizens is a key part of the government's functions. Moreover, the Royal vision emphasized on reaching a "paperless government" as a necessity such that "there was no justification or room for more delay in the matter"⁹. This will make a crucial contribution towards achieving the SDGs by Jordan. More specifically, this will contribute into building resilient infrastructures and fostering innovations (Goals 9 and 11), and building effective and accountable institutions at all levels (Goal 16).

A proper implementation of information technology system building on the Korean Experience will support the public construction sector in Jordan, which is considered the backbone of the country's economy, as emphasized by the Minister of Public Works and Housing, "the construction, engineering and housing cluster is the second biggest economic sector in Jordan, behind manufacturing, and contributed around \$3 billion to the country's gross domestic product in 2014"¹⁰.

Study Objectives

The overall purpose of the study is to assess the current state of construction management systems adopted by relevant national partners, to identify related gaps, challenges and needs and propose key policy options and recommendations for establishing a more open and transparent construction management and monitoring process, leading to enhanced transparency and accountability in the public construction sector and support corruption prevention efforts, building on the Korean Experience. In addition, it will enable UNDP to design a project/programme related to the public construction sector that builds on the resulting recommendations, and in line with the national needs and priorities.

⁷ <http://www.jordantimes.com/news/local/gov%E2%80%99t-preparing-10-year-plan-construction-sector-growth%E2%80%99>

⁸ Jordan Economic Growth Plan 2018-2022

⁹ <http://www.jordantimes.com/news/local/king-sets-deadline-cabinet-complete-paperless-gov%E2%80%99t%E2%80%99-scheme>

¹⁰ <http://www.jordantimes.com/news/local/gov%E2%80%99t-preparing-10-year-plan-construction-sector-growth%E2%80%99>

Study Methodology

The methodology was developed based on the objectives of the study and in line with the Jordanian context. The Study represents a baseline for any further comprehensive assessments needed for the implementation phase, focusing on the following:

1. Introducing the study core values (technically feasible, financially feasible, inclusive, etc.) to main stakeholders and focal points;
2. Outlining and reviewing the Korean Experience (core values, main components, etc.);
3. Conducting a situational analysis and root cause analysis, which is based on analytical approach to identify the main problems, causes, and consequences;
4. Developing the main pillars of the study based on the preliminary assessment of gaps and challenges, namely, legal, institutional, management processes and ICT components;
5. Benchmarking the applicability of the Korean Experience based on the gaps and existing situation related to the identified main pillars;
6. Reviewing relevant baseline laws, regulation and policies;
7. Receiving feedback from stakeholders on ways to bridge the gaps and overcome challenges;
8. Assessing the applicability of the Korean Experience to the Jordanian local context;
9. Identifying potential stakeholders involved in the implementation; and
10. Develop full design and implementation requirements for the CCS Unit in Jordan.

The Study was conducted through a comprehensive consultation process in coordination with JIACC, including wide spectrum of stakeholders; including: the public sector (potential ordering bodies, such as, MoPWH, GAM, MoMA, PDTRA), private sector professionals (engineers and contractors), regulatory and auditing authorities, supporting entities (GTD, MoICT and MoF), and civil society including professional associations, namely, JEA and JCA. A committee consists of all relevant department at the JIACC was formed to steer the implementation of the study, in addition to the appointment of focal points by other relevant stakeholders including the Council of Ministers, MoPWH, MoMA, MoPIC, MoICT, MoPSD, GAM, PDTRA, ASEZA, Audit Bureau, MoF/PPP, JAC and JEA. Such engagement is crucial to comply with the study objectives and to help in addressing all gaps and challenges facing the public construction sector and recommendations to enhance the transparency and accountability of this sector, engaging all relevant stakeholders;

The consultation process considered the following factors; i) available frameworks and related challenges associated with public construction sector in Jordan, with focus on construction management; ii) the local context for developing the gap analysis including the technical, regulatory, cultural, and institutional constraints; iii) feasible, affordable, and manageable future development and implementation of the system; iv) step-by-step incremental realistic recommendations for the implementation process and action plans, that addresses challenges, gaps, weaknesses and/or constraints.

Coordination and technical meetings were held with all JIACC, focal points and all relevant stakeholders (Annex A) to identify main gaps and difference between the Jordan construction system and the Korean Experience, and to discuss the project requirements, needs, future implementation and the local context, regulations, legal framework, internal technical capacities, and other issues related to the design and implementation of the CCS Unit in Jordan. Available literature on the Korean Experience was translated into Arabic and disseminated to all focal points and relevant stakeholders (Annex B).

A webinar was held in December 2016 brought together relevant stakeholders from Jordan and representatives from Seoul Metropolitan Government, which helped in building a common understanding, commitment, and

knowledge for leading the establishment of the CCS in Jordan, as critical elements in supporting transparency and accountability in the public construction sector. This was achieved by introducing participants to specific components of the Korean CCS, identify the critical success factors and lessons learnt from Korean Experience, explore the rationale behind the establishment of the CCS in Jordan and enable participants to understand the importance of adopting information disclosure policy to improve the transparency and accountability of the public construction sector, review the Korean Experience in terms of its core values, main pillars, main components, legal framework, work flow, Management Information System (MIS), organizational structuring and institutional development, outline the main gaps between the Korean Experience and the existing construction management system in Jordan, request feedback from the participants, and identify the main stakeholders who should be involved in the GAP analysis. A questionnaire (Annex C) was disseminated to help identifying the potential of each stakeholder to facilitate bridging the gaps and to identify the challenges, which are the major gaps that needs special treatment in the implementation phase. The questionnaire covered all the gaps and challenges related to the legal and regulatory frameworks, institutional development, project management, capacity building needs, ICT requirements, electronic authentication and security and other issues discussed in this study.

A consultation workshop followed the webinar bringing together all focal points and relevant stakeholders from both the public and private sectors to identify strengths, opportunities, weaknesses, and threats to develop and implement a CCS Unit for the public sector in Jordan based on the Korean experience. Relevant stakeholders were also, consulted about the main legal and regulatory gaps and differences between the public construction management systems in Jordan and the relevant organizational structural adopted by the Seoul Metropolitan Government for the One-PMIS.

CHAPTER II: CONSTRUCTION SYSTEMS IN JORDAN

This chapter discusses the public construction system in Jordan from the legal and technical context. The chapter defines the main legal frameworks that can be of relevance to the CCS and main challenges in the sector.

Jordan Legal Frameworks

The following are key relevant laws and regulation to the CCS implementation. Gaps and weakness will be discussed in Chapter III.

Relevant Laws and Regulations

The following is a list of relevant applicable laws and regulations in Jordan:

- 1- Anticorruption and Integrity:
 - a. Law on Integrity and Anti-Corruption No. (13) for the year 2016, which defines the mandate and jurisdiction of the JIACC in strengthening the national integrity system in all aspects, as indicated in Article (4) of this Law.
 - b. In addition to the laws that criminalize corruption practices, including mainly, the Penal Code No (16) for the year 1960.
- 2- Construction Law
 - a. Civil Law No. 43 of 1976, which regulates the contractual and non-contractual relationships and responsibilities.
 - b. Law No. (71) of 1986 on Law of Governmental Works, which defines the tendering and procurement process of the construction sector projects.
 - c. The Jordanian National Building Law of 1993, which regulates the construction sector in Jordan, including the development and enforcement mechanism of building codes.
 - d. Regulation No. (24) of 1986, Roads Law, which regulates the planning and construction of public roads.
 - e. Engineers Association Act of 1972, which regulates the work of the engineering profession (consultancy and supervision).
 - f. Law No. (13) for the year 1987, Construction Contractors Act, which regulates the profession of contracting in Jordan and sets the conditions of contracting for all types of engineering projects. The law includes the bases of qualifying contractors to operate in Jordan, as well as, legal violations and penalties.
- 3- Information and Electronic Transaction
 - a. Law No. (15) for the year 2015 – Law of Electronic Transactions, which regulates the validity of electronic documentation, authenticated electronic signatures and electronic transactions.
 - b. Law No. (47) for the year 2007 on “Ensuring the Right of Access to Information” which classifies the type of legal information, including digital electronic information, and identifies the mechanisms through which information could be disclosed and disseminated to public. In accordance with Article 13, the Law explicitly excludes the right of access to information related to tenders, investigations in public violations, trade/financial/commercial related information.
- 4- Public Safety:
 - a. Civil Law No. 43 of 1976: which guarantees citizens’ rights and correlates harms to fouls. This ensures public safety and their health and wellbeing interests.
 - b. Construction codes, released by the National Building Council, under the umbrella of the MoPWH.

5- Ethics and Conflict of Interest

- a. Code of Ethics and Professional Conduct in Public Service, issued based on the provisions of paragraph (a) of Article No. (67) of the Civil Service Regulation for the year 2013, and any of its amendments, which ensures ethical conduct of the public employees.

Stakeholders Identification

In Jordan, there are around 52 different public construction tendering and management systems. The Public Works Law, which regulates the public construction tendering process, is mainly applicable to the projects constructed by the MoPWH. The Law excludes several entities such as GAM, ASEZA, PDTRA, municipal/village councils, public universities, the army and the police, given that each of these entities has its own tendering and construction management system, and as per Section 13 of Article 33, which states: "The provisions of this Law shall apply to all departments, except the following: - Jordanian Armed Forces, Directorate of Public Security, Greater Amman Municipality, Municipal and Rural Councils, Jordanian Universities".

