



ENHANCING ACCOUNTABILITY AND TRANSPARENCY OF PUBLIC LAND GOVERNANCE THROUGH OPEN ACCESS TOOLS LIKE GEOPORTAL

CASE STUDIES FROM IRAQ, JORDAN, LEBANON, SYRIA AND YEMEN

RESEARCH PROJECT ON LAND GOVERNANCE IN THE ARAB REGION

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ENHANCING ACCOUNTABILITY AND TRANSPARENCY OF PUBLIC LAND GOVERNANCE THROUGH OPEN ACCESS TOOLS LIKE GEOPORTAL: CASE STUDIES FROM IRAQ, JORDAN, LEBANON, SYRIA AND YEMEN

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GLTN and the Arab Land Initiative - GLTN is a multi-sectoral alliance of international partners committed to increasing access to land and tenure security for all, with a focus on the poor, women and youth. The Network's partners include international rural and urban civil society organizations, research and training institutions, bilateral and multilateral organizations, and international professional bodies. In 2016, GLTN Partners, led by UN-Habitat and the World Bank, launched the Arab Land Initiative to promote equal access to land, peace, stability and economic growth in the Arab region through good land governance and transparent, efficient and affordable land administration systems. The Initiative aims at empowering land champions from the region by developing capacities, increasing collaboration and promote innovation, learning and sharing of best practices. It also supports the implementation of land gender-responsive and fit-for-purpose land tools and approaches at national and local level. The Research Innovation Fund is one of the streams of work of the Arab Land Initiative.

For more information, please consult the referenced documents, visit www.gltn.net or write to unhabitat-gltn@un.org

TABLE OF CONTENTS

LIST OF FIGURES	5
LIST OF TABLES	5
ABBREVIATIONS	6
EXECUTIVE SUMMARY	7
CHAPTER ONE: INTRODUCTION AND OBJECTIVES	10
1.1. Definition of Public Land	10
1.2. Overview of Public Land Governance in the Region	10
1.3. Typical Issues in Governing Public Land	10
1.4. Definition of Open Access Data and Geoportal	11
1.5. Research Objective	12
1.6. Research Questions	12
1.7. Research Significance	12
CHAPTER TWO: LITERATURE REVIEW OF GEOPORTAL COMPONENTS	13
2.1. Public Land Management	13
2.2. Land Registry and Cadastre Data	14
2.3. Organizational Structure and Its Impact on Public Land	15
2.4. Land Registry Role in Land-Use Planning	16
2.5. Importance of a Cadastral System in Land Governance	16
2.6. Data That Can Be Shared	17
2.7. Metadata Standards and Digitization	19
2.8. Data Sharing and Duplication of Information	19
2.9. Geoportal Architecture	20
2.10. Willingness to Move Toward Digitization and Open Data in the Region	20
2.11. Summary of the Land Registry Cadastre Situation and Institutional Interaction	21
CHAPTER THREE: OPEN DATA AND PUBLIC LAND, TRANSPARENCY AND ACCOUNTABILITY	22
3.1. Open Data Advantages and Opportunities	22
3.2. Data Privacy and Data Sharing Laws	22
3.3. Correlation Between Surveyed, Registered Land and Corruption	23
3.4. Importance of Open Data for the Region	24
3.5. Online Transparency and Accountability	24
3.6. Constraints and Challenges	25
3.7. Public Land and Voluntary Guidelines on Responsible Governance of Tenure	26
CHAPTER FOUR: METHODOLOGY AND DATA COLLECTION	27
4.1. Scale of Public Land Violation and Mismanagement	27
4.2. Questionnaire for Land Experts	27
4.3. Interviews	28
4.4. Models and Theories of Open Access Data	29
4.5. Case Study	30
4.6. Obstacles and Challenges in Data Collection	33

TABLE OF CONTENTS

CHAPTER FIVE: RESULTS AND DATA ANALYSIS	34
5.1. Literature Review Results	34
5.2. Types of Revenue Generated by Geoportals	34
5.3. Results of Land Experts' Questionnaire	35
5.4. SWOT Analysis of Using Open Access Data Tool, Geoportal	40
CHAPTER SIX: DISCUSSION	41
6.1. Public Land and Land Information in the Middle East	41
6.2. Data Type and Accessibility	41
6.3. Geoportal Architecture Based on a Regional Context	42
6.4. Transparent and Accountable Information for a Token Fee	44
6.5. Geoportal in Iraq, Jordan, Lebanon, Syria and Yemen	44
6.6. Answering Research Questions	46
CHAPTER SEVEN: CONCLUSION	47
7.1. Recommendations	47
REFERENCES	49
ANNEXES	53
Annex 1. Questionnaire for Land Experts in Iraq, Jordan, Lebanon, Syria and Yemen	53
Annex 2: List of Questionnaire Respondents	54



LIST OF FIGURES

Figure I: Concept of a multipurpose cadastral system.....	17
Figure II: Latvian geoportal architecture.	20
Figure III: Democratic activity model of open data use.	30
Figure IV: Dubai land development structure.	31
Figure V: Public parcel development in Dubai.	32
Figure VI: Evaluation of land management.	35
Figure VII: Evaluation of public land management.	35
Figure VIII: Evaluation of land registry in the five countries.	36
Figure IX: Evaluation of the cadastral system in the five countries.	36
Figure X: Experts’ responses about public land inclusion in the land register.....	37
Figure XI: Experts’ response to accessibility of public land information.	37
Figure XII: Geoportals enhance transparency and accountability.	38
Figure XIII: Geoportals enhance interaction among governmental bodies.	38
Figure XIV: Geoportal use decreases land conflict.	38
Figure XV: Geoportals help reflect real land value.	39
Figure XVI: Parcel coding and addressing system in country is efficient.....	39
Figure XVII: Proposed geoportal structure for Iraq, Jordan, Lebanon, Syria and Yemen.	43



LIST OF TABLES

Table I: Data types required for geoportal and their sources.....	18
Table II: State of land registry, cadastre and organizational structure.....	21
Table III: Correlation between different indexes and measured/registered land.....	24
Table IV: Stages of online transparency maturity model.....	30
Table V: Results of literature review.....	34
Table VI: SWOT analysis of open access data approach in Jordan, Iraq, Lebanon, Syria and Yemen.....	40





ABBREVIATIONS

COI	Commission of Integrity
CSO	Civil Society Organization
DLS	Department of Lands and Survey
FAO	Food and Agriculture Organization of the United Nations
FGDC	Federal Geographic Data Committee
FOI	Freedom of Information
GALSUP	General Authority for Lands, Survey and Urban Planning
GDCA	General Directorate of Cadastre Affairs
GDLRC	General Directorate of Land Registry and Cadastre
GIS	Geographic Information System
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (German Agency for International Cooperation)
ISO	International Organization for Standardization
JTM	Jordan Transverse Mercator
NPM	New Public Management
RERD	Real Estate Registration Department
SDGs	Sustainable Development Goals
SWOT	Strengths, Weaknesses, Opportunities, and Threats
UNESCO	United Nations Educational, Scientific and Cultural Organization
UN-Habitat	United Nations Human Settlements Programme
VGGT	Voluntary Guidelines on responsible Governance of Tenure
USAID	United States Agency for International Development



EXECUTIVE SUMMARY

By the end of the feudal system in the last century, vast swathes of land in the Middle East were considered as public property under State control. This was so that the State could provide services and infrastructure to the population. In the last two decades, however, there has been high population growth, which has led to unprecedented pressure on land in the Middle East. Concurrently, this has increased demand for adequate housing to the high-demanding market. In all this, land use has played an effective role in converting rural areas into suburbs or making certain changes in the urban areas. However, because of weak land governance, there were violations in the rules guiding the change in such land use.

Recent conflicts in the region and post-conflict transitions have resulted in the misuse of power and in weak governance. Moreover, high levels of corruption have flourished where land governance is deficient and land is poorly managed. This has dampened economic prosperity, clouded transparency in the land system, and has led to tenure insecurity and corruption in land registry bodies. With the current trend towards digitization and the virtual world, the use of geoportals for accessing information may be the best way to achieve accountable land governance and to build trust between governments and their public. The use of geoportals for accessing information may be the best way to achieve accountable land governance and to build trust between governments and the public.

The status of digitizing land registries varies in different Middle Eastern countries. This research will focus on Iraq, Jordan, Lebanon, Syria and Yemen. The land register situation in these countries varies between completely digitized registers and cadastre and between poor paper-based register systems that cover only a small percentage of urban areas. This variation reflects the development of the land register, the hurdles it faced after the fall of the Ottoman Empire and under colonialism, in addition to the impact of tradition, customary and sharia laws on the land system in these countries. The registration system of public and private ownership in the five countries had gone through several changes throughout history. Some have been digitized and modernized and some have been lost in war and other types of conflict. Lessons have been learned with each post-conflict transition.

Jordan is the only country among these five that has been conflict-free since its independence. For this reason, it has made considerable progress in establishing an efficient land registration regime.

This is reflected in Jordan's position in the ease of doing business index. On the other hand, Yemen has been plagued by multiple conflicts, unification of the northern and southern parts of the country, the impact of traditions and sharia law and the difficulty of finding a common ground of integrating these two systems. Added to this is the lack of State interest in bringing the statutory and customary law together in relation to land has resulted in a very weak land registry system; in other words, an unreliable system that covers only certain urban centres.

The institutional framework in these countries is usually weak. The coordination and the collaboration between different bodies need to be organized through clear policies and regulatory frameworks that define the role of each public body dealing with public land governance. There are many incentives in the region to establish good public land management. These incentives and land registry data need to be unified and presented within one database to have a clear overview of the public land situation and what belongs to whom. This consolidation of data must take into consideration that public land in these five countries is usually under the authority of multiple ministries and not one body.

A clear definition of open data in land information is lacking. Land data can vary between cadastral maps, land use, size to land characteristics and landownership, mortgage and value.

Therefore, a definition and understanding are needed regarding the type of land data that can be shared and the resource of these data. Once these are agreed, a law is needed that regulates these definitions to avoid data chaos, lack of commitment to data production and low data quality. This will enable public access to the data through geoportals and, at the same time, demonstrate the transparency of the public land management procedure. Through the definition of these data, a framework of organizational structure can be determined to ensure the up-to-date delivery of the required information.

An open access data like geoportal has its constraints and challenges that need to be considered. These differ by country in the completeness of the land register and cadastre system, the policies that organize the relation between different bodies, as well as the willingness of a government to set up a transparent system.

Geoportal communities are easy to access, available to all and provide accurate up-to-date data. Once all public bodies have access to a geoportal,

■ ■ EXECUTIVE SUMMARY

duplication of information will be minimized. This will also mean savings in costs and time, and allow for the assignment of staff to other duties. Many establishments in the region are willing to move towards open data and build an up-to-date land information system. In addition, four of the five countries have laws that allow citizen to access information and documents, and urge public bodies to provide the requested information within an identified period of time. These laws are the fundamental to building an open access land information system like geoportal.

There are many advantages in open access data as they apply to the land sector. The most important of these is that the facility encourages interaction in the monitoring process and the transparent delivery of quality services. The use of geoportal offers other advantages, such as integrating formal and informal systems, bringing informal data to the front and integrating it to build data sets based on reality. This can be of great help in the context of customary land, reducing “tribal” land disputes and ensuring land tenures of the most vulnerable in such communities. Another advantage is that geoportals can promote the new public management concept of empowering the front-line staff to take decisions and deliver direct services without the need to seek permissions up the hierarchical ladder.

In the long term, the revenues of the geoportal can be used as appreciation for the front-line staff, which would motivate them to deliver good service.

Public land is seen as a potentially valuable revenue-generating asset that can be accrued through investments. Also, such land can serve to offset housing shortages or to host people fleeing from conflict areas. In fact, most revenue generated from public land is through investment. Investors have certain criteria in choosing the countries in which to launch their operations. For this most may consult indexes, such as the World Bank Group’s Ease of Doing Business Index. This Index shows a correlation between the status of land registry and cadastral development in a country and ranks the country. There is also a Corruption Index that exhibits a relation between the completeness of land data and the ranking. Jordan, among the five countries in this report, has the most complete land system. Its open access land data is ranked relatively high in comparison to the other four countries, which are at the bottom of the ranking list due to the incompleteness of their land systems and their disclosure. This is one of the aspects that reflect the importance of open data not only at the national level

but internationally. The openness of data mirrors the transparency and democracy that any country might try to achieve.

Three out of the five countries in this report are in a post-conflict transitional state. This means they are weak when it comes to the land sector, which allows opportunists to grab as much land as possible. Under such circumstances and in these countries, therefore, it is crucial that they provide open access data to ensure that the onset of their post-conflict political process will be smooth and avoid the mistakes of former regimes in the region. There has been huge public outcry in the region against public sector corruption, such as nepotism by those in power. To halt such practices and if conflicts in the region are to be avoided, public data must be shared, the monitoring process must be encouraged and transparency must become the norm. This takes into consideration that land issues are still the overriding reason for conflicts in the region.

Despite its huge potential to solve many land issues, the geoportal platform faces challenges. Foremost is the unwillingness of governments and the laws that limit access to information. All five countries in this report, except Syria, have passed a law that allows freedom of information. Yet none of the four countries have regulated this accessibility. Hence, in reality, the legal constraints have not been removed. There are also technical constraints in the lack of hardware (computers and survey equipment), and software to start processing the data and build the database. There is also a lack of sufficiently trained people in information and communications technology to support the service. Building capacity in this area must be combined with awareness-raising of the importance of digitizing information, maintaining public data and how this would have a positive effect on providing effective public land management.

One advantage of open access data is the revenues that it can generate by providing certain public services. The State can also retain some of these earnings. Open access can also help regulate leasing contracts for public buildings and lands, as well as give a clear value for assets to be leased or sold. This will also earn the State revenue. There are several theories that back open access data as a tool of transparency and accountability. One theory is that open access data can promote interaction and activity between civil society and governmental agencies. According to the activity theory, the actors or the citizens can use open data to monitor governmental performance. Land experts in the region are all in agreement about the weakness of institutional interaction and the data

scarcity when it comes to public land. Only Jordan has a digitized and good evaluated land management system. Reaching Jordan's level might seem long and arduous for the other countries, but they can learn lessons from each other to attain the desired level quickly.

Bringing transparency to the functioning of public institution will be reflected in staff productivity and appreciation for their services. These elements combined bring out the best of employees and lead to delivery of high-quality information and services. Dubai Land Department is the best example of this. To preserve the accountability and security of information, Dubai Land linked all the services to other public bodies directly with the database. This enables all the bodies to update information and features. Other services must first go through a check point to provide requested information. In the end, both parties will receive the information needed, but only public agency staff can edit and add information. This helps to maintain up-to-date information.

Like any research, there were some obstacles in data collection for this work. The sensitivity of the topic, as well as the current COVID-19 pandemic has made accessibility to certain information difficult. Yet the data collected reflects the actual situation of public land in the five countries based on literature reviews, expert's questionnaire and interviews. The qualitative comparative analysis based on the literature review will enable the situation of public land administration and management in the five countries to be understood. The land experts' responses will allow the analysis of data based on the actual situation of public land management. This will reflect the perception of efficiency of geoportal as a tool to enhance transparency and accountability in public land management. The Dubai case study is a successful example of using open access data to achieve the values of accountability and transparency. Based on the data collected from the literature review, the experts, and the case study of Dubai, a SWOT analysis is used to analyse the feasibility of adapting geoportal as a tool to enhance transparency and accountability in public land management and to fight corruption in this sector.

The debate on the type of land data that should be in open access is ongoing. Each State has a different definition of open access land information and every land expert has a definition based on their relation to land. The general information that is already available at hand in almost all countries and the bodies

responsible for generating it form the foundation of the geoportal.

Apart from the land-related information, policies are another aspect that should be shared. Policies should be seen as tools that indicate the role and responsibilities of a specific public body related to public land. The policies should also set down procedures, for example the conversion of public land into private ownership or the procedure for public land development.

Based on the theories and models that back open access data as a tool to achieve democracy and transparency, the possibility of using a geoportal in the five countries is discussed. This discussion includes the perception of the land experts regarding the efficiency of such an approach in fighting corruption and enhancing accountability and transparency. The fragility of the situation is dominant, but the need to fight corruption at this stage is vital to avoid dragging these countries into bigger conflicts. Jordan stands out as a stable conflict-free country, but it is exhausted by refugee influxes and economic crises. Yet the progress Jordan has made in the land sector and land mapping should be lauded and adopted by the other countries, taking into account their common history in land registry. Another adoptable Jordanian innovation is its creation of a national identity system for land parcels as a way to fight corruption and document fraud.

The definition of transparency and accountability need to be reintroduced to the public sector. Introducing the revenues that can be generated through open access data can have great positive effect on the behaviour of public bodies responsible for governing public land. Open land access can be a tool that solves a number of public land issues, such as reducing fragmentation between different public agencies, minimizing the hierarchical decisions on public land, motivate surveying and mapping public land.

Based on that a conclusion is made about the importance of open data in the region and its adaptation. Conclusion is also made on some recommendations regarding what is needed at this stage to achieve open access data transparency and accountability to enable public agencies, based on their current status, to deliver transparency. This transparency can be delivered through sharing certain information and data about public land and land-use planning, along with land policies to elevate transparency of land registries and land cadastre curbing by that misuse of power for personal benefits.