The MoPWH usually undertakes projects related to the main development sectors, namely, housing, transportation, health, and education. Water and irrigation projects are managed by the MoWI-WAJ. In some cases, donors provide aids, in forms of grants or soft loans. These projects should be approved by the MoPIC, which shall follow up and partially supervise the tendering process, design, budgeting, and construction progress. Most donors request an access for the project management activities and transactions, to monitor work progress, cash flow and variations. For example, the Millennium Challenge Account - Jordan¹¹, funded by the US Millennium Challenge Cooperation, deployed a special project management software, and established a dedicated project management unit at the MoPWH for this purpose.

Through the analysis of the public construction laws, the following key stakeholders are identified as responsible parties for tendering and managing public construction projects in Jordan:

- 1- The Ordering Body: the governmental institution which requested the service, and probably mobilize funds, but not necessarily the project implementer. Ordering Bodies are under the umbrella of the Council of Ministers.
- 2- The Client: is the project implementer, which tenders and manages the project construction phases and ultimately turns the project to the Ordering Body, which is usually the MoPWH, GAM, Municipalities, and Special Zones Authority. Clients are under the umbrella of the Council of Ministers. For example, the Ministry of Education may be the Ordering Body for a school project, while the implementation might be conducted by the MoPWH, which is the Client in this case.
- 3- The Contractor: is a qualified certified company (or person) that performs work on a contract basis. In some cases, the Client implements the project (such as, the municipal projects executed by GAM). The private sector Contractors are under the umbrella of the Jordan Contractors Association.

In this context and as per Article 6-b and 6-d of the Law No. (13) for the year 1987 Construction Contractors Act, the Jordan Contractors Association is obliged to "Cooperate with the competent authorities to develop means and methods of project planning, bidding, organizing contracts and implementing related construction works"; "Cooperating with the competent authorities in matters relating to the contracting business, including the development of the unified contracting contract and the resolution of professional disputes related to design, supervision and development of the professional and technical aspects of contracting".

¹¹ <http://www.mca-jordan.gov.jo/>

- 4- The Engineer: is the project supervisor, which is usually a qualified private sector engineering firm or person. In some cases, the Engineer is the Client's Construction projects execution department. MoPWH tends to tender the supervision works for qualified firms, however, GAM tends to internally supervise the construction works. The Jordan Engineers Association is the umbrella for the legally engineering firms qualified to conduct construction works design and supervision.
- 5- Audit Bureau, which audits all financial transactions for public projects with relatively medium and high budgets (more than JOD100,000). Financial Audit of small projects is usually tackled by the internal auditing departments within the Ordering Body itself.
- 6- JIACC, which is responsible for reinforcing integrity and transparency measures, through monitoring tendering and construction management processes of public works, in addition to investigating corruption practices.
- 7- Donors/funding agencies, which respond to the Ordering Body request for financing specific construction projects through MoPIC. Most donors conduct constant follow up to assess the project progress, cash flow and variations.

The Audit Bureau, JIACC and the donors/funding agencies are the main external oversight body, that play the role of monitoring project progress and transactions. Although JIACC does not have the right to approve or deny any of the project transactions, it has the authority to question and interrogate the Ordering Body and all other relevant parties, and request information and details in case of any suspicion of corruption in the project.

Classification of Public Construction Projects

I- Bases of Classification

Projects could be classified based on their construction type, contract type, budget, duration and tender type, such that:

- 1- Type of construction, which is related to the type of facility being constructed, such as, buildings, roads, parks, landfills, etc. According to Law No. (71) of 1986 on Law of Governmental Works Section 5 Article 8, the main types of project in the Jordan Public Sector are: Buildings, Water, wastewater, irrigation, transportation, roads, mining, electrotechnical, and Telecommunications.
- 2- Type of contract; such as, schedule/Item rate, cost plus, lumpsum, special contracts (PPP-BOT, turnkey, PPP-Performance-based).
- 3- Budget; high budgets (above JOD 500,000), medium budgets (JOD 100,000 – 500,000) and small budget (below JOD 100,000)
- 4- Duration: short-term (fast-track) projects and long-term projects.
- 5- Type of project tender: central tenders, department tenders, local tenders, governorate tenders, subsidiary tenders, and special tenders, and as defined in Section 5 in Law No (71).

The above five parameters are also interrelated one to another, for example, the Law of Governmental Works and the Public Procurement Regulations identify project tender types based on the project budget. Ordering Body is related to budget and type of construction mainly. For example, a school building with a budget more than JOD 500,000 is considered a Central Project managed by the MoPWH. A small school with a budget less than JOD 100,000 might be tendered and managed by the MoE. While in the former case the Audit Bureau shall be involved directly in the project management process, the financial transactions of the latter case might be audited by the MoF.

The complexity of the project management systems is thus proportioned mainly to the budget and the size of construction. However, the work flow is related to the type of contract and the procurement regulations.

II- Type of Projects

The public construction projects could be classified according to the following categories:

1- Type of Construction:

The types of public construction projects in Jordan classified by the construction types that are listed in Table 1 below. GAM, PDTRA, ASEZA and the municipalities usually tender and manage their own projects, namely, buildings (municipal buildings, slaughterhouse, parks, smart parking, local roads, and transportation projects). PDTRA also tenders and manages heritage and touristic sites conservation construction projects.

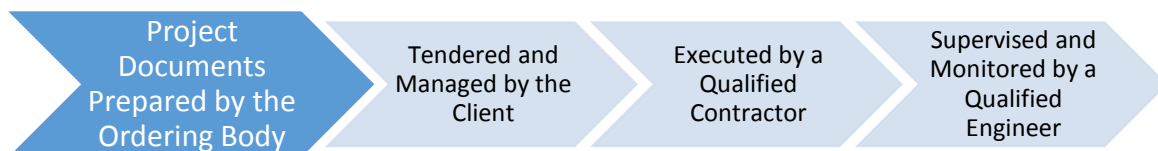
Table 1: Public Construction Projects by Construction Type

Type of Construction	Ordering Body (OB)	Client	Frequency	Budget ⁺
Buildings	MoE – Schools MoH – Hospitals MoPWH – Housing and Governmental Buildings	MoPWH	High	Small to High
Water/Wastewater infrastructure, irrigation, and dams	MoWI-WAJ	Ordering Body	Medium	High
Roads/Transportation	MoPWH or MoT	MoPWH	Medium	High
Electromechanical and Communication	JREEEF MoICT	Ordering Body	Low	Small to Medium
Mining	Governmental Companies (such as the Phosphate Mining Co.)	Ordering Body	Low	High

⁺ Refer to bullet point 3 above in the bases of classification section above.

2- Type of Contract:

The public construction contracts are based on the new Jordan conditions of construction contract, which is based on the FIDIC contracts. Most of the projects in the past and probably in the near future are based on the regular (schedule/item rate) construction contracts, given that the designs are prepared by the Ordering Body, the Client tenders the project for construction, a qualified contract execute the construction under the supervisions of a qualified professional engineering firm. The Client manage the contract and supervises the progress of construction works. For this type of contracts, stringent project management and auditing system is required to control costs, quantities, and the quality of works.



There is a new governmental trend to utilize the concept of PPP, which is a cooperative arrangement between one or more public and private sectors, typically of a long-term nature. A good example on PPP is the new Build-Operate-Transfer (BOT) and Design/Supply/Build and other special turnkey based contracts in Jordan, including, the new Queen Alia Airport project and the GAM’s new slaughterhouse. In this case, the quantities and costs are not the major concern, however, the tracking of the project phases in terms of time schedule and the quality of work is the main concern.

GAM is one of few governmental entities in Jordan that designs, executes and supervises construction projects. In some cases, project execution is outsourced to qualified contractors (bridges and large buildings). GAM had tendered few projects based on special PPP contracts, such as, the slaughterhouse and landfills.

3- Budget:

Budget of projects defines two main issues:

- a- Type of Contract, such that projects with budget more than JOD250,000 shall be based on the new unified construction contract (based on the FIDIC Red Book for new construction or the Silver Book for turnkey projects), otherwise the Short Contract Project (based on the FIDIC Green Book) is applicable.
- b- Tendering and project management Jurisdictions¹², such that the construction project shall be tendered and managed by certain governmental entity, based on its budget:
 - i. Central Tenders: construction projects managed by the MoPWH (the Client), with high budgets (more than JOD 500,000) or for projects requested by other ministries or governmental entities (Ordering Body), such as, schools, hospitals, roads, terminals, etc. A member of the Audit Bureau shall be on board with the steering committee.
 - ii. Department Tenders: construction tenders managed by any ministry or governmental entity (the Client and the Ordering Body at the same time), with budgets less than JOD 500,000. A member of the MoF shall be on board with the steering committee.
 - iii. Local Tenders: for small public construction projects, managed by the General Secretary of the MoPWH, with budgets less than JOD 100,000. It is not a condition to have a member of the Audit Bureau on board with the steering committee.
 - iv. Governorate Tenders: local construction projects for governorates managed by Governorate Public Works Director (reports to the MoPWH), with budgets less than JOD 100,000. It is not a condition to have member of the MoF on board with the steering committee.
 - v. Subsidiary Tenders: managed by any ministry, governorate, or local authority, for small projects with budget less than JOD 10,000. It is not a condition to have member of the Audit Bureau on board with the steering committee. Small budgets are internally audited by the relevant units of the MoF/Internal units at the ministries.
 - vi. Special Tenders: for strategic and/or special projects with special financing conditions under the umbrella of the Council of Ministers, usually with large budgets and special implementation needs and contract conditions.
BOT contract is becoming a common type of projects with relatively high budget. During the consultation sessions, the participants emphasized on the importance of including this type of projects in the Jordan CCS.

Table 2 summarizes the type of projects based on budget and Project Management Authority.

¹² as per Regulation No. (71) of 1986, Law of Governmental Works.

Table 2: Classification of Public Construction Tenders Based on Budget and Management Jurisdictions

Type of Tender	Budget (JOD)	Ordering Body	Client	Audit
Central	More than 500,000	Any governmental entity	MoPWH	Audit Bureau
Department	Less than 500,000	Any governmental entity	Same as Ordering Body	Audit Bureau
Local	Less than 100,000	MoPWH	MoPWH	Internal Audit
Governorate	Less than 100,000	Governorate	MoPWH	Internal Audit
Subsidiary	Less than 10,000	Ministry, governorate, or local authority	Same as Ordering Body	Internal Audit
Special	Not Defined	Council of Ministers (Committee)	Council of Ministers (Committee)	Audit Bureau MoPIC ¹³

Challenges of Construction Management in Jordan

The following table summarizes the main challenges in the public construction sector in Jordan, and discusses the main causes and effects of each challenge:

Table 3: The Main Challenges of the Jordan Public Construction Sector

Challenge	Reasons	Consequences
Variation Orders	The incompleteness of engineering studies and the accuracy of quantity estimations; due to lack of technical competency in certain areas, inadequacy of engineering fees, insufficient period allowed for studies.	Project Delay
Project financing and late payments	Miscoordination in scheduling the project payments in the next year budgets	Project Delay
Absence of violation/penalty record system for Contractors and Supervisors	Political negotiations that usually take place between the Client and the Contractors/Engineers after a violation to facilitate the project execution and reduce delays ("favor"; as described by the consulted audience).	Project Delay
Lack of effective knowledge documentation, document management systems, and standard BoQs	Absence of documents/information management system (knowledge management system) that tracks documents and resolve pending issues. Lack of continuous and systematic update for national standards specifications.	Delays in follow ups; delay in Payments; errors in Budget allocation and budget rollover; erroneous BoQs in compatible with standard specifications

¹³ MoPIC follows up the internationally funded projects only.

Slow Response of the Engineer/Supervisor	Supervision contract is based on monthly contracts, and not related to responsive actions. In absence of strict evaluation for the Engineer's performance, delays might take place.	Project Delay
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The following is the analysis of main challenges in terms of frequency, financial impact, and delay:

Table 4: Challenges Analysis

Challenge	Frequency of Occurrence	Financial Impact on Project Budget	Delays
Variation Orders	Moderate	Moderate	Moderate
Project financing and late payments	High	High	High
Absence of violation/penalty record system	Moderate	Moderate	Moderate
Lack of knowledge documentation, standard BoQs and document management systems	High	High	High
Slow response of the Engineer/Supervisor	Moderate	Moderate	Moderate

According to the above table, it could be observed that project financing, late payment and lack of knowledge documentation are the main challenges in the public construction management. The other three challenges mentioned in the table are still of a considerable significance. It could be also observed that these challenges are related to the absence of an electronic project and information management system, which should operate within an enterprise environment, and linked to other electronic national tendering and financial budgeting systems, to achieve the required integration in managing projects, as well as, allocating the suitable human and financial resources, that is Contractor/Engineer and budgets respectively. In addition to the lack of rules and codes that regulates delay caused by the people involved in the process.

CHAPTER III: CCS IN KOREA WITH RESPECT TO JORDANIAN PRACTICE

Introduction

The Korean CCS emerged as a need to combat corruption and misconduct practiced by contractors and other public construction stakeholders. In Jordan, however, the public construction is transparent and apparently “clean”, in terms of, adhering to the project documents and the national construction codes and specifications. Faulty construction is extremely rare with negligible impact on the public safety and economy. This is due to the commitment of the MoPWH and other Ordering Bodies’ to the national construction laws, which regulate procurement, engineering standards and construction processes.

The implementation of the CCS in Jordan, based on the Korean experience, comes in an effort to boost the immunity of the public construction sector against corruption and to elevate the public construction management practices, based on the best practices implemented in Seoul Government. This also comes in a perfect alignment with the MoPWH, JEA, JCA and other stakeholders official mandate to improve the construction sector practices and raise the transparency and integrity standards in this sector.

The Korean Experience emerged and developed under the umbrella of one authority, that is, Seoul Metropolitan Government (Ordering Body). Seoul Metropolitan Government was the only stakeholder responsible of the system, in terms of, development, deployment, management, monitoring and auditing. In Jordan, however, there are more than one potential Ordering Body, that might adopt this experience, with different levels of authority related to managing, monitoring and auditing of the public construction activities and transactions, such as the JIACC, Audit Bureau, MoPIC, donors and potentially other stakeholders.

Such complicated involvement of different stakeholders in monitoring the construction process, with different layers of authority, creates complication in terms of designing the Jordan CCS system, which might require multiple information disclosure systems for the authorized stakeholders, who may view or access detailed information, in addition to citizens, who may access limited level of information disseminated by the ordering body as deemed suitable.

This chapter introduces the real benefits and challenges of devising the CCS in Jordan.

Benefits

The implementation of the Korean Experience in Jordan has several advantages. It helps in upgrading the public construction practices, and provide a state of the art electronic platform, which minimizes the paperwork. This will be compatible with the Royal vision to improve the public administration and complete an electronic government programme by 2020, as instructed to the Government on March 14, 2017¹⁴.

The main benefits of implanting the CCS in Jordan are:

- 1- Create knowledge centers:
 - a. At present, data and experience are scattered, not documented, and not easily available or accessible to all relevant stakeholders. With the PMIS of the CCS information can be accessed and managed instantly;
 - b. Reduce paper works and document management effort;
 - c. Create instant executive summaries, such as, dashboards/statistics, for decision makers to be able to make informed decisions; and
 - d. The CCS Unit can serve as a knowledge sharing platform; to identify the good/best practices in construction management, which helps practitioners to develop better engineering decisions.

¹⁴ <http://www.jordantimes.com/news/local/king-sets-deadline-cabinet-complete-paperless-gov%E2%80%99t%E2%80%99-scheme>

- 2- Improve project management workflow and decision making:
 - a. CCS Center creates systematic coordination practice between consultants, contractors, ordering bodies, and donors; and
 - b. Delays and bottlenecks in construction management can be automatically identified.

- 3- Total and Integrated Project Management
 - a. The CCS Unit is a block in an ambitious implementation of a Total Construction Management System, which integrates the following public construction system components:
 - i. Procurement/tendering system such that the system could be linked to JONEPS, a computerized procurement system developed based on the Korean Online E-procurement System (KONEPS).
The system consolidates services that include an e-procurement web portal, online bids for tender, electronic contracts, and online shopping malls. Together, these make it possible to carry out procurement tasks, like registering businesses and settling payments, all at one website.¹⁵
 - ii. Construction Management and Archiving;
 - iii. Asset Management/Maintenance Schedules.
 - b. CCS Unit database can be utilized in strategic planning and management of public assets, including creating inventory lists for total asset management systems. As such, plans and requirements for new asset development or maintain existing assets can be easily identified.
 - c. Link the accreditation system of the contractors and consultants to the CCS, through automatic transactions of penalties, to enforce accountability and integrity.

- 4- Create powerful data forms and reports generating systems
 - a. The system will help in improving the quality of the construction documents practices, such as, construction specifications and BoQs. Since the quality assurance procedures pursued by most of the engineering firms in Jordan to develop BoQs and construction documents are not sufficient, the CCS will ensure the accuracy of these documents and will help in developing the capacity of the consultants to produce better work quality;
 - b. Standard auto-generated daily/monthly/ reports; and
 - c. The Ordering Body annual report can be generated automatically and easily.

- 5- Improve trust, transparency and accountability
 - a. CCS Unit can serve as a model for the country and the region – can be regionally recognized as a knowledge and excellence center in project management practices.
 - b. The system will also increase the donors’ trust in the public construction sector, which helps in mobilizing resources for construction projects; and
 - c. Deploying a public on-line information disclosure system (similar to Allimi), which will indeed help in fostering transparency and accountability in the public construction sector and increase trust between the public in the sector.

¹⁵ <http://www.korea.net/NewsFocus/policies/view?articleId=144085>

Main Gaps

It is important to identify the main gaps between the Korean Experience and the local context in Jordan. The implementation of the CCS in Jordan shall take into consideration the differences between the two contexts, for reliable and viable implementation.

Based on the literature review and the bilateral meetings with the Korean experts, it was found that the Korean Experience is very clear in terms of the main stakeholder, that is, the ordering body/client is Seoul Metropolitan Government, the engineer and the contractor are essentially a contracted private sector company. The type of construction project contracts in the Korean` Experience is well-defined (schedule/Item rate). In Korea, Seoul Metropolitan Government is the auditing authority, as well.

In Jordan, however, the definition of stakeholders is not always straight forward, such that more than one Ordering Body/Client are involved in the public construction, such as, MoPWH, GAM, MoWI, ...etc. In some cases, the Client might undertake the supervision and/or construction processes. The level of financial auditing also varies based on the type of contract and project budget.