1.1. Definition of Public Land

Throughout history, and under different governments, the definition of public land has changed. Yet, at its core, all agree that public land is that which is dedicated for public use. The legal definition of public land is areas that are open to the public under government custodianship.

Ottoman law, which has been in use for several decades in many Middle Eastern countries, defines public land as *miri*, meaning that which belongs to the emir but which is given out to the public under certain conditions. The other two types of land are *mawat* and *mitruka*. *Mawat* is wasteland that can be converted to ownership with the sultan's approval. *Mitruka* can be converted to public infrastructure. These three types are defined as public land under the ownership of the sultan or State (Ottoman Land Code/1858).

In Lebanon, public land during the French mandate was divided into two: i) private domain State land to be used for revenue generation through leasing and investment; and ii) public domain State land, which was dedicated for conservation, public and social infrastructure.

Tapu, the title deed under the Ottoman system of land registration still resonates in Middle East. Most of the land that was in the hands of few during the Ottoman Empire era was designated after the empire's fall either as public or State land. Generally, today, a State or local authority owns public land, which accounts for a large portion of public wealth in developed and developing countries (Zimmermann, 2007).

1.2. Overview of Public Land Governance in the Region

For decades, the Arab region has undergone numerous changes between conflicts and between different transitional authorities, and because of corruption in some countries. These problems have led to mismanagement of resources, which have only increased the gap of mistrust between citizens and public bodies. When it comes to land use, Transparency International (2011) says, "Corruption in land use and its management is often the culprit of the breakdown of a country's overall governance." Well, this is the case for most of the countries in this research report. Here are some examples:

- The palaces and houses of the former Iraqi leader Saddam Hussein: 80 parcels were intended as public land to serve as museums or hotels. The only palace in Basra is being converted into a museum.

Instead, the rest are being used privately by some high-ranking politicians with falsified land registries (Skarlatos, 2016).

- The Homs Dream Project in Syria or "Homs Nightmare" as the locals call it: This project set out to modernize the commercial and residential areas of this ancient town, then sell the units at prices that long-standing low-income residents cannot afford. The project is now set to move forward under Law No. 10. (Qaddour, 2020).
- Private investors, with the blessing of the land registry office, have encroached on Lebanon's coastal areas which were reserved for public recreational use and tourism. The areas were then earmarked for the construction of high-end villas for sale to foreign buyers (Makhlouf, 2018; Hall, 2018).
- A large parcel of land in Sulaymanhia City, Iraq's Kurdistan Province, has been provided to a big investment company. On the land sits half of an old university building and a teaching hospital that serves low-income families. Might these structures be knocked down in future to allow for construction of fancy apartments? (Rudaw TV, 2020).
- The Jordan Times reported in 2017 that influential figures in Jordanian society were grabbing or buying public land at low prices and later selling them to multinational corporations at above market rates.

Urgent action should be taken in these countries to preserve national treasuries from huge losses, taking into consideration the weak financial situation of some of these countries and the additional burden the COVID-19 pandemic has placed on individuals and governments.

1.3. Typical Issues in Governing Public Land

Critical public land issues exist in all countries. These issues have contributed to many factors like colonization, conflict, post-conflict transition and lack of information. In the Middle East, the main issues concern public land, which can be summarized in the following points:

- Lack of information on what belongs to whom: In many countries, there is insufficient information about what land belongs to the State and under which category. Land registration in these countries target the registration of private ownership to generate tax.
- Many areas are neither demarcated nor surveyed.

Usually, the municipalities generate maps within the borders of the city or villages; a whole coverage survey is missing. The exception here is Jordan, the country was completely surveyed in 2002 (Madanat, 2010).

- Paper-based system: some countries in the region still use a paper-based land registry or partially digitized one. Hence, the update of transactions and control is a time-consuming process.
- Fragmentation of public land management: Different governmental bodies are responsible for public land management and its allocation. These bodies lack the necessary information about policies as well as communication to govern public land properly. In addition, there are overlapping responsibilities and the lack of coordination among the different governmental bodies (UN-Habitat and UNIDO, 2007).
- Corruption, for personal gain, within the political elite that interferes in public land management: Political corruption is hard to document and prosecute. Even if documented, the judicial system usually rules in favour of politicians.
- Complicated and lengthy process to obtain information and convert tenure type: In all Middle Eastern countries, the process of obtaining information about a parcel of land and the procedure for converting it from one tenure type to another is lengthy and complicated for most individuals (Madanat, 2010).
- Hierarchical centralized system.
- The lack of policy orientation (Zimmermann, 2007) as well as the lack of systematic discussion of organizational issues (Bruce, 2012).
- Weak statistical information, reliability of information (Zimmermann, 2007): In corrupted political systems the documentation of land corruption cases is hard to record. The generation of information is based on the fulfilment of the small group of elite's personal interest rather than that of the public (Transparency International, 2011).
- General unawareness of the importance of public land in generating revenue and its importance as a tool to achieve some of the United Nation's Sustainable Development Goals.
- Lack of an independent body that oversees public land management.
- State land allocation is not carried out transparently: State

land auctions are not conducted in accordance with the regulations and often do not reach public attention.

1.4. Definition of Open Access Data and Geoportal

In order to understand how geoportals work, one must understand the concept of open access data. Data are available to the public to be used, shared and distributed. Open access data is not just about providing information to the public; it can also be used to improve oversight of government and local authority when they provide data. If used properly, open access data can thus be used to fight corruption.

The United Nations Educational, Scientific and Cultural Organization (UNESCO) says open access "means free access to information and unrestricted use of electronic resources for everyone". James (2013) describes it as that which can be freely used, shared, and built-on by anyone, anywhere for any purpose.

According to UNESCO's definition, data is not just text. Any kind of digital content can be open access: from texts and data to software, audio, video and multimedia. Texts are now integrating with images, data and executable code. For the purposes of this report, open data refers to images and maps, as these remain the priority here when focus is on open access public land-related data. Open data can help achieve the Sustainable Development Goals by increasing accountability, transparency and citizen participation. Open data plays a critical role in improving governance by exposing and preventing mismanagement and corruption. It also helps ensure environmental sustainability through transparent data that can help reduce pollution, conserve natural resources and build resilience to climate change (Gurin, Manely and Ariss, 2015).

The geoportal is one tool of open access data. This tool is an electronic platform that provides geospatial data (area, coordination, use, owner), which Tahir (2018) says plays a critical role in land management. Geoportal is also the procedure for obtaining the land, the requirements, and through which public body the land can be acquired.

What is lacking, however, is a clear definition of open data on land information. It is difficult to promote the open data concept and to work to advocate for more without such understanding, according to Pichel (2017). One of the obstacles to open data on land is that the State does not have up-to-date facts. The World Wide Web Foundation (2016) says it is "rarely available online, difficult to find when available and quite frequently behind the paywalls".

1.5. Research Objective

This research paper covers Iraq, Jordan, Lebanon, Syria and Yemen. The world in general and the region specifically are facing financial crises, especially because of the COVID-19 pandemic. Some countries, like Jordan and Lebanon, were already mired in financial crisis before the start of the pandemic. Another long-standing problem is that corruption is deeply ingrained in Middle Eastern institutions. In fact, Iraq, Lebanon, Syria and Yemen lie at the bottom of Transparency International's Corruption Perceptions Index for 2019. One of the categories of this index is land governance. In a survey Transparency International conducted in 2009—in cooperation with the Food and Agricultural Organization of the United Nation—Middle Eastern governmental bodies that oversee public lands were found to be the most corrupt and mostly riddled with instances of bribery (Corruption in Land Sector, 2011). This research paper discusses the possibility of using open access geoportals in Iraq, Jordan, Lebanon, Syria and Yemen to boost accountability and transparency in public land management, thereby gaining public trust in institutions.

1.6. Research Questions

Answers to the following questions will help deliver the objective of this research:

1. Are the Arab States prepared to develop and apply open access data policy and tools such as geoportal?
2. How effective is open access data in enhancing accountability and transparency in the land governance system?
3. Are geoportals cost and time effective to be adopted in the Middle East?

1.7. Research Significance

The significance of this research is that it attempts to proffer a simple, modern solution to public land challenges. The solution would shorten the time needed to instil accountability in a region scourged by a high degree of corruption, instability and misuse of power. Whether set up regionally or at the national level, a legal data-sharing platform can work towards the solution. The platform can also prevent duplication of work in different governmental bodies, make these bodies administering public land more transparent, stamp out corruption and, as a result, be accountable. Moreover, data sharing can support national efforts towards achieving the United Nations Sustainable Development Goals, thus enabling all citizens to benefit from the public treasury.

Public land management is a dynamic process that goes beyond making recommendations, passing decrees and writing policies. It is a continual process with its positive and negative impacts. An overview of these, then, is required in order to attain accountable governance of public land.

Many policies and decrees have been issued to control the use of public land. Yet violations against such uses are increasing. They come in the form of land grabs, encroachment, misuse, selling below market prices and land usage without payment of taxes. It is now time to stop this and realize the economic and social importance of public land to the State when there are crises. A halt to the violations can strengthen the bond between public and the State, which can usher development. In working towards these goals, the fragmented nature of information on public land, the lack of institutional coordination in its management can be taken into account. Each country needs to regulate public lands through a clear policy and framework that aims to be transparent and efficient.

This chapter reviews literature on land management, administration and registry; the region's cadastral system; use of open access data in the region for information on land, and how such access can enhance transparency in public land governance. The chapter also reviews land registry and cadastral systems in specific countries, the impact of institutional interaction on public land and the type of information on this asset that can be shared. This review aims to answer the first two research questions in section 1.6.

2.1. Public Land Management

Land management is a governance process to organize the distribution and access to land and the steps needed to utilize land sustainably. This encompasses all the activities associated with the management of land rights to achieve sustainable development (Enemark, 2006).

Public land is often treated as a free good rather than a public asset of increasing value that needs to be used and husbanded carefully (Bruce, 2012). According to Grover (2008), the way in which the public sector manages the land it owns or controls "is likely to have important implications for the well-being of the population".

The land management concept is, to some extent, new to the region. Since Ottoman rule and then European colonialism, land has been in the hands of the powerful and the State. The conflicts in the Arab region have not given much space for natural development of the land sector. Jordan is the exception.

Currently, land conflicts in the Middle East have raised the awareness of the importance of proper land management. Within the region, there appears to be neither a policy nor a strategic plan for the utilization of public land. Thus, use of public land is not programmed to the best effect. Within the region, public land is handled within a largely permissive legal framework and is disposed of through case-by-case decisions in response to application or intervention (Bruce, 2012).

Public land is one of the pillars of sustainable land governance, and it is where most land issues arise. Public land is the first sought asset for the settlement of displaced people. It is the goal of every corrupt politician to exploit such land for personal benefit. Such land is also the target for every investor. Yet

public lands are a valuable State asset that should be preserved for the public good. In spite of this need, public land is one that gets the least attention of authorities in the region. In many cases, the reason for this is not due to the lack of transparency or presence of corruption. Rather, it is often due to the lack of institutional frameworks, the shortage of capacity and of equipment. There appears to be a near-total lack of awareness of the importance of public land in solving current national problems like the lack of housing and the financial crisis, and the need to preserve public land for future generations.

One of the biggest obstacles to public land management is that different ministries and local governments claim custody of such land. For example, Bruce (2012) says the Ministry of Agriculture in a country may hold authority over arable land; Environment may have control over parks and reserves; Industry may wield authority over public lands designed as industrial parks; and Irrigation may exercise authority over land earmarked for major irrigation projects. In such cases, the ministry with a fundamental land mandate may be left with control of only unallocated public lands, which are often those with the least potential for development or value.

There are many approaches to achieving good public land governance. Possibly, the best approach is the creation of a land commission. Many countries have them. These commission earns revenues from what they charge or from government subventions. Another aspect of the commissions is that they usually consist of different stakeholders from civil society, institutes and regional governments. Mostly, though, they represent only governmental institutions. A unique aspect of the commissions is that their members take decisions collectively rather than assign that task to an individual. This is done to avoid corruption.

In other approaches to inculcate good governance of public land, land registry and survey are brought together under one authority (Bruce, 2012). In some countries, the commission's responsibilities include arbitration and mediation in land disputes. Examples of this in the Middle East are the two commissions the Yemeni president created in 2013 and 2014 to compensate public land grabbed in the county's south. However, the commissions failed in this effort (Housing and Land Rights Network, 2015).

Iraq established its Commission of Integrity to oversee public services and management. The commission has reported many cases of land grabbing and brought

perpetrators to court. But, over time, the process has faltered as commissioners begin receiving threats or are forced to resign (Agator, 2013).

Decentralization is the most used approach worldwide in administration. As applied to land, decentralization encourages land reforms because local officials are able to take some primary decisions in public land management, which involves economic and social planning but is politically sensitive (Bruce, 2012). Financial autonomy can fall under the economic aspect of public land management. In some cases, such autonomy is applied to instil good governance and stymie the temptation to misuse power and engage in corruption. Land management bodies or commissions can be granted financial autonomy. Such autonomy can be one of the parameters that shape geoportals in the region, which can be accessed for a nominal fee to get services. Whether or not experts and those who seek public land services are willing to pay fees is subject for a research questionnaire prepared for the land experts in the five countries mentioned in this report.

2.2. Land Registry and Cadastre Data

The registration system of public and private landownership has been through several changes over time. Some systems have been digitized, others have been lost due to war and other forms of conflict. With each post-conflict transitional situation, lessons have been learned one of which is the loss of many documents during conflicts.

The countries that were under the Ottoman Empire rule have the land mandate included among the responsibilities of ministries of interior, local government, agriculture, and in many cases finance. Sometimes land registration is associated with the ministry of justice or the judiciary, and land survey is sometimes located in public works (Bruce, 2012).

The status of public land differs among the selected countries in this report. Some have already begun surveying and registering public land, while others have still not begun due to the misuse of power. The status of private and public land is summarized as follows:

Jordan

When it comes to surveying public and private land, Jordan is considered a leader in the region. By 2002, at least 95 per cent of the country had been mapped and registered. The largest parcel sizes are desert land measuring 10km X 10km, an area of 100 square kilometres (Madanat, 2010). Jordan

operates its own projection grid, the Jordan Transverse Mercator, meaning that all cadastre maps apply the same system. This avoids the problem of overlapping when many different projection systems are used. The Department of Land and Survey is responsible for land registration and mapping. Land registry and cadastre maps are digitized, and the department is already using a platform to deliver eServices like land transactions. However, this is only available to private landowners (Directory of Land and Survey, 2020).

Lebanon

Even though Lebanon is small in area in comparison to other Middle Eastern countries, only 50 per cent of the country has been surveyed; another 30 per cent has been delineated but not surveyed (Marrawi, 2016). The General Directorate of Land Registry and Cadastre (GDLRC) is responsible for land registration. In a measure to fight bribery and improve productivity, the directorate has initiated an eService for the public to monitor transactions and the fees collected for each phase of the operation. However, the system is still highly corrupt (Transparency International, 2019), and does not have any standards for the quality of cadastral maps shared. Moreover, the system covers only private owners of land who must pay a fee for access and registration.

Public land in Lebanon is divided into two categories: private domain State land, which is registered in the GDLRC; and public domain State land, which is mapped and documented within the ministry responsible for its management. Each of these types is regulated by a different decree that identifies who is responsible for which type.

Syria

In Syria, any land not owned privately belongs to the State, and it alone decides right of usage. As much as 62 per cent of Syrian land is State owned, 20 per cent of which is registered and the remaining 38 per cent falls under private ownership.

Some of the land registries are automated but only cover urban areas of public land. The cadastral maps are also developed to cover the urban areas and big cities like Damascus, Aleppo and Homs but not the entire country. The General Department of Cadastral Affairs is responsible for land registration under the Ministry of Local Administration and Environment. Different governmental bodies—such as the ministries of agriculture, of defence and its military housing authority, and the public housing authority—are responsible for public lands. There is no clear institutional framework or defined interaction between the different authorities (Bruce, Diab and Prettitore, 2011).

It is important to highlight that Syria has two registries for private land and public places to which it is attached. First, such lands are placed on a temporary registry until construction on them is complete. Then, when there have been no violations, the land is placed in the permanent registry. Since the establishment of a land cadastre with registers during the period of the French mandate in the country, it covered only transactions. Customary land and informal transactions were excluded from the registry. Therefore, it is necessary to highlight that parallel markets exist where land-use rights over public land are informally transacted (FAO, 2012).

Iraq

The State owns at least 80 per cent of Iraqi land (USAID, 2005), at least 70 per cent of which is surveyed. Due to its conflicts over the last 30 years, the development of the cadastre system has been limited as has the documentation and registration of public land. Many military maps have been generated as a result, but they do not reflect the reality on the ground.

Land registration is done through a Real Estate Registry, yet no unified land inventory system for State land exists. Ownership of public land is under the ministries of agriculture, of planning, of municipalities, of public works, and governorates (UN-Habitat, 2018). These different ministries and directorates have developed their own databases that are either digitized or paper-based. Crucially, they lack coordination with each other, which prevents them from establishing a single inventory of public land. Such fragmentation and lack of coordination makes large-scale corruption in the public land sector possible.