Moreover, there is not one procurement or project contract system in Jordan, which complicates matching the Jordanian system to the Korean experience.

Therefore, there is a need to tailor the Jordan CCS to take into consideration the above stated gaps.

The following is a list of the main gaps between the Korean Experience and Jordan existing construction management system:

Table 5: Gaps between the Korean Experience and the Jordanian Construction Systems

Korean Experience	Jordan Public Construction System
City level experience with a single entity (Soul Metropolitan Government).	Governmental Multiple Systems and project implementers.
The procurement, budgeting, implementation, and financial auditing is conducted by Seoul Metropolitan Government (one entity). The same entity enforced integrity and transparency measures as well.	Multiple stakeholders are involved in the construction sector as identified in Chapter II.
Existence of dedicated CCS unit with well-defined mandate, laws, and regulation to support its functions	Existing project management system within ministries/municipalities structure organization without support of a clean construction system.
CCS unit monitors and evaluates the construction project management process and audit the financial transaction, to achieve integrity and transparency in the construction sector.	Other parties have the responsibility to audit financial transactions of public construction works (Audit Bureau and the MoF) and promote integrity and transparency (JIACC).
Existence of fully electronic public construction management system controlled by the officials of Seoul Metropolitan Gvoernment.	This does not exists and similar systems are still primitive if compared to the Korean Experience.
Integrated IT infrastructure supported by secured electronic transaction systems and legal frameworks.	IT infrastructure still need to be developed, secured electronic transaction laws exists, however, government to business electronic signatures infrastructure is not yet developed. MoICT can provide substantial technical support to

	ensure secure communication with the governmental servers
Archiving of the as-built drawings, project information, statistics, financial summaries, and transactions are mandatory and stickily enforced.	Archiving is not enforced, although Section 9 Articles 26 and 27 of the Law No. (71) of 1986 and its amendments regulates the archiving of construction works information.
Extensive and detailed information are disclosure to the public via special electronic online system (Allimi), showing all project details along the implementation phases	Limited and very basic information of the project can be disclosed right after the commencement and at project closure phases only. Project basic information are disclosed via the media, project bulletin boards and the Ordering Body Annual Reports. Article 13 of the Law on Ensuring the Right of Access to Information, limits the right to access information related to tenders as well as investigation in public violations, commercial/industrial/financial/IT related information.
Standardized BOQ, specifications, and business function templates	Not available, although the construction works are governed by classified specification and BoQ systems released by the NBC. Some of these specifications released in 1991, and need major upgrades to take into consideration new technologies and updates.
Health and Safety measures ae applied to all public construction projects. Such measures are applied to the construction site and the facility being constructed with relevant Laws and regulations.	Health and Safety is enforced by the contract conditions and the Civil Defense regulations. In certain cases, where explicit violations and negligence, the Civil Law might be applicable.
Enforcing cumulative penalty point system, which might blacklist or disqualify contractors for new tenders.	Qualification system of contractors does not take this measure into consideration.
VO are prohibited	Justified VOs are allowed, as per Section 7 Articles 22-a of Law No. (71) of 1986 the Law of Governmental Works, such that, Articles 22-b to 22-d give the authority for the Client to approve VOs as deemed necessary.

SWOT Analysis

Based on the above discussion the following is a summary of the main SWOT's identified in this study.

Strengths

- Royal visions to foster integrity and transparency.
- Royal vision for paperless government
- Jordan National Vision
- JIACC active role in enhancing Integrity in Jordan
- Jordanian engineers are with relatively high professional caliber

Weaknesses

- Law No. (47) for the year 2007 on Ensuring the Right of Access to Information Law limitations (Article 13)
- ICT electronic signature (Business to government well-tested local modality)
- Lack of public safety measures enforcement in construction projects
- lack of proper archiving of projects' as-built drawings

Challenges

- No CCS Law in Jordan; and regulatory gaps and challenges that would undermine construction management.
- multiple Ordering Bodies in the public construction sector.
- the need to standardize the BoQs and official Project Management forms.
- Multi-stakeholder involved in the process: Construction Management, Auditing, Budgets managed by different stakeholders.
- Information disclosure and the right to keep information secret.
- Enforce penalty point system on Contractors/Engineers.
- Lack of specialized code of conduct.

Opportunities

- Maturity and relevance of the Korean Experience.
- Interest and support of the international development agencies.
- Gaining publicity and public trust, which helps in boosting the funds of the sector.
- the need to develop an electronic ERP system for the public construction sector.

CHAPTER IV: CLEAN CONSTRUCTION UNIT DESIGN IN JORDAN

Introduction

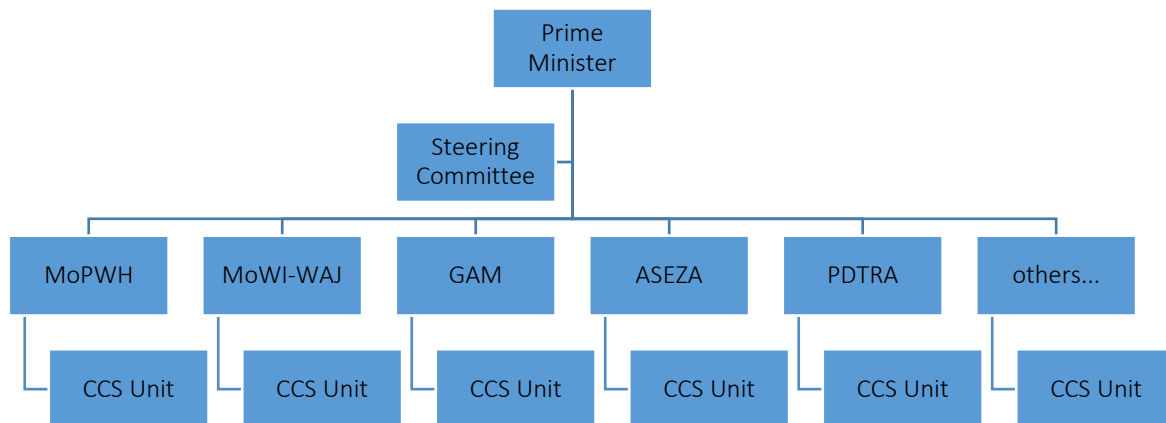
The Jordan CCS shall take into consideration the differences and gaps between the Korean Experience and the Jordanian local context. Since the Jordan CCS might be deployed in several different ordering bodies, with different construction procurement and management systems, the customization of the system requires developing a CCS Unit in each hosting institution, tailored to its needs, internal processes, organizational structure, and types of projects. For example, the MoPWH is different than GAM in terms of type of projects and mandate. As stated in Chapter II, the MoPWH deals with highways and road projects on the federal and governorate levels. The MoPWH also implements projects for other ministries such as the MoE and MoH. In addition to building and road construction projects; GAM, however, deals with municipal projects, such as, landfills and parks. The MoWI-WAJ deals with a very different type of projects and contracts, such as, dams and water supply network. MoWI-WAJ tends to attract large international funds for implementation and to utilize PPP in executing projects.

Therefore, the design of the unit is based on decentered flexible and metaphoric system with a CCS Unit managing different types of construction projects implemented by the Ordering Body.

Centralized system, on the other hand, will be very complicated to develop and to perform efficiently for government. This scenario will fail if applied on the national level, for the following reasons:

- 1- There is not a single Ordering Body in Jordan responsible of all the public construction projects;
- 2- The system will be very complicated and requires high levels of convoluted details; and
- 3- Requires developing several rules and regulations to implement it.

The Figure below shows the proposed CCS Unit organizational structure in the Jordan Government. Each CCS is independent standalone entity within the institution that it belongs to. Each CCS unit is unique in its attribute based on the types of project that it manages. This could be considered as a large-scale application of the Korean Experience.



Factors affecting the implementation of CCS in Jordan

The implementation of the CCS in Jordan shall take into consideration the following factors, in order to mandate viable set of regulatory frameworks, develop agile information management systems, and construct efficient IT infrastructure:

- 1- Suitability to the local regulatory and legislative context;
- 2- The System shall be metamorphic; to be implemented in other departments easily;

- 3- The Ordering Body has a practical need in terms of the implemented type, and budget of construction projects as well as the political will to adopt the system;
- 4- The system shall be applied on frequent type of projects with high budget;
- 5- Technically and financially feasible;
- 6- Agile, user friendly and upgradable system;
- 7- Can be coupled with other systems, such as, JONEPS and GFMS; and
- 8- Easy to be upgraded and maintained software infrastructure.

Factors affecting the CCS Unit institutional design

- 1- Sustainable long term implementation plan, based on, incremental implementation, appropriate unit infrastructure and systems, proper standard operation procedures according to the international norms, and based on the Korean Experience;
- 2- Well integrated within the existing institutional structure;
- 3- The unit management empowered and authorized within the institution; and
- 4- Well-trained and capacitated dedicated team.

CCS Unit strategic development

Objective

- 1- Enhance transparency and accountability in the construction sector;
- 2- Upgrade the professional practice of project management and archiving systems; and
- 3- Raising trust between the public and the funding agencies for construction projects.

Vision

The following is the proposed vision of the CCS Unit, which should be discussed and approved by the implementing partner and the beneficiaries:

- 1- To be recognized as the knowledge center of construction in Jordan; and
- 2- Implement state of the art information and communication technology systems for effective and efficient construction project management.

Strategy:

- 1- Promote transparency, accountability, and integrity in the public construction sector;
- 2- Raise work efficient and streamline construction projects workflow;
- 3- Increase trust between the public construction sector and potential donors;
- 4- Develop full electronic enterprise resource management system, that could be integrated with other governmental departments responsible for the managing and tendering the public construction projects, and eliminate the need for paperwork;
- 5- Share classified knowledge and statistics with stakeholders; and
- 6- Transfer the piloted CCS experience to other Ordering Bodies.

Table 6 discusses the proposed strategy item and the required actions, percussions, and requirements.

Table 6: Strategy actions and requirements

Strategy	Action	Commentary
<p>Promote transparency, accountability, and integrity in the public construction sector.</p>	<p>Provide informative systematic online information to public, such as, the Contractor/Engineer information, work progress, expenditures, necessary variations, etc.</p>	<p>Level of information to be disclosed shall be determined by the Client based on the following factors:</p> <p>1- Right of the public to know. Right of the Client & the contract to protect sensitive information (not to disclose them), according to relevant laws and regulations.</p> <p>Promotion for adopting specialized code of conducts that sets ethics and behavior rules for people involved in the process.</p>
<p>Raise work efficient and streamline construction projects workflow.</p>	<p>Proposed effective monitoring routines linked to executive dashboards, to alert about delays in project process, risk in budget allocation, risks of information documentation, and delays in providing response to pending issues.</p>	<p>System analysis shall be done properly to identify all potential gaps related to project risks and delays. Software engineer shall develop and test relevant subroutines.</p>
<p>Increase trust between the public construction sector and potential donors.</p>	<p>Analyze the donors needs in terms of the level of information and interventions required by them to management of the project. Identify such issues based on previous experiences, such as, the MCA project. Use this as an effective way to attract funds for construction projects. Identify level of information that can be disclosed to public based on applicable laws and rules.</p>	<p>This might complicate the implementation and requires higher level of software system analyses.</p>
<p>Develop full electronic enterprise resource management system</p>	<p>Link the system to other tendering and contractors/engineers classification systems, to provide integrated feedforward and feedback data and information transactions.</p> <p>Archive date, collection, store, disseminate, and transfer information to knowledge</p> <p>Develop a full paperless electronic system</p>	<p>Linkages and integration with other systems, such as JONEPS and GFMIS, shall be considered at early stages of software engineering and planning.</p> <p>IT system security is a measure concern (firewalls, e-signature, data encryption, VPN).</p> <p>Full and detailed system analysis of all types of paperwork shall be conducted, including contract, specifications, BoQ, VO, claims, periodic reports, etc. this might be a lengthy and exhausting consultation process.</p>

Share classified knowledge and statistics with stakeholders.	Share data with the Jordan National Building Council, JEA, JCA, RSS and any relevant institute to improve codes, specifications, BoQs, price lists and to develop best practices.	<p>Enough time to accumulate useful and reliable data over time is required.</p> <p>Track records of data shall be stored and shall be accessible.</p> <p>Efficient searching and query tools are required to filter and extract the data.</p> <p>Proper classification of project based on systematic inventory list and systematically tabulated data is required.</p>
Transfer the piloted CCS experience to other Ordering Bodies	<p>Unify the procurement and construction management systems at the national level.</p> <p>Share knowledge and experience with others.</p>	For efficient transfer of successfully piloted CCS experience, the procurement regulations and condition of construction contract shall be unified at the national level. This is a major challenge that might be out of scope of the project implementation, and requires strong advocacy campaigns.

Identification of Ordering Body and Type of Project

The following are the most common types of projects and the potential Ordering Bodies in Jordan, which should be targeted in the implementation of the pilot phase. The design of the unit will be based on the needs of these institutions:

- 1- MoPWH: the most common types of projects are roads, bridges, and buildings.
- 2- GAM and other municipalities: the most common types of projects are buildings, roads, bridges, parks, and landfills.

Most important types of contracts to be adopted in the design of the pilot phase, with the MoPWH are as described in the implementation plan, see Chapter V.

Proposed Organizational Structure of the CCS Unit

Institutional Organization System

The Clean Construction Unit shall be integrated within the existing organizational structure of the hosting body. Since the MoPWH and GAM are the two main Ordering Bodies with the highest frequency of tendering public construction projects, it is believed that the piloting of the project should be in one or both of them. Another potential Ordering Body that might be considered in the implementation phase is MoWI-WAJ.

The following diagram shows the proposed organizational structure for the unit in the Ordering Bodies that will potentially host the system, namely, the MoPWH and GAM, respectively. The charts also show the correlation between the CCS stakeholders within the institution and the administration and business modes.

The CCS Unit will be incubated within the existing project management office, which is usually a supporting unit for the top executive management, that is, the General Secretary or the City Manager.

Figure 1: Proposed Organizational Structure of the CCS Unit within the MoPWH

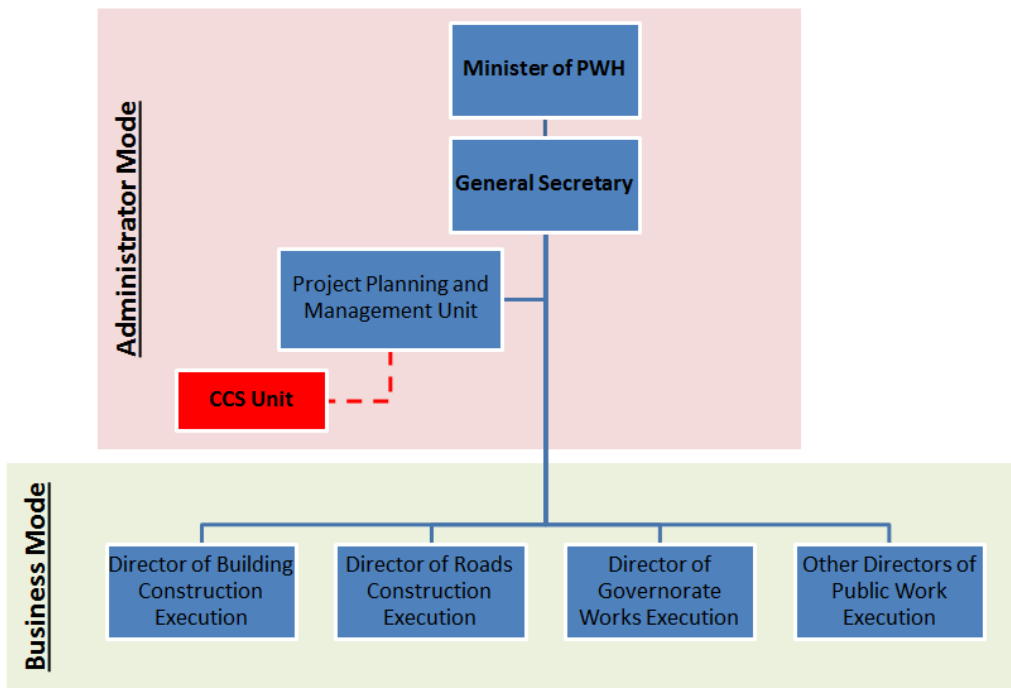
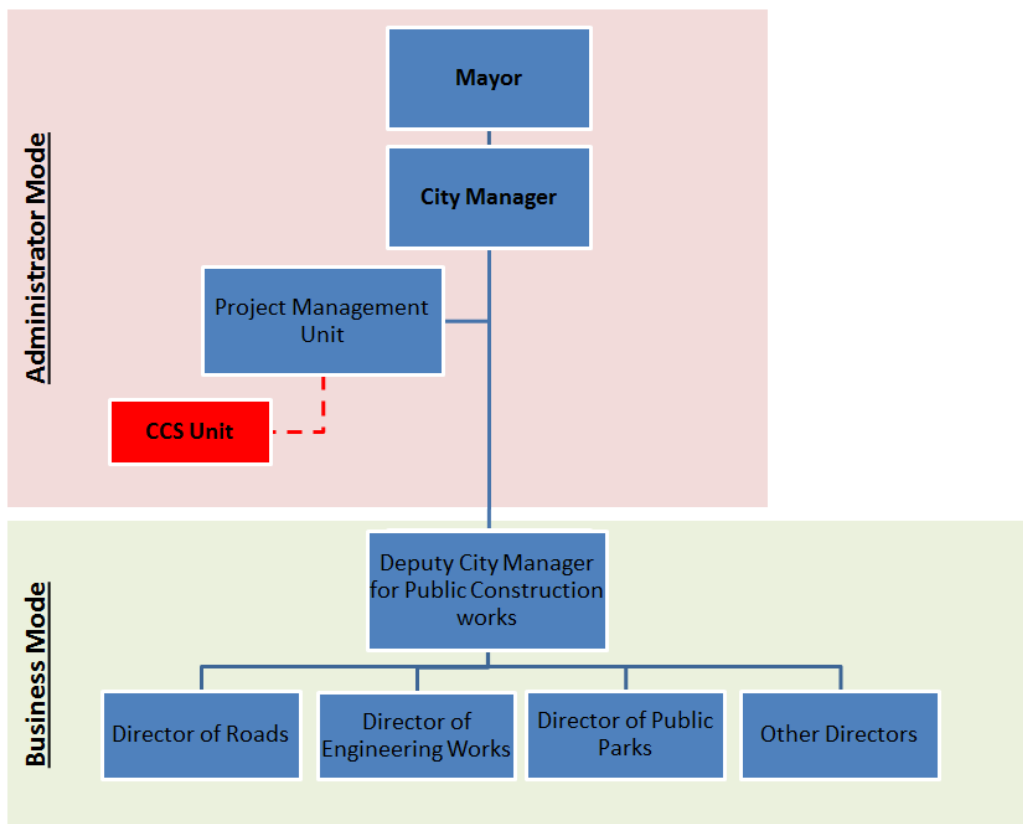


Figure 2: Proposed Organizational Structure of the CCS Unit within GAM



Proposed Human Resources

The following is the required human resources, which shall operate within the construction management department of the Ordering Body/Client:

Dedicated Team: in charge of development and required daily operations,

- 1- PMIS Unit director
- 2- 1 policy specialist
- 3- 2 civil engineers (site-managers)
- 4- 2 data specialists
- 5- 1 communication specialist
- 6- 1 IT & security specialist, to be outsourced
- 7- programmers and designers, to be outsourced
- 8- Technical maintenance of hardware system, to be outsourced
- 9- External consultants (capacity building and Follow up): System analyst + project management specialist.