Urban areas usually have cadastral maps but they are mostly outdated (UN-Habitat, 2018). Additionally, these maps do not include the informal settlements on State land as a result of internal displacements of people. Public buildings are mapped with no indication of ownership or tenure arrangement. Some land registries, however, are being digitized, but there is no common database or defined standards for this process.

In Iraq, each ministry has a book register of land. Many of these records are outdated and there is no single database where all records are kept, according to the Ministry of Water Resources. The registers do have updated maps of vital projects. However, they are not integrated into the overall map to identify overlapping responsibilities. The recent model of

a unified inventory in the Governorate of Maysan identified some challenges encountered, and gives a perspective on the numerous cases of violations of public land (UN-Habitat, 2018).

Yemen

In Yemen, the State owns only 9 per cent of the total land. Ownership falls under customary law. Similar to Lebanon, Yemen tried in 1995 to divide its public lands into public and private domains. The country's land registration is one of the poorest in the Arab region. Cadastral maps and registration cover a very small percentage in the urban areas and, as a result, at least 85 per cent of conflict cases in the courts are related to land issues. Moreover, the land registry is still paper-based.

Land administration in Yemen varies greatly between urban and rural. In urban areas it falls under statutory law as does land registration. In rural areas the customary and sharia laws prevail. Here "tribal" leaders play a key role in land rights preservation, resolving land disputes, and sharia land inheritance regulations for women. In other words, the State has almost no authority in rural areas, therefore has no interest in investing in rural land administration. This is also due to the low value of rural land and that the State might face stiff opposition to intervention given the strength of rural traditions and norms (Prettitore, n.d.).

2.3. Organizational Structure and Its Impact on Public Land

Coordination and interaction between different public bodies is considered one of the important requirements for good land governance and sustainable land management. There is not a single body responsible for converting State-owned land into private ownership. Rather, that responsibility is spread across different governmental bodies. This and the corresponding lack of clear policy to handle State land is one of the major challenges to this region's land management. According to all the reports and assessments carried out in the region, the institutional frameworks and interactions are limited, with no clear role mapped out for each institution involved in public land governance.

In Iraq, the exchange of data among different governmental bodies are a long, slow process (UN-Habitat, 2018). The same situation prevails in Syria, where overlapping responsibilities among different bodies hinder cohesion, and there is no clear policy of resolving these issues (Bruce, Diab and Prettitore, 2011).

The exchange of documents among Jordan's public bodies is difficult (Madanat, 2010). It is even more so in Yemen where laws and norms governing different areas and regions vary. Moreover, there is no coordination between land administration governed by customary, traditional and sharia law in the rural areas and statutory laws that apply in urban ones (Housing and Land Rights Network, 2015).

The procedural exchange of information and documents between different public bodies, especially for paper-based systems, has proven to be costly and time-consuming. This has opened the doors for opportunists to exploit land for their benefits.

Encroachment is one of the common problems authorities in the Arab region face in managing public lands. Examples of this are visible along Lebanon's seashore where only 20 per cent of shoreline is available to the public (Aoun, 2018). In Iraq, illicit land sales and purchases without appropriate documentation abound (UN-Habitat, 2018). There has been misuse of other State facilities. For example, American forces in Iraq once turned Fao Palace into an entertainment facility and residence. Currently, it serves as the new American University of Baghdad-Iraq, a "non-profit" institution that does not accrue revenue to the Iraqi treasury (Tarzi, 2018). The Government has knowledge of its property but lacks clear policy on who should do what to preserve these public facilities. This is the greatest obstacle to good public land governance.

Even the definition of public land violation differs from one public body to another. This is mainly due to unclear public land policy and preservation of these areas. According to Zimmermann (2007), "Institutional arrangements for acquisition, management, and disposal of public land are generally fragmented and inefficient, combined with the lack of clarity of role and functions of stakeholders at central and local government level."

2.4. Land Registry Role in Land-Use Planning

Land registries play a vital role in land-use planning. Usually, such planning of any part of a city is made based on the registered land and cadastral maps at the land registry. The process of monitoring land-use planning is greatly linked to the land registry. Land registration usually has a description of the intended use of the land, which can be checked against what obtains on the ground. Checking is a simple comparison between the use at the time of registration and surveying of the parcel and the intended use in the plans. This blocks encroachment and overlapping of parcels of land and conflicts.

Registries and cadastral plans can be updated regularly to capture misuse of public land. Violators can then be reported to the authority that owns the public land, whoever it may be. Furthermore, keeping annual statistics of public land violations and public land convergence to private ownership helps track the impact of policies and certain events on public land management.

Some of the characteristics of good governance in land administration and land tenure suggested by the Food and Agricultural Organization of the United Nations (FAO, 2007) are available on geoportals. They are transparent, accountable, sustainable, efficient and responsive to expectations of service delivery. Additionally, good governance requires land administration agencies to publish their accounts and performance indicators.

2.5. Importance of a Cadastral System in Land Governance

A cadastral system is an important pillar in creating a solid land governance framework. It gives an overall view of land-use planning and the possible future developments on the ground. The system also helps in land valuation and for taxation purposes. Figure 1 presents the concept of a cadastral system and shows all the important related aspects.

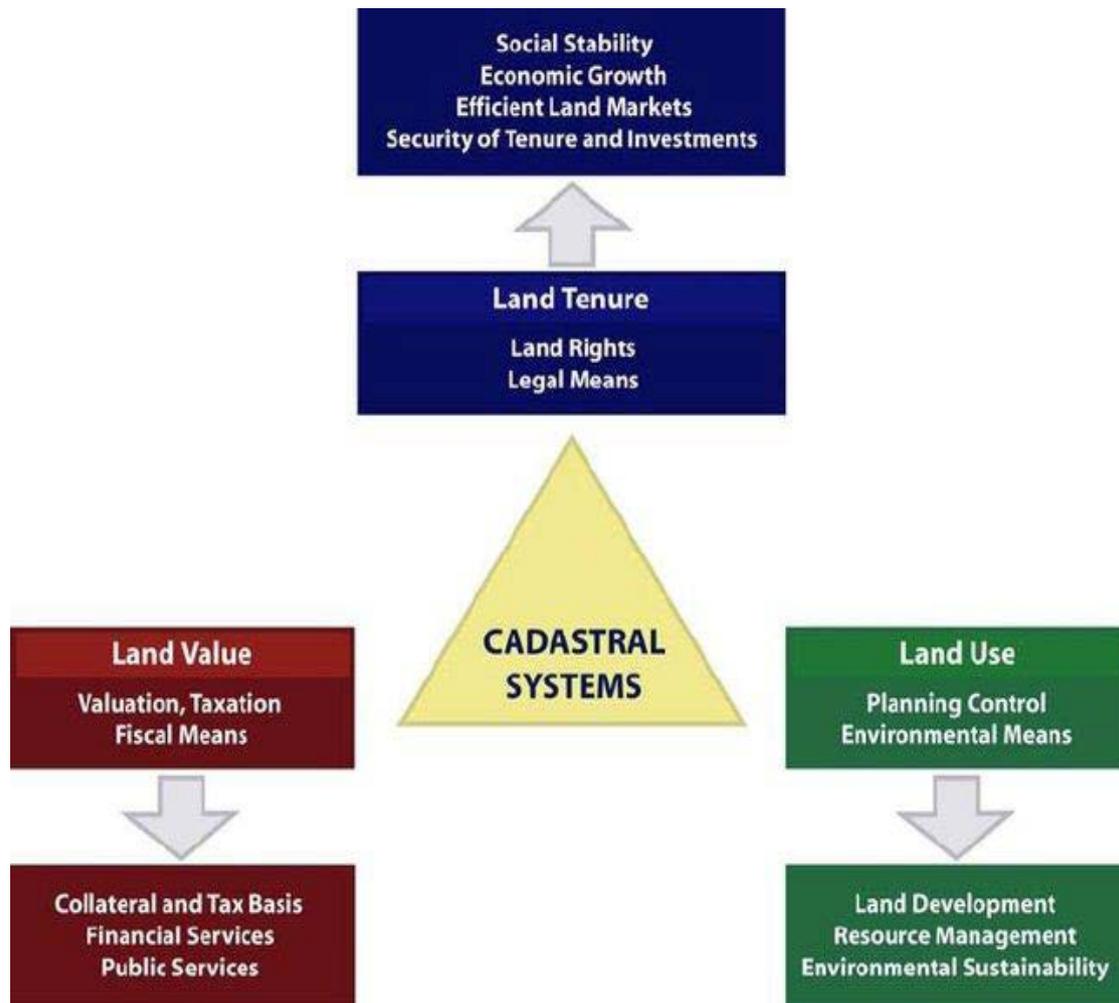


Figure 1: Concept of a multipurpose cadastral system.
Source: Enemark, 2006.

2.6. Data That Can Be Shared

There is still no clear definition of the type of land data that can be made available to the public. This makes the concept of promotion difficult in the absence of such an understanding, according to Pichel (2017). General data on public land can be obtained from that which exists in the land registry, cadastre, land-use planning and other sources.

Data needed to build an open source for public land information can be acquired from the following:

- Land registry and cadastral data.
- Cadastre data from different ministries dealing with land issues, such as the ministries of agriculture, of natural resources, and of municipalities.
- Land-use data.

- Ministry of Finance or the body responsible for collecting land tax.
- Judiciary.

Data from these sources can provide adequate information on public land. Usually, the land data from the first two sources are paper-based; only Jordan has digitized this information. The Ministry of Finance or the tax collection body and the judiciary usually use a paper-based system, but can be easily converted to a digitized form.

Cadastral data accuracy depends on the national context. For example, in Jordan these are reliable while Yemen still needs to provide data. In Iraq and Lebanon these data exist for most regions, generally urban, but they are not yet accessible. However, in Syria, the quantity of usable data, especially on land

02 LITERATURE REVIEW OF GEOPORTAL COMPONENTS

transactions and encroachments, is unknown due to conflict. Data on these two elements have rarely been documented over the last decade.

Cadastrals can provide parcel size, owner's name, parcel code and address, parcel boundaries and features, registration date, rights and restrictions on the parcel,

a map showing these details and adjacent parcels, and infrastructure (see Table I). Land-use data can provide information about the development plans of certain areas and the land zoning (residential, commercial, industrial) as well as the tenure type of land: customary, private, Waqf, or public land. There is also data on land open for investment and on that reserved for future generations.

Theme	Data	Governmental body	Country
Land registry and cadastre	<ul style="list-style-type: none"> - Owner name - Parcel (code, address) - Parcel features (size, boundaries) - Date of registration/Transaction - Tenure type - Cadastral maps (Descriptive and Geographical data) 	<ul style="list-style-type: none"> - DLS - RERD - Ministry of local government - GALSUP - GDLRC - GDCA 	<ul style="list-style-type: none"> - Jordan - Iraq - Yemen - Lebanon - Syria
Land-use planning	<ul style="list-style-type: none"> - Zoning - Restrictions - Tenure type - Infrastructure - Owner - Openness to investment 	<ul style="list-style-type: none"> - Ministry of Planning - Municipalities - Ministry of Agriculture/Irrigation 	<ul style="list-style-type: none"> - Iraq, Jordan, Lebanon, Syria and Yemen
Land value	<ul style="list-style-type: none"> - Estimated land value - Statistics of land prices over the last 5 years. 	<ul style="list-style-type: none"> - DLS - Ministry of Finance - Private real estate developers 	<ul style="list-style-type: none"> - Jordan - Iraq, Lebanon - Syria, Yemen
Land policy	<ul style="list-style-type: none"> - Laws govern public land - Legal procedure of public-private conversion and requirements - Rights and restrictions - Penalties and violations of public land 	<ul style="list-style-type: none"> - Ministry of Justice - Courts - Tribal leaders - customary land communities 	<ul style="list-style-type: none"> - Iraq, Jordan, Yemen, Syria and Lebanon

Table I: Data types required for geoportal and their sources

Data from the Ministry of Finance or any other public body responsible for the collection of land tax will reflect land value and limit speculation. This is so because the tax collected is usually calculated as a percentage of land value at the time of selling or buying. The price of a square metre in a certain zone can be estimated.

Data from the judicial body are basically the laws that govern public land and the process applied to convert land from public to private ownership, limitations and legal documentation data. For example, making this conversion in Iraq requires the approval of the Ministries of Agriculture, and of Finance, along with the municipality. Yet there is no clear process as to which body first makes the confirmation, the kinds of documents required for confirmation, the fees and length of the entire process. There are also no clear laws for land use. This deficiency sometimes results in land conflicts, which can be easily avoided with open access data.

2.7. Metadata Standards and Digitization

Metadata is the documentation of how, who, where and why covering all the facets of data production process through a detailed description of tools, services and resources (Nasruldeen, 2020). In other words, metadata is data about data (Hu and Li, 2017).

Standards are a set of defined specifications, restrictions and guidelines. They are set to ensure the quality of delivery of a certain product, in this case public land information. Having different information about land from different time periods is natural, but modernizing such information and digitizing them needs to be done in accordance with set criteria for the designed quality of shared information.

Modernizing databases through digitization is vital for creating geoportals and enabling easy access of the supply and demand sides. The process of digitization itself must be regulated through defined standards such as map scale, file format, compatible cadastral map legends, defined set of symbols, lines, layers, and certain definitions, clear parcel borders, readable font size and shape. Standards should be also applied in data collection and survey.

Compatibility between existing outdated land information to be digitized and reality is essential pre-digitization and vital to creating an up-to-date database. Set standards for these details will enhance the quality of digitized information and ease of use of these data once obtained. An oversight body can introduce these standards as a manual for all public

bodies with clear regulations about implementing the standards in the process of digitization.

Unification of data collection, mapping and data production through set standards can reduce costs, enhance quality and improve accountability. If the process is carried out transparently, especially in checking compatibility between maps and reality, it will clearly define violations on public land and allow for their detection. Furthermore, the pooling of same quality data with applied standards will be highly effective in data screening, sharing and reuse, either by other public institutes or by private stakeholders.

There are four types of metadata standards that can be adapted and used in digitization as well as building a digital database for geoportals. They are as follows:

- ISO metadata standards.
- FGDC metadata standards.
- Dublin Core Metadata Initiative Standards.
- Open Spatial Consortium Standards.

2.8. Data Sharing and Duplication of Information

Many public sector bodies, such as water and power utilities, generate plans and attributes for their systems. Surveys and planning are done and databases are created using a lot of human and non-human resources. This way they create parallel work serving the purpose of just one body. The fragmented public land management among different ministries in Middle Eastern countries, and the fact that each of these ministries try to create their own database, is the clearest example of lack of coordination, high degree of duplication and waste of resources within the institutional framework. One result of this is a huge waste of public revenue, which can be avoided with geoportals and data sharing.

Geospatial data sharing between two or more organizations takes many forms: from sharing metadata to sharing complete data sets. Data sharing is important as it facilitates economic improvements, empowers people, and establishes a situation whereby all actors within the geospatial data sharing processes such as spatial data providers, service providers and end users interact. Thus, it aims to provide usable multisource datasets to a wide scope of users.

The various organizations in a country try to perform

their survey and mapping work by using different referencing methods. This kind of duplication is common. Worse still, it makes their maps and databases incompatible and information difficult to share (Habib, 2017).

The lack of coordination and information sharing is also a problem among different public bodies. Perhaps a way around this problem will be to delegate responsibility for public land management to local agencies, which can be reviewed periodically to ascertain its usefulness (Bruce, 2012). Public land violations are widespread in the region and, unless up-to-date information exists, they will be hard to document and control.

2.9. Geoportals Architecture

To understand the structure and workings of a geoportals, we need to look at its most basic architecture, which is the Latvian geoportals (see Figure II). A geoportals is a web gateway for receiving geospatial information and services from providing organizations. It is a continuous process of describing data shared in the geoportals through metadata and provided to all the management systems that feed information to the database. Data is categorized into layers and attributes then attached to the cadastral map, resulting in a unified homogeneous database that can be accessed through a Hypertext Transfer Protocol (that is, http) access point.