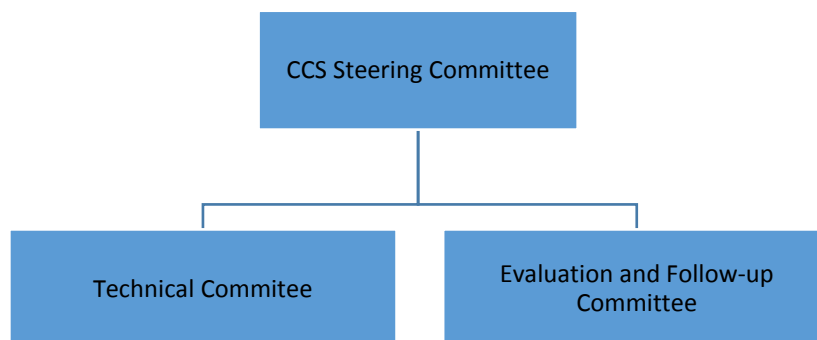
Proposed CCS Steering Committee

The CCS Steering Committee replaces the Cross Sectoral Team proposed in the Korean Experience. As opposed to the Korean Experience, several governmental stakeholders are involved in the fostering transparency and integrity in the public construction management system. For example, the MoF, Audit Bureau and the JIACC are involved. Moreover, in certain cases the Client and the Ordering Body might be different, as discussed earlier in this report. For an inclusive sustainable implementation approach of a CCS in Jordan, the CCS Steering Committee is essential to achieve the following objectives:

- 1- Providing strategic operational directions;
- 2- Ensure system performance and its transparency and integrity;
- 3- Ensure the sustainability of the institutional development, and financial elements;
- 4- Follow up the development of the CCS Unit strategies, application, and development; and
- 5- Transfer the experience to other organizations

For such high-level scope of work, it was recommended that the General Secretary of the Council of Ministers shall take the lead over the CCS Steering Committee. The foreseen CCS Act might specify certain enrolment for one of the subordinate directorates under the General Secretary of the Council of Ministers to undertake the supervisory role of the committee. This could be the Directorate of Institutional Development.

Figure 3: Proposed Organizational Structure of the CCS Steering Committee



The following is the mandate of the committee:

- 1- The **CCS Steering Committee**: To ensure the implementation of strategies and foundations of corporate governance and the development of laws in support of the work of the system and the transfer of experience to other institutions.
- 2- The **Technical Committee**: To follow-up to the level of effectiveness, technical elements, and capacity-building.
- 3- The **Evaluation and Follow-up Committee**: To monitor the foundations of electronic governance and the foundations of integrity of the system and control the effectiveness of the electronic disclosure system

The Steering Committee shall adopt a cooperative working modality, with sufficient authority within the organizational chain of command. Members of the technical and evaluation committees shall include experts in the following fields:

- a. Policies, integrity, and transparency;
- b. Institutional development;
- c. ICT and electronic security systems;
- d. Data management; and
- e. Construction management,

The three committees shall not include any of the implementing parties (beneficiaries). The following is a suggestion for the members of each committee:

- 1- The **CCS Steering Committee** shall consist of the following members:
 - a. The Prime Minister (Head of the Committee), in his capacity to lead the government;
 - b. The Chairman of JIACC, in his capacity to foster integrity and transparency;
 - c. The Minister of Public Works and Housing, in his capacity to regulate for the public construction works;
 - d. The President of the Audit Bureau, in his capacity to audit the public construction financial transactions; and
 - e. The Minister of Public Sector Development, in his capacity to lead the development of the public sector and disseminate best practices.
- 2- The **Technical Committee** shall consist of the following members:
 - a- A representative of the MoICT, to follow up on IT infrastructure, communication security and electronic transaction regulations;
 - b- A representative of the Ministry of Public Sector Development, to follow up on the effectiveness of the institutional development and capacity building requirements;
 - c- A representative of the Jordan Building Council, to follow up on codes and building regulations developments; and
 - d- A database and system analysis consultant (software engineer), to follow up system implantation and development plans.
- 3- The **Evaluation and Follow up Committee** shall consist of the following members:
 - a. A representative of the JIACC, to follow up on the effectiveness of the implementation process;
 - b. A representative of the of the Audit Bureau, to follow up on the effectiveness of the system in terms of documenting the financial transactions;
 - c. A representative of the Project Management Unit at the Prime Ministry;
 - d. A representative of the JEA, to coordinate with engineers and consultancy firms; and

- e. A representative of the JCA, to coordinate with contractors.

CCS Unit and External Stakeholders Interaction

The following is the level of interaction between the CCS Unit and external stakeholders:

- 1- **JIACC:** Navigates the project information and documents, as per the JIACC’s mandate and legal jurisdictions.
- 2- **MoICT:** Provides support regarding the electronic signatures, ICT communications and IT security systems.
- 3- **Audit Bureau:** Audits all financial records, claims, variations, and progress of the project.
- 4- **Public (Citizens):** Navigates the project information published by the ordering body.

Jordan PMIS Design

The system consists of two modes, namely:

- 1- **Administration Mode:** This mode shall be controlled by the Ordering Body, which allows access to information of all projects.
- 2- **Business Mode:** This mode is for Ordering Body, Supervisor, and Contractor to manage a specific project. Business mode structure, level of information, data access authorization varies based on the parameters identified in the Administration mode.

The software system analysis, the structure of the database, subroutines, and logic processes of the two modes shall be based on the following parameters:

- a- Project Budget
- b- Type of construction
- c- Type of Construction Contract
- d- Project duration (long term/short term)
- e- Data entry security permissions
- f- Levels of information dissemination for each user involved on the system.



CHAPTER V: IMPLEMENTATION PLAN

Implementation Strategy:

The implementation strategy shall take into consideration the following factors:

- 1- Advocate for implementing and upgrading the laws and regulations related to clean construction;
- 2- Adopt incremental practical and systematic implementation;
- 3- Recruit the right expertise;
- 4- Plan and conduct proper evaluation and planning schemes for the capacity building needs, including the CCS Unit staff and those of any related stakeholders (engineer, contractors, project managers, top management, steering committees, etc.);
- 5- Plan and conduct monitoring, validation, and evaluation schemes for each phase;
- 6- Design sustainable CCS unit relevant to the local context;
- 7- Design and implement a robust enterprise information and resource management system based on GIS;
- 8- Design and implement public information disclosure system, similar to the Allimi, taking into consideration the legal constraints on disclosing information;
- 9- Evaluate and upgrade the existing IT infrastructure of the hosting institution; and
- 10- Rely on qualified third party expertise, such as, IT company that can provide full software and hardware development services, to build and operate the system, based on long-term contracts (with proper guarantees and bid bonds)

CCS Implementation Prerequisites and Actions

The following prerequisites shall be satisfied for successful implementation of the project. These factors are also essential for the sustainability of the project after the pilot phase. Some of these essential measures need extensive and long-term planning and contentious advocacy and follow-up meetings.