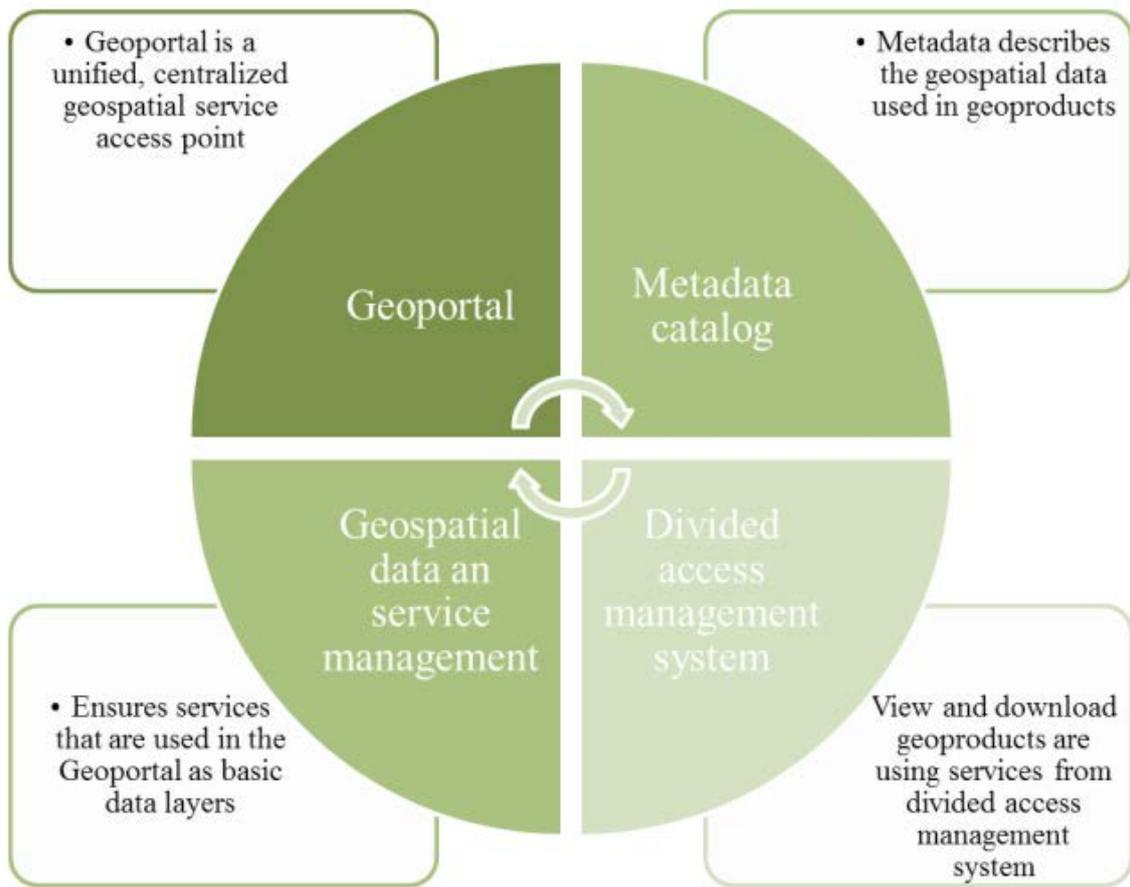


Figure II: Latvian geoportals architecture. Source: Latvia (2017).

This structure can be adapted in the five countries according to the country context.

2.10. Willingness to Move Toward Digitization and Open Data in the Region

In the last years, many governments in the region started to move towards digitization and open access data of the land management system. In Jordan, for example, one of the reasons for this undertaking was due to a World Bank assessment report on the possible benefits of this shift. In Lebanon, the motivation to digitization was that automation of the land registry process would earn the system money and allow managers to follow up any registration process.

Despite the move toward digitization, many countries have not yet not considered metadata standards required for the process. Standardization needs to be given greater attention to ensure quality of the digitized data, taking into account the real situation on the ground and the documented information. In many cases, they are very different and need to be updated, otherwise digitization of false information will bring chaos.

In Iraq, some inventories were taken and trials conducted to update and digitize databases like Al-Nahrawan City Project and Alzehour District in Baghdad. This generated a set of cadastral maps which contain the owner, shape, and size of the parcel, identifies agricultural land and the violations on it as well as the land use. The data even included additional layers for soil properties, infrastructure, historical sites, transport and logistics. All this information provides a clear overview that identifies the most appropriate location for every type of future investment, as part of the consolidated land inventory project. In 2011, there was an attempt

to coordinate geospatial data across Iraq and create an independent body to oversee the collection of spatial data, create a database, then disseminate the data to public bodies (McLaren, 2011).

Syria, with Turkish help, was trying to digitize its land registry before the conflict broke out. Although the project was halted for this reason, there is now renewed interest to digitize cadastral maps. This interest is born out of an understanding of the importance of data and the infinite opportunities digitization provides. The new interest also shows the willingness of public bodies to work together. This is very important because the State wants to stamp out corruption and, thereby, gain public trust. Syria's land administration is the third most corrupt governmental agency after the police and judiciary, according to Transparency International (2011).

2.11. Summary of the Land Registry Cadastre Situation and Institutional Interaction

Table II summarizes the situation of land registry, cadastre in the five countries for public and private land as well as the organizational interaction, based on literature review.

It is important to highlight that the percentage of the surveyed area usually covers public land in urban areas. In rural areas only some are surveyed. However, the information related to public land is rarely updated and does not match reality. This inconsistency between reality and existing outdated information is of high importance in conflict and post-conflict countries, where public land is used to shelter displaced populations or where armed groups infringe on them during conflict.

	Jordan	Iraq	Lebanon	Syria	Yemen
Surveyed area	95%	30%	70%	Only some urban areas in the permanent registry	Nearly 9%
Cadastre condition	digitized	Mostly paper based	Digitized and paper based	Digitized and paper based	Mostly paper based
Land registry	Digitized	Mostly paper based	digitized	Mostly paper based	Mostly paper based
Exchange of information between public bodies	Weak	Weak	Weak	Weak	weak
Responsible body for land registration	DLS	RERD	GDLRC	GDCA	GALSUP
Statistics on violations. Developed public land	yes	none	Not updated	none	none

Table II: State of land registry, cadastre and organizational structure



This chapter tries to answer the research questions by presenting the challenges and advantages of open data as well as the constraints of geoportals. The chapter attempts to explain why having an open data tool like a geoportal is vital to the region. In this respect, the chapter examines the correlation between certain indexes and complete databases in Jordan, Iraq, Lebanon and Yemen to explain the importance of data in encouraging transparency and accountability.

3.1. Open Data Advantages and Opportunities

According to Craner (2017), the provision of data to citizens entails the following benefits:

- Time-saving and cost-effective for the user
- Reduced data duplication
- Reuse of other data sets from multiple organizations
- Build employees' skills to make data-driven decisions
- Attract positive attention of the public and media
- Increase revenue and create new opportunities
- Increase efficient usage of data by communities and individuals

Provision of data in the land sector will accomplish the following:

- Help control land-use planning
- Reduce corruption
- Reduce land encroachment
- Motivate civil society organizations to work jointly on sustainable land governance
- Enhance transparency
- Promote sustainable development goals
- Retain cost and time for different public agencies

Open access data through geoportals opens the door to a lot of opportunities:

Geoportal as a tool to integrate formal and informal datasets. The existence of informal data is normal in Middle Eastern countries, especially those in conflict and post-conflict situations as well as areas where traditions and customary laws prevail. Even though informal data might pose a technical challenge in data standardization, there can be a source of de facto data. Geoportals can bring these two data streams closer together by publication of formal data and

comparing it with the informal or double-check that which exists. This will build trust, efforts to instil the ideal of accountability in public officials and merging of information. According to Pichel (2017), "realizing partially complete land information that only reflects registered land could leave out a large portion of citizens, particularly those already marginalized communities occupying land held under customary tenure". In other words, in order to know the actual situation of public land, informal data should be considered as an opportunity to build an up-to-date geoportal facility.

Geoportal as a tool for a new public management concept. Grover (2008) describes new public management as a concept that describes "the range of changes that involve the empowerment of front-line staff to determine how public services are to be delivered". It is a concept that aims to minimize the top-down public management style in favour of one that heavily involves front-line staff in decision-making to manage public assets within a defined policy framework. The concept combines with a geoportal can deliver accurate public land information through these staff members. It can also help to create a healthy competitive spirit among different agencies and ministries to deliver and maintain the accuracy of data, deliver good service to the public, emphasize commitment to land-use planning and policies in relation to public land management. If, for example, each ministry managing public land has access to the geoportal and updates information, the same staff members will be well informed on what belongs to their agency or ministry. They will also be able retrieve documents to their respective establishments when needed. The more accurate and up-to-date data a ministry provides to the common geoportal, the greater the perception of accountability and transparency of the ministry in the public eye. In fact, front-line staff constitute the transparency engine that curbs high-level corruption (FAO, 2007). Analysis of what is needed to achieve good administration suggests it is policies that are compatible with new public management.

3.2. Data Privacy and Data Sharing Laws

Data privacy has been a key concern, in recent years, in the conversion to digitizing and the wide application of social media. Many laws and regulations are being issued every month to cope with the rapid developments. With more of the world moving towards democracy and transparency, many public sector bodies have provided data and information to the public open and free of charge.

In the last few years, the Lebanese Parliament has passed anti-corruption laws, one of which of 2017 permits open access to public administration information. This is a measure designed to regain public trust and allow for the monitoring of Government activity (Democracy Reporting International, 2020). Yet the law has not been fully implemented. The reasons for this are two-fold: first, is that present laws contradict previous ones related to confidentiality of certain documents and the person requesting information; second is that some public bodies are unaware of the present law (LexisNexis, 2017).

Jordan is the first among the countries in this report that has been trying to pass laws guaranteeing public access to information. On 15 May 2007, the Law on Guarantee of Access to Information No. 47 (2007) was promulgated. Article seven says: "Every Jordanian has to right to obtain the information he/she requires in accordance with the provisions of this Law, if he/she has a lawful interest or a legitimate reason therefore" (Ministry of Environment of Jordan, 2016).

In 2012, the Yemeni Parliament promulgated the Rights of Access to Information Law 13 that states: "Access to information is one of the basic rights of the citizen. Citizens have the right to exercise this right within the law. Foreigners can have access to information on the condition of having the same treatment." The access to information is through a public body called the National Information Centre.

Iraq issued a similar law in 2017 after six years of discussions about the kind of information that can be made public. Among these was information about land. The law says: "Every normal person has the right to access information and documents in the State administration with respect to other laws. Misuse of information and documents will be fined according to the Iraqi law".

Although these laws allow access, one must first make a request to the pertinent public body and wait for the stipulated time period for a response. However, the extent to which one can access information in these countries remains debatable. But the fact that such laws exist demonstrates governments' determination to fight corruption. However, vested interests and the direct involvement of certain agencies and political figures embroiled in corruption cases hinder the process. Even so, having these laws shortens the road to opening a geoportal facility providing public land information. Syria, though, does not have a law

allowing access to information on land and other material related to the State and its administration.

In order to ensure the implementation of the law in the four countries that grant the right of access to information, an assessment of the implementation will be needed and should be done regularly. Such assessment will help in measuring the transparency of public bodies. Assessment is based on the three following principles according to Access to Information Topic Guide (McDevitt, 2011):

1. Examination of the supply side of the chain of access to information.
2. Monitoring the demand side.
3. Assessing the institutional mechanism for implementing access to information law.

3.3. Correlation Between Surveyed, Registered Land and Corruption

There is significant correlation between surveyed and registered land, and corruption worldwide, and the Middle East is no different. As presented in chapter two, Jordan is the most advanced country among our five countries this research is talking about. The country area is up to 95 per cent surveyed. Jordan's land registry, cadastre is almost fully digitized and the information access is somehow easier than in other countries. Yemen is the poorest when it comes to land registration, digitizing, and mapping. This correlation reflects the effectiveness of land measurement and registration, digitizing, and open data on the transparency and accountability of the governmental bodies administering land. It is important to mention that in Iraq, Lebanon, and Syria, public lands in urban areas are usually surveyed; this applies to big cities and is usually registered in the land registries. Public land inventories and cadastral maps in general fall under the ministry responsible for that public land and not within the land registry itself.

The more data we have the more power we possess to fight corruption to enhance the governing system and reach sustainable development goals. The purpose of registration, digitizing and open data is to enclose the gap of scarce information in the region and build bridges of trust between government and citizens to ensure good use of public land as an asset in these countries for the next generations and for the current hard situation during the pandemic. Table III shows the correlation between measured and registered rate and some indexes like the ease of doing business and the corruption perception index:

Country	Jordan	Iraq	Lebanon	Syria	Yemen
Measured/registered land (private and public)	95%	30%	50%	Only some urban areas	9%
Doing business rank	75	172	143	176	187
Corruption perception index 2019 Score/198	60/198	162/198	137/198	178/198	177/198
Control of Corruption indicator	60.58/100	7.21/100	12.02/100	1.44/100	1.92/100

Table III: Correlation between different indexes and measured/registered land

Therefore, it is fundamental to have accurate, up-to-date records of public land to achieve responsible management.

3.4. Importance of Open Data for the Region

Three of the five countries in this report are in a post-conflict transitional state. This situation is delicate and requires much attention for the land sector, since land is usually the reason for conflict. Land means everything, especially for displaced people. In order to resettle such people peacefully, public land needs to be protected from misuse and grabbing.

The latest report by the German Agency for International Cooperation (GIZ) says that indirect methods of fighting corruption in fragile countries could be done by enhancing government transparency. It adds that technical approaches could be best suited in the fragile context (GIZ, 2020). Iraq, Lebanon, Syria and Yemen are considered fragile in that they are characterized by weak rule of law. The same report indicates that fighting corruption in this context directly can be the cause of instability and violence since it requires working against interests of the powerful.

Aside from the frequent conflicts in the region, all five countries are on the verge of economic collapse. That means these States should start using assets such as public land to achieve relative stability.

One of the reasons all five countries were embroiled in the Arab Spring demonstrations was the high rate of corruption in public institutions. So, the countries need to be restructured to ensure harmony and collaboration among them for the efficient and transparent delivery of quality service. This can narrow the lack of trust between the public and

these institutions. According to a Chatham House report, corruption is strongly associated with political instability and violence. The report gives the example of Yemen, where it says embezzlement of public funds and tax evasion have contributed to the uprising against the Government (Hill, Salisbury, Northedge and Kinninmont, 2013).

Scarce information on land is of huge concern in the Middle East. When the State does not know what belongs to whom, control and monitoring of State land is fraught with difficulty, which allows opportunists and terrorist to misuse the public treasury.

Climate change has also placed an extra burden on land management. The arid and semi-arid weather of the region is now forcing officials to start thinking and designing innovative ways to manage public land better so that the impact of climate change in the region is greatly reduced. Public land can be invested and used sustainably.

Open land data will give land experts in the region the chance to be part of the public land management process. It will open endless opportunities for controlling land-use planning, end land grabbing and land encroachment. Open data is a tool for reducing land conflicts and to define clear policies for public land management.

3.5. Online Transparency and Accountability

The main objective of open data in any democracy is to increase accountability and participation as well as efficient transmission of information. Accountability and transparency go hand in hand, especially when sharing new information (Worthy, The Impact of Open Data in the UK, 2015). Nasruldeen (2020) says that

open data can also be used in championing the idea of social monitoring where the public is used to spot and scrutinize government information. Transparency and accountability need to be closely examined to understand their relation.

Bovens (2007) defines accountability as “the obligation to explain and justify conduct to whom account is to be rendered”. Under the concept of political accountability, representatives of governmental bodies are expected to inform the general public of their dealings. This, then, would serve as an avenue to check potential and administrative abuse of power. Of the authorities surveyed on the issue of accountability, more than 40 per cent identified some increased accountability as a result of publication, driven by an eclectic mix of groups already formally or informally monitoring government rather than citizens (Keane, 2009). Some respondents felt publishing data had professionalized their systems. A few agencies recorded improved information flows and a greater understanding, internally, of previously complex processes (Worthy, 2013). Lourenço and Serra (2014) say while transparency has been long associated with “traditional” (paper-based) freedom of information, technological advances, particularly the Internet, have impacted significantly enhanced public access to government information.

By combining these two definitions, one can see that open data access through geoportals are a sure path to ensuring transparency and accountability of public land management and government business. Attainment of these two goals will largely prevent corruption, especially the high-level type, in the land management system. Since each public agency is accountable for information it provides through the geoportals, it is directly accountable and subject to public scrutiny.

3.6. Constraints and Challenges

Building and running a geoportal is tasking but serves as a front desk that delivers services devoid of malpractices such as bribery and corruption. The construction of a geoportal system has many challenges depending on the country context. The more digitized the land information system in a country, the easier it is to erect a geoportal.

Digitization is the key to geoportal and open data provision. In addition to that is public awareness of the importance of a database for public land administration. Many take it for granted that public

land is for public use and, therefore, is not under State control. But often the State does not know what land belongs to it and that, even if it did, it could solve many problems other than those which are financial.

The paper-based land registry and cadastral maps need to be fully digitized, as has Jordan and, to some extent, Lebanon and Syria. Iraq is being encouraged to do likewise. In Iraq, there are many military digital maps that can be adapted to cover public land and integrate it into the cadastral system. Lemmen (2010) says, “most developing countries have less than 30 per cent cadastral coverage. This means that over 70 per cent of the land in many countries is generally outside the land register”.

According to Pichel (2017) accurate and up-to-date land information is something only a few countries worldwide possess. This is so in the Middle East where some land information is not updated or is lost as a result of wars and conflicts. There have been cases in Iraq and Syria where terrorists have targeted land registries.

Usually, staff assigned to land registries lack the skills in information technology to man a geoportal. Provision of these skills, then, should be the starting point in building a geoportal facility. Other constraints are the policies and laws that allow citizens access to information. As presented in section 3.2, the region is trying to enact laws that give the public the right to access data and documents. Syria is an exception in that it is devoid of such laws.

Clearly, all five countries have good reasons to be more transparent and to digitized their land management information. Whether the new laws granting access to information are implemented is another issue that needs to be tackled. Moreover, laws alone cannot easily change the thinking of the region’s combined population that only the State has a say in the control and management of all land. A mental metamorphosis, of sorts, in the region is needed, but will require time during which awareness-raising on the amount of information that can be used in the best possible way will filter through to the public.

Organization is another key component to building an accountable open access data tool. The lack of organized and regulated interaction between public agencies might result in data chaos that might stall the provision of open data. Conversely, though, sometimes open data can create the necessary framework to regulate the organizational structure.

3.7. Public Land and Voluntary Guidelines on Responsible Governance of Tenure

The FAO's Voluntary Guideline on Responsible Land Governance identifies principles essential to implementing good governance. These are:

- transparency,
- accountability,
- continuous improvement.

These principles are relevant for open access data. The guidelines contain a section on responsible governance of public land and are as follows:

- The State should determine the use and control of public land. The different tenure types on public land should be recognized, respected and protected by the State.
- The State should keep records of up-to-date tenure

information on public land, taking into consideration the administrations responsible for public land.

- The State should determine the development of land.
- The State should make public its policies on the use and control of public land, as well as those concerned with the allocation of public lands. These policies should be clear to all and should identify the methods of allocation.
- The State should ensure the capacity of its public body responsible for administrating and managing the public land. Staff and office performance should be monitored.
- The State should ensure fair and transparent sale and lease in the land market when allocating public land. Investments in this sector should be compatible with the national policies to achieve sustainable development. This can all be done through the regulation of spatial planning



The literature review in chapters two and three give insight to the importance of open data, the kind of data to be shared and how data sharing can enhance transparency and accountability. To understand the importance of open access better, more data need to be collected. This was done through 1) a questionnaire presented to land experts in the five countries in this report. The questions were on the situation of public land management and the possibility of adapting geoportals in each country, and its impact on public land governance; 2) interview with land registries that have adopted the geoportals concept, whether for public or private land; and 3) a case study that shows how geoportals, by displaying accountability, improved transparency and generated revenues.

4.1. Scale of Public Land Violation and Mismanagement

Due to the sensitivity of the topic and the lack of a clear definition of public land violation in the region, there were no statistics available on violations and the misuse of public land at the national level. There are some numbers, though, at the local level. Yet these do not cover all violations, especially those by powerful people. Most violations about public land are reported by the media. Statistics and numbers collected from media and local levels in the countries mentioned in this report talk about the following:

Iraq: the violations range from poor trying to get shelter due to the repetitive conflicts to very high-level corruption. The latest statistics show that there are 3,700 informal settlements on public land (Alarab, 2019). Another source states that the number of violations between encroachment and land grabbing is around 100,000 nationwide. The same source states that the public buildings and land that were up for rent made up to 10 per cent of public revenues before 2003, after which this revenue sank to 2 per cent, even though the number of public buildings has increased. After 2003, they include all the palaces and houses used by the deceased Iraqi president, Saddam Hussein (Zwen, 2019). It even goes on to categorize the violations into three categories, namely:

1. High-value property includes palaces, high-ranking hosting houses. Abused by high-ranking politicians.
2. Buildings formally occupied by Government and military before 2003, mostly under control of militias and local leaders.
3. Public land usually violated by poor and displaced people.

An example of high-value property violation is the

lease of Al-Muthana Airport to the Aldaawa party for about USD 280. Another form of land grabbing is the conversion of public land into private garages. Other examples are as follows:

Yemen: Even though only a small percentage of the country area is defined as public land, much land grabbing and encroachments has been registered. The Houthi, an armed political, has started selling public land to pay its fighters (Alaraby, 2016).

Lebanon: In this country, 60 per cent of its area is considered as public land. Yet a one-time minister transferred 30,000 square metres of public land in Tripoli to private ownership, in total disregard of the land-use plan for this area and the land market. In addition, land has been grabbed along the coast, thereby denying public free access to these areas (Aoun, 2018).

Jordan: The power of tribal men where they declare empty land and old abandoned villages as part of their land under the tribal authority (Madanat, 2010).

Syria: Due to the ongoing conflict, exact numbers and other statistics were hard to obtain. Most of the documented violations have been by the opposition, the Governmental and against public buildings. In addition, there has been the rapid formation of informal settlements on public land due to the huge scale of internal displacement.

Along with the example of public land mismanagement and violations reported in chapter one, the degree to which corruption is rooted is now abundantly clear.

4.2. Questionnaire for Land Experts

The questionnaire for land experts is based on the literature review of the land registry and cadastre situation in the five countries. The questionnaire also draws from review of the concept of open access land information as a tool that enhances transparency and accountability in public land governance.

The questionnaire design takes into account experts' perception of the effectiveness of open access data, the willingness to pay a token fee for its usage, and the effectiveness of geoportals in solving institutional lack of coordination as well as the current situation of public land management. The questions are in two parts: the first is in a multiple-choice format, and the second requires short answers that reflect experts' perceptions.

The questionnaire (see appendix 1) will help reveal the willingness of land experts to use geoportals and present their perception of its use in the public land sector.

4.3. Interviews

Interviews were used to collect data to answer the research questions. One interview was conducted with an expert working in a country where geoportals are adapted. The interview sought to determine if transparency had been achieved by using open access data and if this approach had been cost-effective and time-saving. Another interview was with an expert in a country without a geoportal facility. The interview discussed obstacles to the use of geoportals and if the tool was needed to achieve transparency in public land management. Responses revealed just how open access data has improved institutional organization or can do so. The responses also showed the benefits of open data in the short and long terms.

The first interview was with Fawaz Alhejlawy, the director of the Jordanian Land Registry Department for the Middle Regions. He answered the following questions:

Q1: How do you evaluate the interaction between different public agencies related to public land management?

A: The interaction is generally weak, especially when it comes to land-use planning and zoning. On the other hand, the interaction with the judiciary is characterized as good.

Q2: Why [is] public land/treasure land information in Jordan still not open?

A: From my point of view, treasure land belongs to the State and the citizens do not need to bother knowing certain information about it. In general, the reason for not making public land data open is the fact that it might cause some friction between tribes and State once the State declares certain lands as treasury land.

Q3: What is the most important characteristic of the Jordanian land register and land cadastre?

A: The Jordanian land registry has given each parcel a national code. This code is to be used in all paperwork and transactions related to a certain parcel. It is considered as the national ID number that cannot be changed. This helps in avoiding duplication and in reducing fraud.

Q4: What kind of data is shared in the geoportal regarding private ownership?

A: Data about private ownership includes size, shape, use, coordination, address, parcel national code and its estimated market price. What the geoportal does not share is the owner's name. Many owners prefer to keep what they own hidden away from the public eye. And under Jordanian law, data privacy has to be preserved.

Q5: How do you evaluate the violations of public land in Jordan? What are the incentives to protect it?

A: The violations are few and the police, as well as the courts, are always ready to counter such violations. As for informal settlements on public land that took place in the past decade, the Government used the approach of legalizing them for a token registration fee. On another occasion, to avoid another wave of informal settlements during the influx of Syrian refugees, the Jordanian Government designated certain public land to settle these refugees and avoid informality.

Q6: How is public land converted to private ownership for development? And how can investors ask for land for investment?

A: The municipalities and Ministry of Planning designates certain parcels for development, once the use of such parcels is decided these parcels will be registered as privately owned and sold to various investors.

When an investor, institute or private sector wants to launch a project it has to submit a request to the land registry. This request is then shared with the land-use planning department to decide if the request is valid. Then a parcel will be designated for that request according to the land-use plan.

Fawaz added that although the land registry was digitized, the paper-based registration was still being maintained since the court accepts only paper-based submissions in making land-related decisions.

The second interview was with Maryam Al Ali, a GIS services officer from Dubai's Geographic Information Systems Centre. She answered the following questions related to Dubai's open data services.

Q1: How long does it take to process a request to share certain data?

A: The length of the process depends on the required information. Each process has a designated length of the process that appears on the website under Service Information. Usually, the service is delivered within this timeframe. Tracking the request is also possible by logging into the account.

Q2: How is the interaction between different institutional bodies responsible for public land?

A: Each department has a certain list of duties. Once it is done, the information moves to the next department to process. As the GIS services officer, we deal with the ready data sets and deliver them based on a request to the citizens. Land-use-related questions can be answered by the land-use department for example. There is a clear policy that defines the duties and responsibilities of each department.

Q3: Do you think Dubai's way of open access land data [has] achieved the goal of transparency?

A: Transparency is the core of Dubai Land Department, and it is first to achieve value among other values like innovation and integration.

Q4: Is the system cost-effective and time-saving?

A: For the citizens, the system saves them a lot of costs. Many of the services are for free, and they get digital files, so [there are] even no copy or travel costs. And it is certainly time-saving since the process of delivering service is clear and the process [of] tracking is accessible all times.

She could not answer questions related to land-use planning or land policy since different departments are responsible for these issues and since their institutional structure is based on defined responsibilities of each department. However, she was able to comment on and even give information about other departments. The current institutional structure does not allow for the overlap of duties, and this helps to deliver ready-to-use information to the next department or to the data server.

4.4. Models and Theories of Open Access Data

Several theories support the idea that open access data is useful for transparency and accountability.

These theories also support use of open access data to promote interaction between civil society and governmental agencies. In addition to receiving services of the system, users can also monitor its usefulness. These theories reflect the fact that the more information the public gets, in this case on public land, the more active it is in monitoring and engaging with the government. In this way, this supports efforts at building transparency and holding public bodies accountable for the information they provide.

Activity theory as suggested by Ruijter, Meijer and Grimmelikhuijsen (2017) is based on seven components that are considered for evaluating or designing a new open data system. These following components define the users, the flow of information and its outcomes:

1. Subject: the actors engaging in the activity.
2. Object: the entities that motivate the activity.
3. Tools: used to alter the activity.
4. Communities: a group of individuals or actors directly involved in the activity.
5. Rules: that regulate the activities, legal framework, certain rules and norms according to the country context where the data are to be open.
6. Division of labour: roles assigned to a specific task actor.
7. Outcomes.

This theory results in the democratic activity model of open data use. It shows that open data platforms can provide accessible, usable datasets for communities and act as an instrument with which to monitor government performance. Figure III presents how activities to monitor, discuss and participate in the democratic process can be linked to the application of open data (Ruijter, Meijer, and Grimmelikhuijsen, 2017).

The transparency maturity model is another type supporting online open data as a tool for accountability in governmental bodies (see Table IV). This model "assumes that public bodies and agencies are operating in a democratic context whereby a legal and constitutional framework exists that protects freedom of information and general access to administrative documents" (Lourenço and Serra, 2014).

04 METHODOLOGY AND DATA COLLECTION

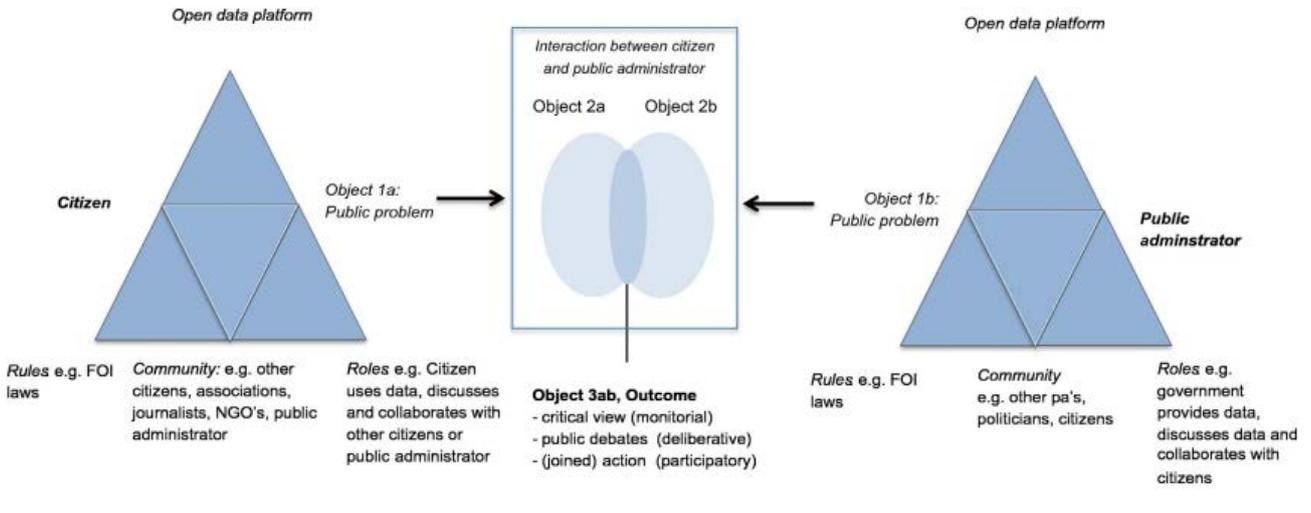


Figure III: Democratic activity model of open data use.
Source: Ruijter, Meijer, and Grimmelikhuisen (2017).

Level 4	Overall structure and organization
Level 3	Accountability networks
Level 2	Data portals
Level 1	Initial conditions
Level 0	No technical infrastructure

Table IV: Stages of online transparency maturity model
Source: Lourenço and Serra (2014).

These stages indicate the development of the geoportal, starting at level zero, which represents efforts to create the required technical infrastructure: Internet, hardware, software. Then the next level is called initial conditions, in which assessment of the data and band of discloser by the public agencies is made. At level two data will become open. These types of data are already known to public agencies, and the amounts they publish is at their discretion. Level three is the accountability network. Once data is disclosed public and private entities discuss the information provided and start to move towards accountability. Once the requirements of all these stages are met, the organizational structure of the open data will be accomplished in the final stage.

4.5. Case Study

This case study enables understanding of how open data development works and how obstacles can be removed. A study of Dubai, the United Arab Emirates, has been chosen; the emirate is well known for its

transparency and accountability, delivery of quality service, attraction to foreign investors, and efficient land-use planning.

The Dubai Land Department was founded in 1960. The department is authorized to issue documents, audit certificates and undertake mapping. The department has developed sales documents, organized investment promotion fairs and shared knowledge and culture to become one of the most important departments in the region's land sector. With the drive for digitization, the department is one of the first worldwide to engage in this endeavour, and is providing customers high quality services (Dubai Land Department, 2020). Dubai is the first in the region to adapt open access information, whether through geoportals or by applications.

In 2013, the department launched the Dubai Land App, a multilingual application that provides land information. Information ranges from the general about the department to that on real estate transactions

and mortgages. This provides a package of up-to-date information on land parcels, the parcel acquisition process and its market value, and the mortgage rate.

Geo Dubai, a geoportal, is operated by Dubai Municipality through the Geographic Information Systems Centre. This geoportal provides high-tech services such as geoinformation consultation, and geodrones, which issue high-resolution aerial images of any requested area in Dubai.

Another service of the geoportal is Geo-Lidar, which provides field survey using a high-precision laser scanner, a Global Positioning System and 360-degree panoramic cameras, Geo training and geo software.

Geosolutions: this service specializes in sharing land-use information, parcel boundary, transport lines, infrastructure layouts, demarcation features, land zoning, land development projects. It provides this to other public agencies with the necessary tools to make changes at their convenience. For this service, a staff identification number is required to ensure that the data entry is authorized and accountable. This service is connected directly to the main database server, thereby allowing for the interaction among different public agencies and data upgrading (Dubai Land Government, 2020).

Several applications were developed to meet the needs

of Dubai residents. Each application is designed to deliver certain accountable information. Most services are free; for others only a token fees are required. or the defined fees of certain services such as a transaction.

The Dubai Land Department and its geoportal and open access applications are based on certain values for each service, the information they provide as well as their interaction with other public bodies (see Figure IV). These values are transparency, national identity, care for people, appreciation, innovation, professional service, and integration. Transparency reflects the openness of the State to data sharing. The national identity is defined as implementing the national standards, one of which is accountability. Appreciation refers to recognition of its employees' dedication to duty. These values applied to operate the system will ensure its success.

Here we see how simple definitions and values can shape a whole agency's work and service. Setting these values as a goal is one of the reasons why the United Arab Emirates is considered to have the lowest level of corruption in the region (Dubai Land Department, 2020a).

Dubai is known for its structured governmental bodies. This has helped drive its rapid development because each public agency has defined responsibilities that do not overlap.



Figure IV: Dubai land development structure. Source: Dubai Land Department (2018).

04 METHODOLOGY AND DATA COLLECTION

It is important to note that the open access data are of the following two types in Dubai Land:

- Open access data for public agencies: This is where all public agencies have access through their staff identification. They are allowed to log in and be connected directly to the database. This allows staff to update information on the database and revise already existing ones.
- Open access data for citizens: These data are the one-stop shop. They are not connected directly to the database to avoid any alteration of information. Users can log in using their national identity number. Those without one may still register and receive services, but they need to provide additional confirmation of their identity.

Both types of accessibility are based on the needs of each group and their input. The first one for public bodies allows for smooth interaction between public agencies, and tracks the source of each updated information through the staff identity number. This ensures that the information coming from a certain agency is genuine. It also ensures clients receive the information they need without divulging private information and opening the system to abuse.

There are multiple services to show planned land use, transport, and investment, be they residential or commercial. The conversion of State land is usually a

long process. However, Dubai Land has shortened this by instituting three clear steps along which there are safeguards before certification is granted (see Figure V). This curbs corruption.

Each step goes through a geoportal. The first of these is to submit a request for initial development approval. Once the approval is given, Dubai Land will issue a license. Step two starts with the approval of the development master plan, which compares the proposed development with the intended land-use planning. It should be approved by the municipality, the development authority as well as the maritime authority before a construction permit is issued. The new building permission will be followed by structural inspection to approve the next stage, which is service connection to the project. All these processes and updates are fed into the system. When it comes to the service and infrastructure connection, the public bodies responsible for the infrastructure will update the data base. Even with the finalization of the development project, if it is residential or commercial, the developer has to register the development for sale or rent through Dubai Land, where the selling or leasing prices will be compared with other developments in the area and be open to public viewing. This is done to prevent land speculation.