Table 7: CCS Implementation Prerequisites and Actions

Prerequisite	Description	Action
Political will	To drive the process from the top to bottom; to build and enforce the system in the institution	<ol style="list-style-type: none"> 1. Acquire official blessing and full commitment of the government to implement the project; 2. Top officials shall be aware of all the details of the implementation plan, funding, benefits as well as their obligations and responsibilities; 3. Enforce the CCS in Jordan through developing special terms and conditions in the construction contract; and 4. Advocate for the need to Issue laws and regulations to institutionalize the CCS in Jordan and make it a mandatory practice.
Full engagement of stakeholders	Pursue bottom-up solution and inclusive stakeholder feedback approach	<ol style="list-style-type: none"> 1. Advocate for the benefits of the system and attain the support of intermediate and senior engineers, within the hosting body; 2. Conduct awareness and advocacy sessions to ensure participants (Engineers, project managers, data entry specialists, etc.) commitment to implement the project; 3. Change the job description of engineers and personnel involved in the PMIS/on-line information disclosure

Prerequisite	Description	Action
		<p>system (similar to Allimi) to explicitly include their roles in the CCS;</p> <ol style="list-style-type: none"> It is recommended to provide incentives for the participants (financial, promotions, etc.); Establish a CCS multi-sectoral Steering Committee, as described in this report, Link the CCS Unit directly to the top management; and Conduct awareness and capacity building/training sessions
Dedicated CCS Unit	Unit with dedicated staff and cross-sector teams for system upgrade, advocacy and capacity building.	<ol style="list-style-type: none"> Implement the proposed action plan and unit design.
Implement on-line information disclosure system (similar to Allimi)	on-line information disclosure system shall foster transparency and provide a tool to combat corruption.	<ol style="list-style-type: none"> on-line information disclosure system shall be designed and implemented effectively. As such, enough information should be disclosed to promote transparency. The sealing of information disclosure could be defined by the ordering body
Well-defined incremental implementation	Feasible and doable step-by-step implantation is required	<ol style="list-style-type: none"> Implement the proposed action plan and unit design Always identify and update the capacity building needs Always assess risks in implementation, one important risk factor is the change of management or decision makers' strategies Always validate the feasibility of the action plans and next milestones. Modify actions as needed.
User Friendly Oriented System	Easy to use system with standardized data entry forms	<ol style="list-style-type: none"> Unify periodic report forms; Unify BoQs and specifications; Unify claims, variations, and other forms; and Disseminate surveys to assess the effectiveness of the system's user interface.
Bridge the gaps with the Korean Experience	The Korean experience is different in terms of regulatory framework and project management/ procurement system.	<ol style="list-style-type: none"> Issue CCS Act, which is a major challenge; Enhance and enforce public safety laws and regulations; Issue penalty system regulation based on the CCS, and enforce it through linking it to other tendering systems, and promote adoption of specialized codes of conducts; and Enforce the electronic signature system.
Follow up and upgrade	Continuous review and upgrade for the system, based on assessment and feedback of the users.	<ol style="list-style-type: none"> Optimize and upgrade the system as needed.

The most challenging actions to be taken are the following:

- 1- Issue a new Law to institutionalize the CCS in Jordan, which shall be undertaken by top officials. An initial step towards institutionalizing the CCS is to explicitly include the using the PMIS system as a requirement in the Special Terms of the Public Construction Contract.
- 2- Unify BoQs specifications and practices, which should be tackled by the National Building Council.

Public Construction Safety measures are not yet enforced in Jordan. Although, public safety codes exist, there is not penalties for violating the safety codes instructions. In case of accidents, Contractors might be held liable and panelized for damage only. Despite the existence of the Code of Ethics and Professional Conduct in Public Service, adopting specialized codes of conduct will help in setting ethics and behavior rules tailored to this sector and support the ultimate objective for the CCS.

To enforce public safety the following shall be done:

- 1- Include the public safety measures in the contract, and assign a safety engineer in public construction projects.
- 2- Add a special condition in the construction construct to enforce applying ISO-14000 (Environmental Management) and ISO-18000 (Health and Safety Management) in all public construction projects. This provides precautionary measures to ensure public safety.
- 3- Include paid items for public safety measures, safety of equipment in the BOQ and the Contract Special Conditions.
- 4- Issue regulations to penalize contractors who violate safety requirements.

Electronic signature and encryption system is required. Registration of engineers and contractors with unique electronic signature (MoICT shall take this into account), use the smart cards as a solution or use the MAC number of the PCS with smart questions for identity verification.

Capacity building is required, JEA shall train qualified certified data entry and project manager to be able to deal with the system. The Construction Contract, or the foreseen CCS Act, should specify the qualification requirements for the Contractor and Supervision staff working on the CCS projects. These requirements shall also be addressed in the tendering and procurement systems as well. This also imply that designers and consultants should be aware of this requirement, to draft compatible conditions of contracts.

Capacity Building Needs

Capacity building is an important prerequisite for successful implementation. The following table shows the main stakeholders related to capacity building, identified in terms of their needs, roles, and actions:

Table 8: Capacity Building Needs Identification

Trainee	Trainer	Learning Needs	
Software System Analyst	Seoul Government	Metropolitan	Software requirements, user requirements, and software user interface
PMIS Unit project manager , and the Software System Analyst	Seoul Government	Metropolitan	Core, concept and strategies of the PMIS system
PMIS Unit, data entry and IT personnel	IT – Company		Data entry and using the user interfaces

JEA		database, firewall and security systems maintenance
Contractor/Engineer	JEA	System log in Using the User interface Security and identity protection

Implementation Key Performance Indicators (KPIs)

A successful implementation plan is measured by the positive impact on the public construction sector. As discussed in Chapter II, the public construction sector suffers from many challenges. A successful implementation of the CCS shall assess in mitigating these challenges and offer a chance for improving the sector’s infrastructure, including the regulatory and institutional bases. Systemic implementation of these changes shall be described by a set of qualitative KPIs, as described in the Table below. The quantitative measures of each KPI shall be determined by the implementing party, and shall be discussed with the beneficiaries, to maintain doable and feasible implementation in alignment with the project objectives and implementation pan discussed in this report.

Table 9: Implementation Challenges and KPIs

Challenge	Impact of CCS Implementation on Mitigating the Challenges	Implementation Commentaries	KPIs
Variation Orders	Moderate	The system will not eliminate the causes of Variation Orders per se; however, using the on-line information disclosure system will eliminate the unimportant VOs, due to the transparent disclosure of information, Without effective implementation of the on-line information disclosure system the impact of the CCS on reducing the unnecessary Variation Orders will be marginal.	Reduce the number of VO, with respect to the average VO for similar type of projects in the past 5 years. Control the amount of variation to 50%, which is less than the average percentage of the amount of VOs in the past 5 years.
Project Financing and Late Payments	Moderate	To achieve high impact, the PMIS system shall be connected to relevant governmental accounting systems, to ensure automatic budget item line allocation and rollover. Develop concept paper to Link the PMIS with the GFMIS. Sign an MoU with the GFMIS and identify the connection needs. Link the One-PMIS with GFMIS	Reduce the late payment due to budget miss allocation procedures to zero.

		The integration with the GFMIS ¹⁶ is essential.	
Absence of violation/penalty record system	High	Develop special regulations and points penalty system. Develop all the requirements and action plans to link the PMIS with JONEPS and GFMIS in the future.	Report the Contractors' performance, evaluation and overall performance points for each project and report any penalty on the system.
Lack of knowledge documentation, standard BoQs and document management systems	High	Requires special coordination with the Jordan National Building Council to develop a unified updated construction specifications and BoQ system.	Conduct a certain number of workshops, not less than 6, in different governorates and train a certain number of contractors and engineers on the new specifications and BoQ system.
Slow Response of the Engineer/Supervision	High	Programme the regulations stipulated in the condition of contract and the procurement regulations related to the response time of correspondences and approvals, and link it to tracking and statistical reports about delays in response. Quality Management system (forms) might be required to justify the delays. Promoting the adoption of specialized codes of conducts.	The total number of late responses shall be less than a certain percentage (2% for example) of the total number of correspondences/requests reported in the project database.

Sustainable Implementation Plan Requirements

Sustainable design and Implementation of the CCS Unit requires the following:

- 1- The CCS Unit will be designed to emerge from the vision of its host and comply with the objectives of its laws and regulations
- 2- The organizational structure of the hosting entity shall be studied to integrate the CCS Unit within its administrative and financial system in efficient and systematic way, with a minimal need for issuing new laws, regulation or changing the mandate of existing departments.
- 3- Employ dedicated administrative staff and cross-sector teams for management of PMIS; to ensure holistic solution-finding approaches and accountable management of the system's introduction and upgrades.
- 4- on-line information disclosure system has to be properly deployed, such that transparency and accountability is achieved.
- 5- Establish high level multi-sectoral steering committee

¹⁶ <http://www.gfmis.gov.jo/en>

Phasing of the Implementation

To ensure successful implementation, the project shall be implemented through two main phases over a five-year timeframe.