Other services on the geoportal are the Dubai Base Map. This tries to capture all the ongoing developments in the city and highlights areas needing development. The map is used to show present



Figure V: Public parcel development in Dubai.
Source: Dubai Land Department (2020).

investors parcels that can be developed and swing land-use planning into action. Another one is only about the transport infrastructure development. Land considered appropriate for this and the locations of upcoming metro stops, for example, are provided.

In the last few years, Dubai Land has used the approach of developing an application for each service based on information requested and the issues faced in the land sector, such as Ejari application for renters that gives the approximate rent price in a certain district. Title deep application for a land transaction. Another application is Maskani, this application is designed for parcel allocation for residential purposes. In order to ensure transparency of parcel distribution, the application allows citizens to pick their parcel. The application displays the parcel selected and their value (GeoDubai, 2020).

Another application has been developed to solve rental disputes. The Rental Dispute Settlement Centre provides a complaint form, which allows for explanation as to why a dispute should be processed later by the court or smart judiciary. The website itself offers the latest laws and decrees regarding land, and is open access. It also offers statistics of all services provided and the customer rating (Dubai Land Department, 2020).

Having all these different applications and geoportals services indicate that the availability of an accountable database and open access possibility is an opportunity for service delivery based on demand and situation.

4.6. Obstacles and Challenges in Data Collection

Throughout the data collection process, there were challenges and obstacles to get the right information and statistics. These obstacles are listed as follows:

- The sensitivity of the topic: many respondents, in public bodies, especially those in Iraq and Lebanon, refused to answer as soon as they knew the research topic
- No accountable statistics about the scale of public land violations: Most statistics come from the media or local levels. Many violations are not even documented
- Due to the conflict in Syria, no public body was able to provide numbers. Violations are usually summed up either by informal settlements or by the opposition's utilization of certain buildings
- The COVID-19 pandemic made access to information harder and longer due to lockdowns and the need for social distancing
- The limited number of respondents: The sample size is not representative, taking into consideration the number of people working in land registries and responsible for public assets. However, the questionnaire can be used over time to collect more representative data by ensuring inclusion of the public and private sectors to evaluate the answer from the provision and demand sides

This chapter presents the results of the questionnaire sent to experts and analysis of the collected data. This ought to spur discussion about the use of geoportals as an open access tool to fight corruption in the public land sector.

5.1. Literature Review Results

The qualitative comparative analysis based on the literature review will allow for understanding of the land administration and management situation overall, covering private and public land. This takes into consideration that public land in urban areas is mostly covered by the land registry. The analysis opens a window to evaluate the variables and opportunities at the national level and to gauge if open access data will be the tool with which to fight corruption in the land management sector.

Table IV shows the factors that influence the creation of a geoportal community in the five countries. Jordan has the most stable and secure land management system, with low levels of corruption in comparison with the other countries. The worst systems are in Syria and Yemen regarding the land registry, incentives and laws governing open access.

5.2. Types of Revenue Generated by Geoportals

Geoportals can generate various sources of revenues to the State, especially if it covers public land. The manner in which such revenue is generated depends greatly on the services provided by the geoportal. The more services and information, the more the revenue. The following types of services can generate revenue from information sharing alone:

- Data sharing including (maps with different scales, parcel information).
- Policy sharing: for example, the regulations of converting a certain parcel to private ownership.
- Process of ownership conversion.
- Registration of lease or sale contract.
- Objection to certain information regarding land borders and overlapping rights.
- Proposals for land investment.
- Certifying private sector surveyors.
- Accessibility to certain plan features for certain projects, water plants and electricity utilities.

Theme/Country	Jordan	Iraq	Lebanon	Syria	Yemen
Surveyed area	95%	30%	70%	Only some urban areas in the permanent registry	Nearly 9%
Cadastre condition	digitized	Mostly paper based	Digitized and paper based	Digitized and paper based	Mostly paper based
Land registry	Digitized	Mostly paper based	Digitized	Mostly paper based	Mostly paper based
Exchange of information between public bodies	Weak	Weak	Weak	Weak	weak
Statistics on violations. Developed public land	yes	none	Not updated	none	none
Incentives to preserve public land	Yes	Yes	Yes	Yes	No
Laws on public information accessibility	Yes	Yes	Yes	No	Yes
Implementation of FOI related to land	Weak	Weak	Weak	-	Weak
Corruption rank	Low	High	High	High	High
Political situation	Stable	Fragile	Fragile	Fragile	Fragile

Table V: Results of literature review

Revenue accrued by the provision of open data can be used to support the staff in maintaining and updating the data. This is an incentive that demonstrates appreciation of their work. This means the more up-to-date accountable information is, the better the service the geoportals offers and greater the income generated for its staff. Also, data sharing saves on the following:

- Data duplication.
- Land conflict issues in courts.
- Travel costs.
- Cutting bribes that are defined as a fee that must be paid in the land sector to get work done, according to Transparency International (2011).
- Taking into consideration the length of time the processes take, the savings on time can be achieved through geoportals.

- Reduce the sale and lease of public land at prices lower than that of the land market.

5.3. Results of Land Experts' Questionnaire

There were just 14 responds of the 40 land experts in the five countries sent the questionnaire; four respondents each were from Jordan and Iraq, and two each from Syria and Yemen. The small number of respondents limits data collection at this stage, as mentioned in section 4.6 of chapter 4.

On the issue of land management, two questions were asked. The first concerned land management in general and the other on management of public land. The questions and results are presented in Figure VI and VII.

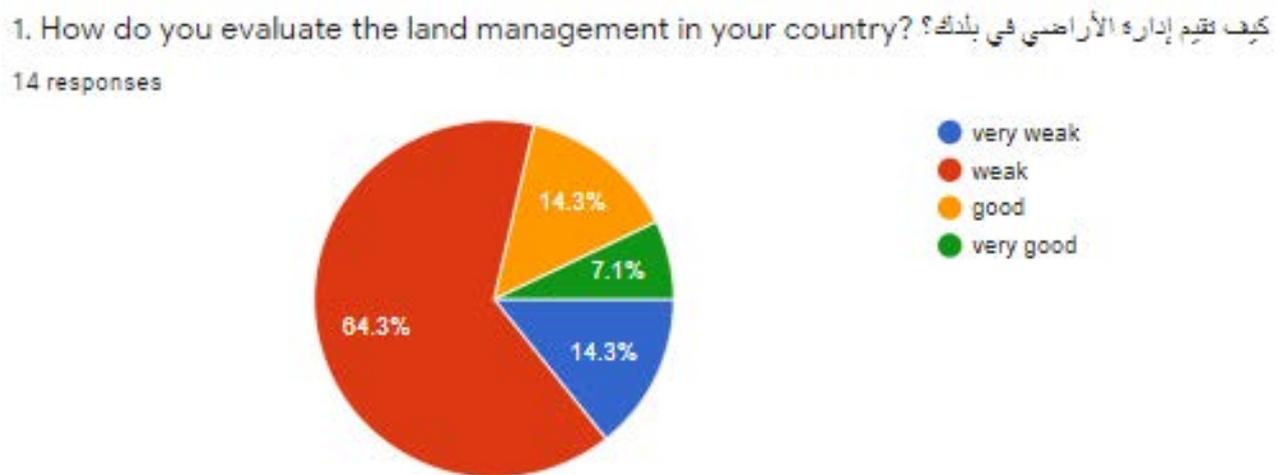


Figure VI: Evaluation of land management.

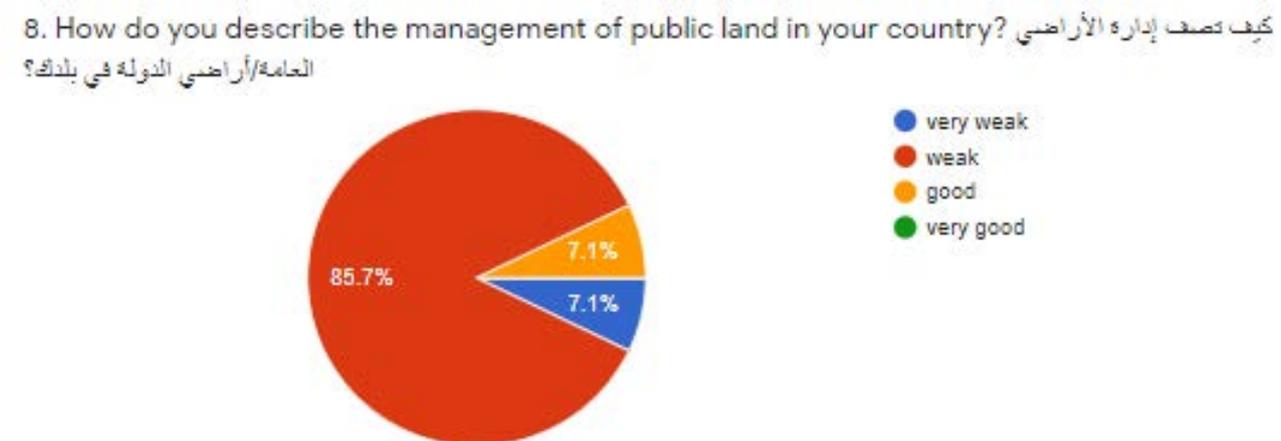


Figure VII: Evaluation of public land management.

05 RESULTS AND DATA ANALYSIS

Even though almost 65 per cent consider the land management in general weak, 85 per cent consider the public land management weak with 20 per cent difference between the two (see Figure VI and VII). The rate of respondents who answered with very good to both questions were from Jordan. Questioned on the strength of the land register system, 50 per cent

said it was weak (see Figure VIII), to the next question 33 per cent rate their land registry as very good and no one rated their land registry as very weak.

Yet the cadastral system is evaluated by just over 57 per cent as weak or very weak. The four respondents from Jordan said it was very good (see Figure IX).

3. How do you evaluate land registry system in your country? كيف تقيم نظام تسجيل الاراضي في بلدك؟

14 responses

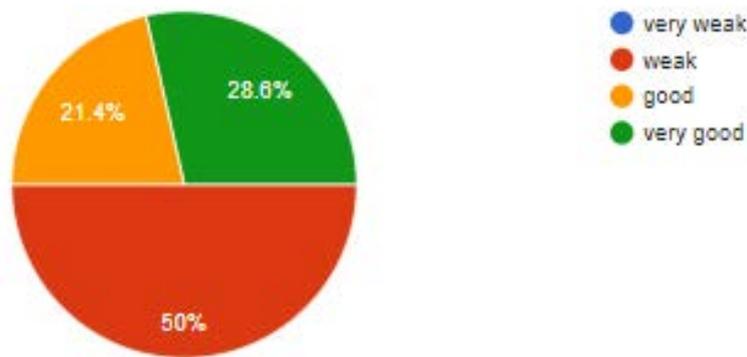


Figure VIII: Evaluation of land registry in the five countries.

2. How do you evaluate the cadaster System in your country? كيف تقيم نظام cadaster في بلدك؟

14 responses

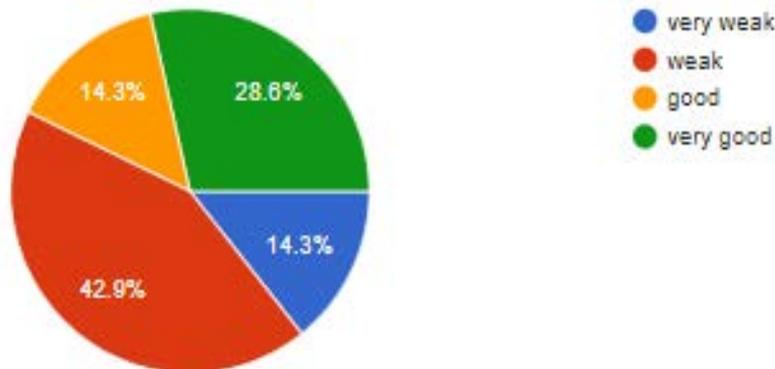


Figure IX: Evaluation of the cadastral system in the five countries.

4. Does the land registry in your country cover public land? هل يشمل السجل العقاري في بلدكم الأراضي العامة/أراضي الدولة؟

14 responses

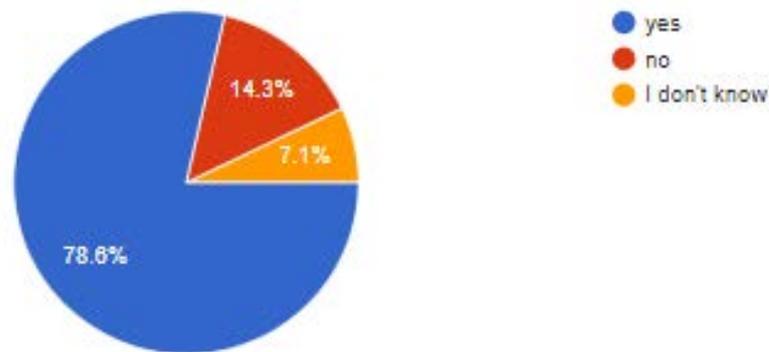


Figure X: Experts' responses about public land inclusion in the land register.

6. Is accessing public land information easy? هل الوصول إلى المعلومات العامة عن الأراضي سهل؟

14 responses

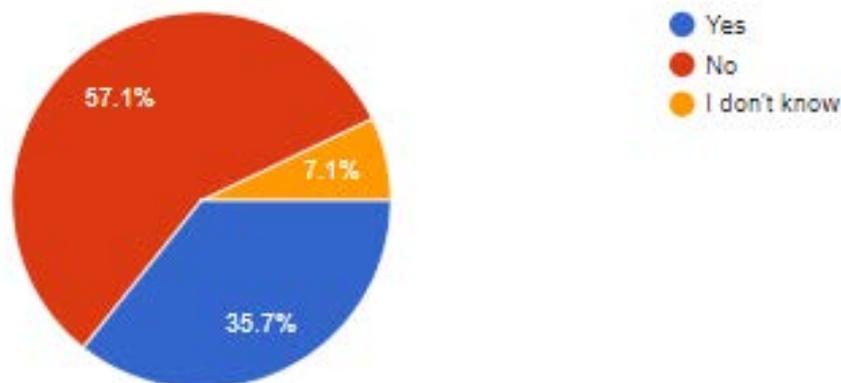


Figure XI: Experts' response to accessibility of public land information.

Almost 80 per cent of the respondents stated that public land was part of the land registry; slightly over 14 per cent answered no; they were from Yemen (see Figure X). When it came to accessing the ease of obtaining public land information, 35 per cent of the respondents said their land registry was digitized. Again, these respondents were from Jordan; one from Lebanon indicated that digitization was progressing. More than half indicated that access to public land information was not easy (see Figure XI).

Only five respondents said that access to public land information was easy. Yet all the respondents described the interaction between different State bodies responsible for public land as weak or very weak. And this is also highlighted in the literature review. Some attribute this to the legacy of the

Ottoman Empire (Madanat, 2010).

There are incentives to preserve public rights in four of the five countries mentioned, according to the respondents. Only Yemen does not have any incentives in this regard, according to the literature review and experts' responses at the moment.

Regarding geoportals, none of the five countries has one. Only 35 per cent of the respondents reported using a geoportal. Seventy per cent think that a geoportal can enhance transparency and accountability (see Figure XII); another 64 per cent think that it could be used to increase interaction among different governmental bodies concerned with public land (see Figure XIII). The same percentage thinks that geoportals could reduce land disputes and conflict over public land (see Figure XIV).

05 RESULTS AND DATA ANALYSIS

11. Do you think Geoportals will increase accountability and transparency of public land management? هل تعتقد أن بوابات جغرافية تزيد من المساءلة والشفافية في إدارة الأراضي العامة/أراضي الدولة؟

14 responses

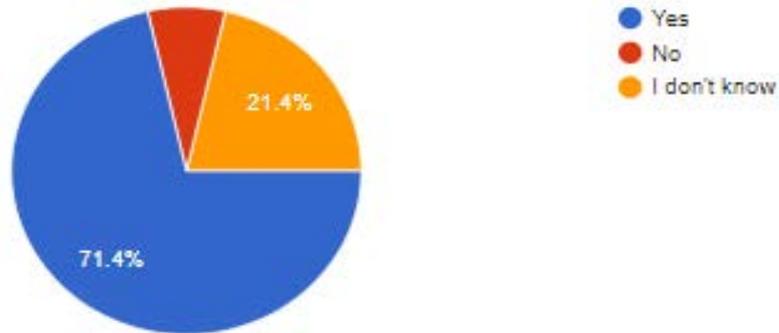


Figure XII: Geoportals enhance transparency and accountability.