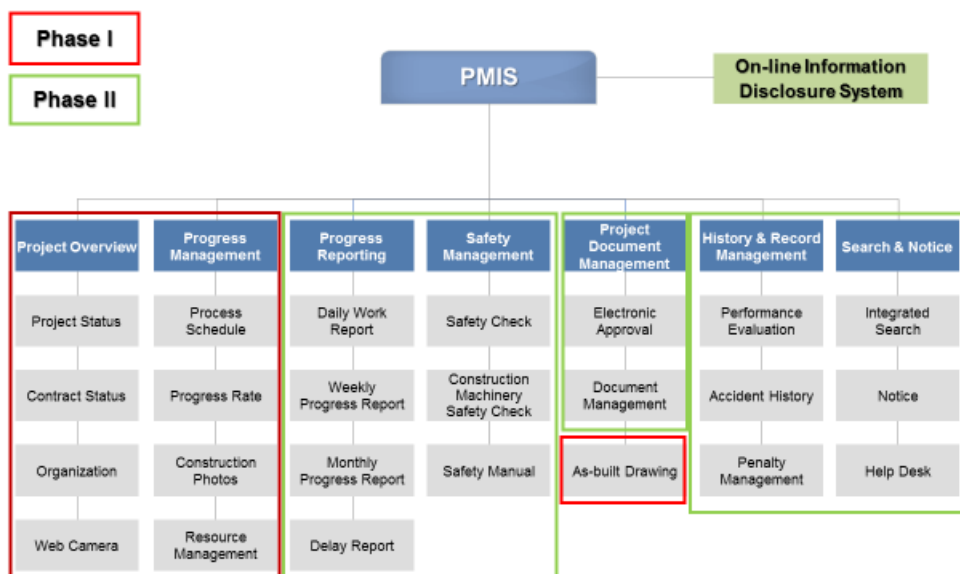
Phase I: System Piloting

- 1- Description: Through phase I, which shall be conducted over a 3-year implementation plan, fully operational unit(s) shall be deployed and work in parallel with the traditional existing construction management system. This phase shall include the following:
 - a. Conduct full system analysis and database design.
 - b. Establish a unit within an ordering body, taking into consideration all the requirements of the institutional development needs and, as discussed in Chapter IV.
 - c. Develop the standard operation procedures of the CCS Unit.
 - d. Constructing IT infrastructure, including servers, database system, taking into consideration a full long-term implementation requirements.
 - e. Develop phase I database system, as described in Chapter IV.
 - f. Implement a few pilot projects, based on the below stated selection criteria.
 - g. Conduct evaluation and monitoring to define system evolution requirements.
 - h. Upgrade the database system to be fully online system.
 - i. Implement a short term (1 year) pilot project using the full online system to validate systems functionality and operations.
 - j. Debugging and validation of the system., including, user friendly system, reporting, analysis, and archiving efficiency.
- 2- Develop Legal frameworks:
 - a. Regulatory assessment study shall be conducted, based on the above gap analysis, to identify the potential strategies and solutions.
 - b. All new regulatory requirements shall be identified in the Unified Conditions for Contract of Construction.
 - c. Bills for new laws shall be issued to the regulatory bodies. This is essential for sustainable implementation during phase II.
- 3- Type of projects: include projects that meets the following criteria:
 - a. Frequent projects: start with the most common projects namely: roads/bridges and buildings.
 - b. Budget: projects with budget of JOD 250,000 to 500,000, such as, schools and short segments of road construction. This minimizes the number of projects at the pilot project and reduce the risks of erroneous implementation.
 - c. Public construction projects as per the Unified Conditions for Contract of Construction.
- 4- Duration: 36 Months
- 5- Expected output including:
 - a. a fully functional CCS Unit within the MoPWH or GAM, including full deployment of the required institutional/managerial and ICT infrastructure systems.
 - b. Implementation of at least two different pilot projects, in terms of type of contract, construction, and budget.

Phase II: System Deployment

- 1- Description: In phase II, standalone sustainable fully online project management units shall be established; totally independent from the traditional management systems, including the implementation of the following:
 - a. Enforce the new CCS laws and regulations to ensure sustainable and long term implementation.
 - b. Implement large scale projects as per the criteria below.
 - c. Implement full public information disclosure system, two on-line information disclosure systems one for the citizen and another for officials, as described in the Chapter IV.
- 2- Type of projects: include projects that meets the following criteria:
 - a. Significant type of construction: roads/bridges and buildings.
 - b. Budget: JOD 250,000 and above.
 - c. Significant type of Construction Contracts:
 - i. Central projects of new construction based on schedule/Item rate contracts (FIDIC Red Book).
 - ii. Special projects based on special contracts (BOT, Performance Based contracts).
 - d. Include all types of contracts, namely, public construction projects as per the Unified Conditions for Contract of Construction, PPP projects and the internally funded projects, etc.
- 3- Transfer the knowledge to other governmental ordering bodies, such as, from the MoPWH to the Ministry of Water and Irrigation, PDTRA, ASEZA, and Greater Municipalities or vice versa.
- 4- Attempt to integrate the PMIS system with other governmental electronic systems such as JONEPS and GFMIS.
- 5- Duration 24 Months

The below figure shows the phases of implementation with respect to the incremental development of the different components of the PMIS and On-line Information Disclosure System.



Evaluation and Monitoring Needs

The CCS Steering Committee shall conduct the evaluation and monitoring works. The CCS Steering Committee shall develop quality control forms to reflect the progress of the following items:

- 1- Review the achievement of the project goals;
- 2- Review the achievements of the proposed KPIs;
- 3- Review the progress reports by the implementing party;
- 4- Review the progress of the project with respect to the implementation schedule; and
- 5- Review project obstacles and develop a responsibility matrix and workplan to solve each issue within acceptable timeframe.

Chapter VI: Recommendations

The following are the main recommendations to be taken as a first step in the implementation process:

- 1- Specifications, documentations, BoQs, progress reports and claims are not standardized in Jordan. Systematic standardization of project documents and forms is necessary for proper implementation.
- 2- Develop “business to government” well-tested local modality for the ICT electronic signature system.
- 3- Develop and apply Contractors/Engineers Penalty Points System.

The following are the main recommendations to be considered on the long-term implementation of the project:

- 1- Implement Online Information Disclosure System:
 - a. Guarantee fully open and transparent disclosure of information of public construction projects. This requires amendment of legislation, particularly, the Law No. (47) for the year 2007 on Ensuring the Right to Access to Information.
 - b. Issue a law for CCS to enforce the implementation of a full online “enterprise” resources and project management system, backed up with automatic informative disclosure system, which releases adequate information to attain transparency.
- 2- Issue a Code of Conduct for that set rules of ethics and behavior rules for people involved in the sector including those who will be involved in the CCS in Jordan.
- 3- Unify the Ordering Bodies in Jordan; once central tender departments for construction projects, with one procurement and tendering laws and regulations;
- 4- Streamline and simplify the procurement process and reduce the number of stakeholders involved in the construction sector (auditing authorities, financial management and national budgeting and regulatory authorities);
- 5- Develop, compile, and implement public safety measures/regulations with penalty system (fines).

Any future plans to initiate the implementation of the CCS as indicted in Chapter V above, it is recommended to introduce the implementing to the Korean Experience, starting with on-line orientation/preparatory sessions with the relevant officials at the Seoul Metropolitan Government benefiting from the training center, which is planned to be developed at the JIACC, to be followed with study tour visits, as needed.

ANNEX A: List of participating entities

Government Organizations

Council of Ministers
The Jordanian Integrity and Anti Corruption Commission
Ministry of Planning and International Cooperation
Ministry of Public Sector Development
Public Private Partnership Unit, Ministry of Finance
Internal Control Development Division, Ministry of Finance
Government Financial Management Information System
Ministry of Information and Communications Technology
Ministry of Municipal Affairs
Audit Bureau
Greater Amman Municipality
Petra Development and Tourism Region Authority
Aqaba Special Economic Zone Authority

Non Government Organizations

Jordan Engineers Association
Jordan Construction Contractors Association

Private Sector

Engineering Business Forum
Engineering Consultant (EngiCon)
Al Bitar Consultants Company
Marwan Ahmad Al Kurdi General Contracting Company
SIGMA: Architects and Engineers
Trace Engineering Company

International Organizations Programme

Seoul Metropolitan Government
UNDP Seoul Policy Center

Seoul’s Clean Construction System for Efficient Public Administration & Transparent Construction Management



A Resource Book for Practitioners

United Nations Development Programme & Seoul Metropolitan Government

October 2016



¹⁷ Korean CCS literature can be accessed at http://www.undp.org/content/seoul_policy_center/en/home/library/CCSResourceBook/

ANNEX C: Preliminary Questionnaire

بعض الفروقات والنواقص المقترحة عن نظام الانشاءات النظيفة في التجربة الكورية

الرقم	الموضوع البحث	الجواب اذا كان ممکن/موجود/متعذر	الدائرة المعنية	الشخص المعني
١.	إصدار قوانين تختص بتنفيذ نظام الانشاءات النظيفة			
٢.	تعديل بنود الشروط الخاصة لتنفيذ نظام الانشاءات النظيفة			
٣.	وجود قانون تفتيش الاليات والسلامة العامة			
٤.	وجود قانون توثيق للمخططات الهندسية التنفيذية النهائية			
٥.	بنود التعاقد غير القانوني من الباطن			
٦.	قانون الموقفات والتوقيع الالكتروني			
٧.	قانون نشر وتوزيع المعلومات			
٨.	التكامل مع نظام جونيس			
٩.	تعريف الجهة الطالبة للمشروع (الجهة المطورة للمشروع)			
١٠.	انواع المشاريع (في نمط إدارة الانشاء) - وإمكانية توحيدها			
١١.	الحاجة لبناء القدرات والتدريب لتشغيل النظام			
١٢.	المتطلبات الادارية للجهة المستضيفة للنظام (عدا متطلبات تكنولوجيا المعلومات)			
١٣.	تكامل نظام تأهيل المقاولين والمستشارين مع نظام الغرامات في نظام الانشاءات النظيفة			
١٤.	تكامل العلاقة بين القطاع العام والخاص (الفرص والتحديات) وكيف يمكن عكسها (في نمط الاعمال) في نظام الانشاءات النظيفة			
١٥.	تحديد الفريق متعدد القطاعات في مؤسستكم (مع وجود صلاحيات مناسبة لهم للعمل في نظام الانشاءات النظيفة حسب التسلسل الوظيفي)			
١٦.	تطوير جدول كميات ومواصفات ونظام ادارة انشاءات قياسي			
١٧.	توفر انظمة مشابهه بنظام الانشاءات النظيفة			
١٨.	متطلبات لاستضافة تكنولوجيا المعلومات للنظام (نظام الانشاءات النظيفة) وتوفر البنية التحتية للنظام تكنولوجيا المعلومات ونظام البيانات الخاص به.			