12. Do you think geoportals will solve coordination and interaction issues between different governmental bodies? هل تعتقد أن بوابات جغرافية سوف تحل قضايا التنسيق والتفاعل بين مختلف الهيئات الحكومية؟

14 responses

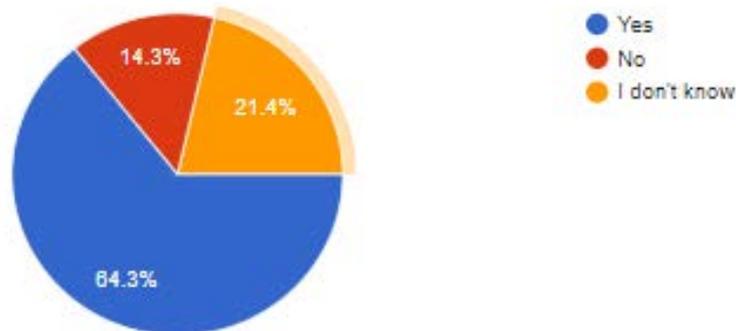


Figure XIII: Geoportals enhance interaction among governmental bodies.

13. Do you think geoportals might reduce land conflicts/ land encroachment cases? هل تعتقدون أن البوابات الجغرافية قد تقلل من حالات النزاعات على الأراضي/التعدي على الأراضي؟

14 responses

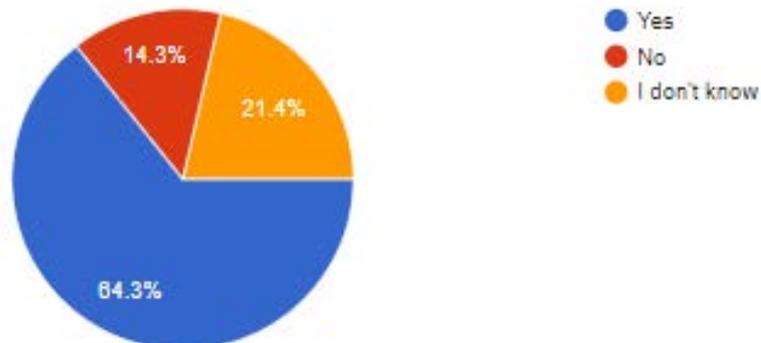


Figure XIV: Geoportal use decreases land conflict.

When asked if geoportals could reflect the value of public land, 57 per cent answered yes (see Figure XV). All of the respondents were willing to pay a token fee to access a geoportal for public land information.

Asked if the parcel addressing system posed a constraint in initiating an open access database, 50 per cent of the respondents said it was inefficient (see Figure XVI).

14. Do you think geoportals will help reflecting the real value of a property in the market? هل تعتقد أن بوابات الجغرافية تساعد في عكس القيمة الحقيقية للعقار في السوق؟

14 responses

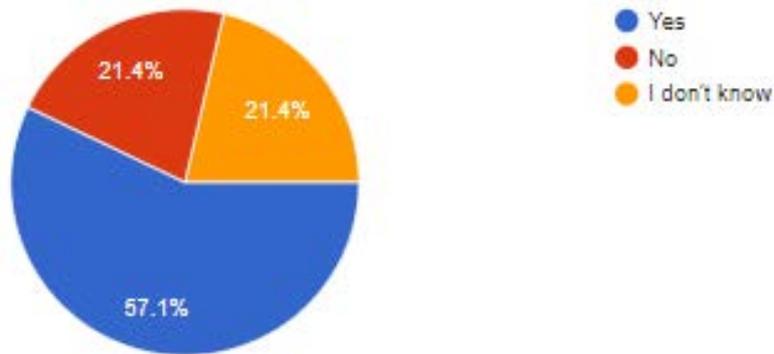


Figure XV: Geoportals help reflect real land value.

16. Do you think the parcel addressing system used in your country is efficient? هل تعتقد أن نظام عنوانة الأرض المستخدم في بلدك فعال؟

14 responses

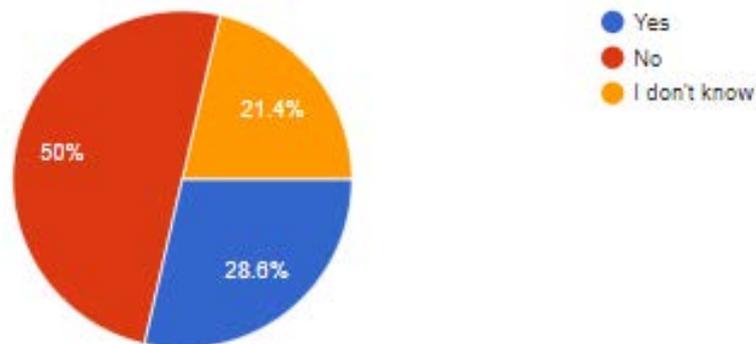


Figure XVI: Parcel coding and addressing system in country is efficient.

The land experts were also asked about the type of data that should be shared through the geoportal. They suggested the following elements:

- Landowner or key identifier
- Land use
- Master plan of the surroundings, infrastructure (utilities and transportation).
- Coordinates
- Area
- Boundaries and shape
- Tenure type

Almost all the respondents agreed that a geoportal could enhance the interaction between different public bodies. Those who thought differently were of the opinion that the same goal could be achieved

if there is the will and a clear legal framework to do so. However, the agreement of having one database might be a good start to unify the efforts and help develop the required framework.

When asked if the geoportal could help deliver sustainable goals, some of the respondents were not sure as to how, or whether the required efficiency could be attained to employ it as a tool of achieving the United Nations Sustainable Development Goals.

5.4. SWOT Analysis of Using Open Access Data Tool, Geoportal

Based on the data collected from the literature review, the experts, and the case study of Dubai, a SWOT analysis has been adapted to analyse the feasibility of adapting a geoportal as a tool to enhance transparency and accountability in public land management and to fight corruption in this sector (see Table VI).

Strengths	Weaknesses	Opportunities	Threats
<ul style="list-style-type: none"> - Laws govern the right to access information - Willingness to fight public land corruption 	<ul style="list-style-type: none"> - Weak organizational structure - Paper-based systems 	<ul style="list-style-type: none"> - Incentives to preserve public land - Population awareness of corruption scale in public land 	<ul style="list-style-type: none"> - Data privacy - Fragility of state - Lack of clear policies

Table VI: SWOT analysis of open access data approach in Jordan, Iraq, Lebanon, Syria and Yemen

6.1. Public Land and Land Information in the Middle East

The history of the Middle-East, and particularly of the five countries in this report, shows us how many changes and many laws can be issued, implemented or ignored, and how these countries manage their land. The public land concept in these countries is that land is under State control, how to manage and use public land as a financial treasure that supports the country, and be the ground to establish transparency in the region. The State in these five countries usually do not know what land belongs to it and where it is located. This fact alone demonstrates the scale of unexplored public land. It also shows that the State cares little about public land and public buildings.

Usually, registered public land is in urban areas. This indicates that only those of high market value, and not those in outlying land, make the registry. However, this can be problematic when urban centres expands and as refugees and rural migrants settle around the urban fringes.

Reforming land governance has recently become the focus of debate in these five countries. This can be related to the current economic crises that some countries, for example Jordan and Lebanon, are facing. The situation has worsened, with the poor being hit hardest, in view of the Covid-19 lockdowns. Another factor that has shone the spotlight on public land governance has been the Arab spring revolutions, which have drawn attention to the need to uproot corruption in the region. The high degree of corruption in the land sector, which Transparency International says is the third most-affected sector after the police and the judiciary, puts the onus on land experts to introduce innovative and definitive solutions to the problem. In truth, past attempts at solving the problem have failed. This is because the decrees and laws passed and numerous policies adopted were never applied.

Also, secrecy, which was the watchword in business dealings in Arab States, proved another potential avenue to conduct corrupt land transactions. Thus, the converse, that is open access to information on the land issues, has been efficient and may offer a one solution to the corruption issue.

Since land is one of the State's biggest assets, it should be carefully mapped, valued and governed. This will curb the nepotism, corruption, land grabbing, and elite privileges that characterize land management and transactions in the region; and usher innovative, sustainable and inclusion to achieve transparency and accountability in land governance.

The examples of public land violations and mismanagement, presented in chapter one and in the literature review, is just a glimpse of the situation. They highlight the importance of sound public land management. This can only be done transparently to ensure the sustainable development of public land. Weak governance of public land in these countries was confirmed by almost all the land experts when they evaluated the management of public land in their countries.

6.2. Data Type and Accessibility

Debate on the type of land data that should be open access is ongoing. Each of the five States under review has a different timeline for when to adopt open access land information, and every land expert has a definition based on their area of specialization. However, the land experts have agreed on common basic data about public land that needs to be public, which is of great relevance to public land management. The general information available on this in the countries under review is in geoportals.

The main data on land that should be shared and needed to fight corruption is defined in Table I. These data reflect the degree of each State's commitment to reform the land sector; and that level of commitment can shape the public view of government performance in this respect.

The generation of these data is highly dependent on the land registry and cadastre as the main source of information. Basic data to be shared are the same ones already in the records. So, no extra data need be collected for the geoportal. What is needed is updating of data as well as the survey and mapping of State land.

The reason a landowner's name should be shared when it comes to public land is answered, partially, in chapter two: the public land in these countries is divided between different ministries as the custodians. The Ministry of Agriculture is responsible for arable land; that of natural resources manages parks, dams and river basins. So, public land management may overlap between different ministries. An owner's name is required to monitor this land, or to ask permission to develop a certain parcel of land, or to report misuse. Fawaz from DLS-Jordan holds that sharing an owner's name cannot make a difference since all land is under State control. That may be so, but sharing an owner's name and data on public land under their custodianship can spark competence between different ministries to govern public land.

Land use also needs to be made public. This is because use of land is the most important element for easier monitoring, for detecting mismanagement of public land, and for obtaining the definition of violations on land. It is also the most important information for investors when they intend to carry out development projects. Obtaining information on land is time consuming, costly when making a development proposal, land-use map adaptation and master map restructuring. Sharing this information can be greatly beneficial in fighting corruption and reducing the process of acquiring or adapting land use maps. Sharing of such information with other public bodies can help update other related public services and infrastructure information. It can also help double-check the information shared and ensure keep data is current.

Other land-related information drawn from the literature review and land experts is parcel shape, address, coordinates, size and tenure type. This information should be categorized and catalogued in a way that everyone outside the land registry and cadastre can understand and share. The value of information can be based on the quality of land registry data and cadastral maps. In the review, 50 per cent of the land experts categorized the land data registry as good or very good, which is a positive sign about accountable share of data. However, digitization of the cadastral system and improvement in the quality of maps needs to continue in four countries.

Policies are another aspect that can be shared. These policies are those that lay down roles and responsibilities of bodies responsible for administering public land. The policies are to explain procedures for conversion of public land into private ownership, or the process of public land development. Policies that guard against violation on public land are best made available. All this sharing of policies might be an opportunity to enhance the interaction between different institutions and public bodies.

6.3. Geoportals Architecture Based on a Regional Context

A geoportals is an innovative tool of land administration with a unique architecture that can be adapted to the country context, taking into consideration its strengths, weaknesses, opportunities and threats. In the literature review, an example of the Latvian geoportals architecture is presented. It consists of the main four pillars required for keeping a geoportals updated and easy to use. For the Middle East, an important point needs to be taken into

consideration in designing a geoportals system, which is the weakness of organizational interaction. This consideration even applies to Jordan, which is categorized through literature review and by land experts as a digitized, modernized system for land registry and mapping. Having a geoportals for privately owned land did not change the fact that the weakness of interaction still exists, according to interviewee Fawaz Alhejlawy, director of the Jordanian Land Registry Department for the Middle Regions, and the land experts who have responded to this research questionnaire. If transparency and accountability are to be achieved through a geoportals, then the system needs to be a tool that enables organizational interaction and reduces institutional fragmentation.

Creation of an independent body for land data is required to achieve responsible land management. This body would shield the system from political interference and, in that way, curb corruption at the highest levels. In Dubai, for instance, the spatial information is run by the geoinformation centre and its State-owned geoportals Geo Dubai. Other data are available to the public through Dubai Land Department and its applications. The fact that the data is still incomplete means that an entire body that manages what is available at the moment is not feasible. Another thing that speaks against the formation of a separate watchdog over public land is the weak organizational interaction. In other words, if an independent body for this is created but lacks a regulatory framework, it will make the process of channelling the required information into building a database within that independent body lengthy and complicated. Therefore, the independent body is the first element that should be set up, considering the fragility of four countries in this report. Yet, in the short term, creating an independent body will be costly and time-consuming. Taking such direct action to fight corruption might not be so productive in fragile States, according to GIZ. That situation might create hostility instead of establishing balance.

Therefore, having a department within the land registry or one of the ministries responsible for the largest swathes of land should take the lead role. The capacities needed to filter and categorize the data as well as digitizing the information already exist in all five countries. But personnel working in land registry and cadastre lack experience. Training is needed on how to use software that discloses this information through a geoportals. They also need to be trained on maintenance of the system. In order that senior officials do not read such training as a threat to them, the process should be handled with care.

Chapter two of this report provides incentives in the region that can be used to ward off unnecessary friction. Although not yet operational in all five countries, the lessons learned from these incentives and the capacity developed through these attempts can serve in this scenario.

The design of a geoportal starts with having a public body (land registry, a department or ministry) that generates data that is to be shared, and the file format and the standards of data sharing to be drawn up. Another design aspect is to identify the software to be used in the system and to begin personal training. The data catalogue will then be shared with other public bodies whose duty is to generate information related to public land. The data generated will then be pooled and prepared for sharing. The last stage of the process will be the sharing and provision of access to public bodies to update data directly. This architecture aims

to coordinate and consolidate public bodies and agencies' roles in data provision and end the existing chaos. In other words, Zimmermann (2007) says implementing the custodian model in its all forms requires that it is centralized at its very first stage, decentralized in the process of data collection, and mixed through data sharing and updating.

This geoportal architecture is generalized to cover all five countries (see Figure XVII). Changes and adaptations can be made in line with national contexts, but the overall structure will remain unchanged. The institutional interaction is seen, here, as a factor that is improved in both ways. Either having a regulatory framework that works from top-down or with the process of sharing data and policies generated and regulated down-up. The geoportal tool can usher in the required organizational reform to achieve greater effectiveness in delivering accountable open access data.

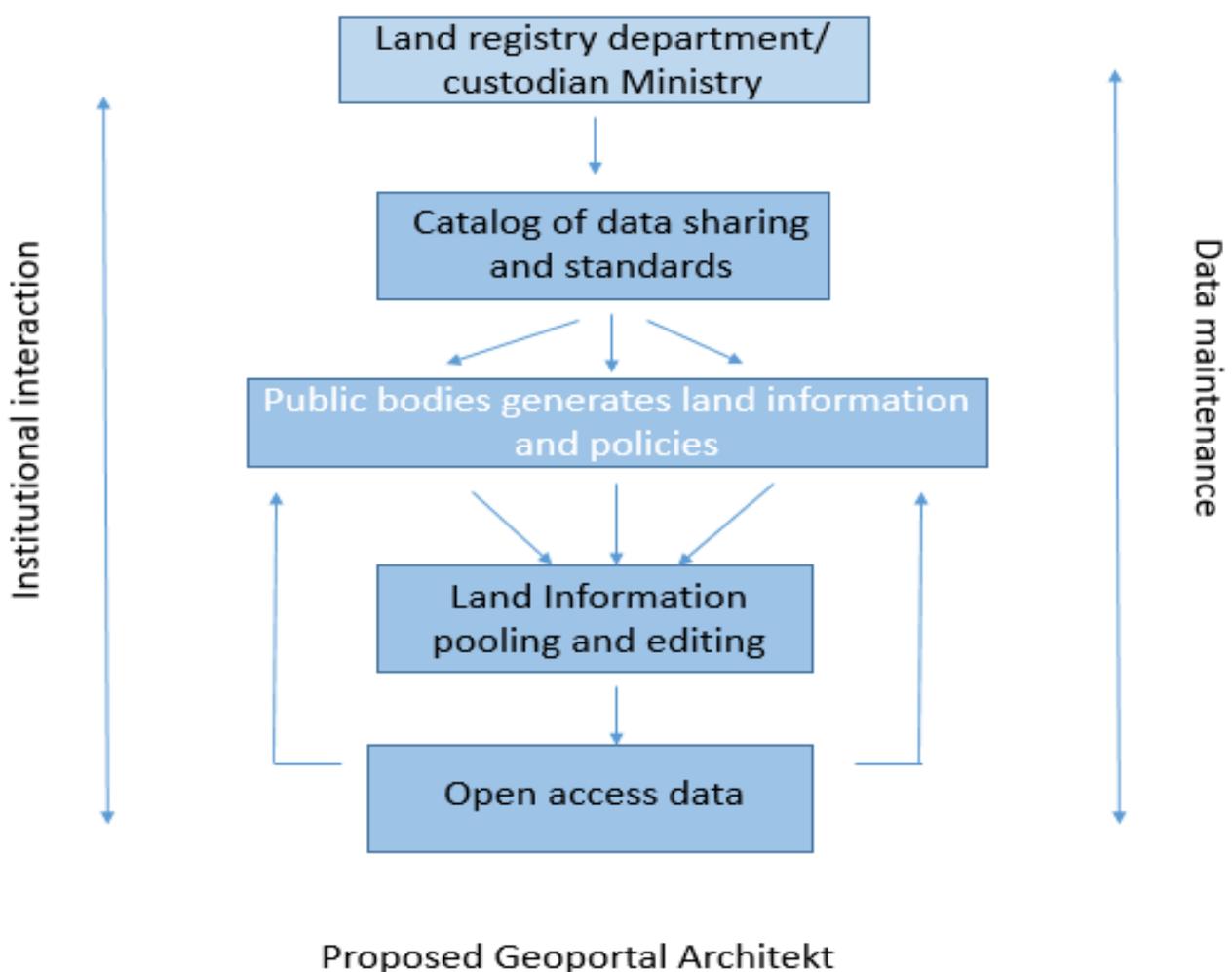


Figure XVII: Proposed geoportal structure for Iraq, Jordan, Lebanon, Syria and Yemen.

6.4. Transparent and Accountable Information for a Token Fee

From the Corruption Index and other indicators presented in chapter three, all countries but Jordan are at the bottom of the ranking. Although, Jordan's position is good compared with the others, there is room for improvement.

The correlation between digitization and corruption shows that the more digitized the system, the less it is corrupt. Likewise, the greater the open access of a public system, the less it is corrupt, as is evident in Dubai. This is buttressed by the opinion of 72 per cent of the land experts in the five countries in this report. They believe that using a geoportal enhances transparency and accountability in public land management. Several theories also back up the acquisition of transparency and accountability as a result of open access data, for example, the activity theory and the online transparency maturity model.

Open access data can be an effective way of fighting corruption in the region, especially the political type which is the hardest of all to curb. Sharing this data demands transparency and accountability, which ought to be its core value. In the interview, Al Ali of Geo Information Systems Centre said transparency and quality serve some of the goals of GeoDubai. Dubai Land Department also highlights transparency at a top of its values. Dubai's case shows the great belief in setting values and goals and to ensure that transparency in its services becomes part of the country's national identity.

When the data are open and accessed by the public, monitoring becomes easier. This creates a feeling of self-worth and appreciation among front-line staff, which in turn motivates them to produce credible data.

Provision of transparent service will not be achieved right away, however, but the use of geoportals marks the first step in that lengthy process. Once attained, the geoportal signals the State's readiness to be transparent in all its dealings, which will have a positive impact on the public, particularly those living under fragile conditions. Additionally, transparency will encourage civil society, journalists and the public to partake in the public land management process.

The token fee charged for information can be used to reward the front-line staff at the end of each fiscal year rather than depositing these into the State treasury. Land experts agree to the charge. This will motivate the staff to deliver quality service and end bribery. Such a measure will be a way to tell the staff

that their efforts are well appreciated and that the more accurate information they share the greater revenue they will accrue. The case study of Dubai shows the appreciation of effort as one of its values, which is special payments to the front-line staff of funds generated from the charges for services they deliver.

6.5. Geoportal in Iraq, Jordan, Lebanon, Syria and Yemen

In this session, discussion centres on the five countries that can start using the geoportal as soon as possible and the steps the rest need to take to start doing so. The review reveals the current situation of land information in each country as well as the experts' answers to the questionnaire. The possibility of using it in early stages parallel to the digitization and public land surveying.

Jordan is the first among the five countries that has a developed land information system, which is completely digitized. Jordan has already a geoportal for privately owned parcels of land that can be easily adapted to include public land. The capacity needed, therefore, already exists as well as the infrastructure. Alhejlawy says the only missing ingredient is that once public land information is disclosed and the owner's name and land use are made public, that will create friction with tribes who believe that in certain parts of Jordan the land belongs to them and not to the State. Avoiding this point might be reasonable at the moment, but as soon as the land in these areas needs to be developed problems and conflicts will arise. So, postponing this step is only postponing the problems instead of dealing with them. However, the information about such lands, especially pastoral land, does exist under the custodianship of the Ministry of Agriculture. Yet laws regulating these lands are missing, and pastoralists do not have rights on them. In terms of mapping and registration, Jordan has a reliable database. The unique system of parcel coding and considering parcel code as a national identity instrument is vital and practical in building a geoportal for public land. Jordan was the first country among the five that passed an access to information law, which can be culminated by a geoportal for public land information.

Lebanon can also start using geoportal for public land at this stage. In fact, it will be of great benefit should it do so now, considering the fragile political situation and the failed promises regarding reformation and transparency. This can be implemented for public land under the authority of the General Directorate of Land Registry and Cadastre (GDLRC), but it is still difficult

to implement for public land under the authority of different ministries where high-level corruption reigns. Those under GDLRC, even though the whole country is not being surveyed, disclosing public land information does not need to be done at once. It can start with the available information. Then the database can be updated as surveying and mapping take place. Since Lebanon is small in area compared with other countries, the process of surveying and mapping should not take long. However, this is not applicable to public land under the authority of other ministries where vested interest are the main obstacle to surveying these lands and having them documented. On the other side, since Lebanon has already started digitization and already offers some services online this means the capacity and infrastructure already exist. The law on data sharing exists, although it is not being enforced, but a geoportal will be the ideal way to force compliance. Sharing public information during this sensitive time can have a great effect on stabilizing the situation and overcoming the mistrust between the public and Government in fighting political corruption. Having a geoportal can even help to assess the situation to stand as a bulwark against the current financial crises. However, the high level of corruption should be taken into consideration.

In Iraq, the adaptation of a geoportal as an open access tool to public land information needs to be approached carefully, due to the high political corruption in all sectors and land specifically as well as lack of digitization. However, from the two inventories mentioned in the literature review in Baghdad that covers two districts and the Mayssan Governorate, the willingness to digitize and build a database already exists. Iraq has a relatively good paper-based land registry system for urban areas, which can be used as the starting point. The data collected from the two inventories are digitized and can already be shared through a geoportal. Land registries in Iraq are already equipped with hardware equipment. Only training of personnel in information technology and survey on the new techniques are needed. This can be done in cooperation with Iraqi universities that are already advanced in this sector or by twinning projects with Jordan, for example, to learn from its experience in land surveying and digitization. In order to avoid friction in disclosing data in a situation where the State maintains controls, data can be accessed by public bodies as a starting point. The law on access to information has been passed. The willingness to fight corruption is also there but awareness of governmental staff and members of the public needs to be raised regarding the importance of public land and the importance of fighting corruption in all forms through law.

With different fighting factions controlling different parts of Syria, a geoportal can only cover the Damascus area at the moment. Having open land information at this stage can be provocative to some stakeholders. Public land information can, however, be shared among different public bodies. But, again, Syria's land registry and cadastre does not cover large areas of the country, and what exists is outdated while much information has also been lost due to conflict.

There is no law in Syria that allows free access to information. The paper-based land registries in certain governorates have been burned. The informal settlements that have formed due to strife-induced internal displacement on private, public and Waqf land are massive and not even mapped. A geoportal will not be applicable at this stage because of a dearth of information.

In Yemen, the land registry and cadastre systems are very weak. The whole concept of land management is new; the customary system prevails. The area under the State control as public land is very small in comparison to the total area. An initial understanding needs to be established about the definition of public land within a customary system. This process needs the support of tribal leaders. The information that exists at this stage, even if too little and only covers certain downtown areas in urban areas, should be digitized and made open access. This will encourage people to register their land, which will allow for land-use planning on the available public land and begin to block land grabbing. The lack of incentives in this sector is worrisome. It indicates a huge lack of awareness regarding information on public land and the value of public land management in bringing about stability in the sector. Presently, capacity development is one of the aspects that Yemen lacks.

The fragility of the situation is dominant, but the need to fight corruption at this stage is vital to avoid dragging these countries into bigger conflicts. Although Jordan is a conflict-free country, it has been exhausted by the influx of refugees and economic crises. Yet Jordan's progress in the land sector and land mapping should be adopted by the other countries. These countries should also make use of their common history in land registry to build a viable system. By creating a national identity code for land parcels as in Jordan, the other countries can use the system as a basic tool to fight corruption and document fraud. Also, transparency and accountability need to be defined and reintroduced to the public sector by raising awareness. Introducing the revenues that can be generated through open access data can positively influence the behaviour of public bodies responsible for governing

public land. Open land access can solve many public land issues, such as reducing the fragmentation between different public agencies, minimizing the hierarchical decisions on public land, motivate surveying and mapping public land.

Open access data has saved time and costs wherever it has been applied. The time and cost saved traveling and waiting to get certain information can be largely reduced. The data duplication, which costs the State lot of effort, not counting time and budget, will be slashed with data sharing. Knowing what the State has can encourage better land-use planning that can generate revenue. In addition, land can be sold to investors instead of being used by the political elite. Data sharing can also reflect the real value of public land in the market and eliminate the selling of public land cheaply, which does not benefit the public. Above all, having a geoportal enables the provision of different services as a one-stop online shop. This will generate income from service fees, saving time for public staff and the public.

6.6. Answering Research Questions

Q: Are Arab states willing to use open access data tools like geoportals to share land-use planning?

A: As presented and discussed, the five countries researched have focused on providing incentives to digitize data or have passed laws that allow for free access to public information. The implementation of these laws, however, is hampered by

bureaucracy and corruption by those in power.

Q: How effective is open access data in enhancing accountability and transparency in the land governing system?

A: Based on the data collected, literature review and the discussion on the possible effectiveness of open access data, Jordan and Lebanon can already start the process. This will have the greatest effect on Lebanon, even though it is still difficult to access land registry and cadastral information because there is still no law to this effect. In Iraq, however, it might take time because application of the process needs to be approached carefully. In Syria, it is not an option for the time being; and even if it is, it would only cover a small percentage, mainly the capital. In Yemen, before there is enhancement, understanding needs to be reached concerning the dominant tenure system of land before starting the process of opening access to data on public land.

Q: Are geoportals cost-effective and time-saving enough to be adopted in the Middle East?

A: Geoportals and data sharing have proven to be cost-effective and time-saving, perhaps not in the short term in the Middle East, due to the need for capacity development and software provision, but certainly in the long term, especially with the reduction of data duplication and efforts in data collection.

Open access data is a great tool for supporting transparency and accountability in public land management. However, this tool needs to be used carefully in the five countries where corruption appears at its highest levels, and as some of these countries are on the brink of conflict or in a post-conflict transitional phase. The five countries have either passed laws on accessing information or have some incentives in modernizing their systems to provide service and to fight corruption. Yet the power to implement such laws is still questionable.

Open access data can be used at an early stage of private land administration, which is easier to achieve looking at the status of land registry and cadastre in terms of private ownership, to prepare the needed capacity and move gradually towards public land.

This step can pave the way for use of open access data as an opportunity to modernize public land administration, promote accountability and transparency, slash unnecessary costs, and improve the quality of delivering information. Even though the organizational interaction is weak in all five countries, open access data can strengthen this. It can be done by sharing policies and regulations of duties and responsibilities of public bodies in a way that obliges every public agency to be accountable for its actions.

Improving governance in the public land sector should cover several aspects and not only focus on one. The most important and relevant ones in this context are the introduction of a transparent framework, the effective use of information and communications technology, building capacity, and setting service standards (FAO, 2007). These practices can be implemented through geoportals.

The revenue generated from such an approach can be used in maintaining and updating data and by appreciating staff efforts. This would, to some degree, provide staff members independence of action and motivate them to deliver quality data. Due to the fragility of the political situation in the region, it is unwise to have a separate body that overlooks public land information management. Fighting corruption in this sphere can be taken step by step, of which raising awareness against the scourge is the first.

To minimize the challenges and constraints of providing open access data, training staff on information communications technology as relates to land and open access data needs to be conducted. The approach to providing land and open access information on it depend on the condition of land registry of each country.

From the discussion and data on the five countries, three of them can adopt a geoportal to provide open access data on public land: these are Iraq, Jordan and Lebanon. The proposition to set up a geoportal as an open access tool can be followed up when it is possible to do so or when reforms in the land sector allow for such action.

Due to the delicate political situation in Syria and Yemen, and the many stakeholders in the land business, it is better to avoid open access to public land information for the moment. Rather, these countries should focus on setting standards for data collection, documentation and analysis of available data to be prepared for the restitution phase. Digitization could be undertaken parallel to this process as part of the restitution process regarding housing, land and property rights.

7.1. Recommendations

Raising awareness should be the first step in introducing reforms and innovative tools in public land management. This is especially appropriate for politically fragile States where fighting corruption in the land administration may result in disputes and conflicts. Also needed is public staff awareness of the importance of public land as a state asset and how fighting corruption in this sector is vital to creating transparency.

States need to draw up a clear policy that regulates the responsibilities and duties of each public body related to public land and its management. This can be one of the main steps towards building a method of interaction among various State bodies. This can be achieved through an oversight body implementing the custodian model. Also, the freedom of access to information law needs to be regulated and a mechanism for its implementation needs to be built. Moreover, a catalogue of land violations needs to be prepared that categorizes corruption in public land sector, types of violations, fines or other penalties for these violations, and the public body responsible for the implementation of these fines and penalties.

A catalogue of metadata, standards and data sharing needs to be well studied and prepared under the supervision of either a planning ministry or the land registry. This can create a common understanding about data types and standards, how they are to be presented and categorized, and shared. Such a catalogue needs to be regulated by a clear policy to ensure its implementation and to disrupt the efforts of corrupt officials in exploiting legal and policy loopholes for their own ends. Research, therefore, is needed

07 CONCLUSION

within the national context to define the standards and formats of files, adapting international standards, to ensure the delivery of good quality information at a later stage that can be reshared.

It is recommended that partnerships be started to train personnel on digitizing and using open access tools as well as seeking new techniques. The current inventories in Iraq can be expanded to cover the entire country. An exchange of expertise among the five countries can be vital for such a project, taking into consideration the advanced system used in Jordan and the desire to build a common cadastral law for the five nations.

A full assessment of the management of public land needs to be done in Yemen to encourage an understanding between “tribes” and the State regarding the importance of public land in stabilizing the country’s delicate political situation. This tete-a-tete would be a step towards registration of land and digitization, later. Open access is not recommended in Syria at this stage, since it can be very provocative and hinder the ongoing process of political stabilization. However, analysing, mapping of available data—combined with digitizing the information from where the process was halted due to 10 years of conflict—are vital measures for post-conflict restitution of the State.



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ANNEXES

Annex 1. Questionnaire for Land Experts in Iraq, Jordan, Lebanon, Syria and Yemen

1. How do you evaluate the land management in your country? (very weak, weak, good, very good)
2. How do you evaluate the cadastre system in your country? (very weak, weak, good, very good)
3. How do you evaluate land registry system in your country? (very weak, weak, good, very good)
4. Does the land registry in your country cover public land? (yes, no, I don't know)
5. Is the land registry automated? (yes, no, I don't know)
6. Is accessing public land information easy? (yes, no)
7. How do you describe the interaction between different public bodies responsible for public land use and investment? (very weak, weak, good, very good)
8. How do you evaluate the management of public land in your country? (very weak, weak, good, very good)
9. Are there any current incentives to preserve public land in your country? (yes, no, I don't know)
10. Is there any geoportal about public land in your country? (yes, no, I don't know)
11. Are you using geoportals? (yes, no)
12. Do you think Geoportals will increase accountability and transparency of public land management? (yes, no, I don't know)
13. Do you think geoportals will solve coordination and interaction issues between different governmental bodies? (yes, no, I don't know)
14. Do you think geoportals might reduce land conflicts/land encroachment cases? (yes, no, I don't know)
15. Do you think geoportals will help reflect the real value of a property in the market? (yes, no, I don't know)
16. Are you willing to pay a symbolic fee for geoportals usage? (yes, no)
17. Do you think the parcel address system used in your country is efficient? (yes, no, I don't know)
18. What kind of information will be relevant to public land and should be published through geoportals?
19. Do you think geoportals can enhance the land service delivered to the citizens?
20. Do you think geoportals will enhance transparency and reduce corruption in high places?
21. Do you think geoportals can promote sustainable development of public land?
22. Do you think geoportals can enhance the coordination between different public bodies?

Annex 2: List of Questionnaire Respondents

Nr.	Name	Profession	Directory	Country	E-mail
1	Fawaz Alhejlawy	Land expert	Director of DLS	Jordan	alhejlawy@gmail.com
2	Zana Swara	Survey lecturer	University of Salahadin	Iraq	zanaswara@gmail.com
3	Razi Diab	land consultant/land policy advisor	Think tank	Syria	razidiab@gmail.com
4	Aziz Hallaj	Land consultant	Think tank	Syria	abdulaziz.hallaj@gmail.com
5	Diyar Nasruldeen	Land consultant GIS advisor	ISE- private sector	Iraq	diyar.abubakr@gmail.com
6	Halmat Atta	Land surveyor	Private sector	Iraq	halmatattaali@gmail.com
7	Ali Mutar Fanos	PhD. GIS	Director of the cadastre department in the water resources ministry	Iraq	engalim87@gmail.com
8	Glory Khory	Land management student		Lebanon	glorykh.3@gmail.com
9	Raed Ghareb	Land consultant	Co- founder Seeds NGO	Jordan	raed_go@hotmail.com
10	Mazen Badwan	Technical consultant	DLS	Jordan	mazen.b@dls.gov.jo
11	Wael Alaghbari	Professor/Consultant for housing and land management	Think tank	Yemen	wael.aghbari@gmail.com
12	Lamiaa Alhassan	Architect/Urban planner	Private sector	Yemen	lamiaalhassan@yahoo.com
13	Maria Azar	Urban planner	Private sector	Lebanon	mariaaz84@yahoo.com
14	Khitam Jbara	Registration inspector/cyber security	DLS	Jordan	