Land Information Management at the Local Government Level in Vietnam

Luc DESBIENS, Canada and Ngo Trung HAI, Vietnam

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SUMMARY

From 2010 to 2015, the Association of Cities of Vietnam (ACVN), with support from the Federation of Canadian Municipalities (FCM), undertook a project in four Vietnamese cities to lay the foundations for a geographic information system. This system, which would be managed locally and based on a land use registry model, was seen as an essential step in the growth of "smart cities".

The strategy aimed to develop an integrated information system to create links between data received from municipal departments involved in local-level land management (i.e. the urban development/management, environment, and taxation departments). As a result, it would improve land management (such as properties, land and building permits, and taxation) by providing the relevant municipal department with the appropriate information. This new system would also have economic benefits, including efficiencies of staff time and increased revenues from land transactions fees and annual land use taxes.

The project enabled us to see that the development of "smart cities" in Vietnam is possible but also essential. Despite a number of setbacks, the project results from all four cities are conclusive. It is clear that local-level collaboration is key to developing "smart cities".

SUMMARY (Vietnamese)

Từ năm 2010 tới 2015, Hiệp hội các Đô thị Việt Nam (ACVN), cùng với sự hỗ trợ của Liên đoàn Đô thị Canada (FCM), đã triển khai một dự án tại 4 thành phố tại Việt Nam nhằm xây dựng cơ sở nền tảng cho hệ thống thông tin địa lý. Hệ thống này – được quản lý tại cấp địa phương và dựa trên mô hình đăng ký quyền sử dụng đất – được xem là bước tiến thiết yếu nhằm phát triển "đô thị thông minh".

Chiến lược đặt mục tiêu xây dựng hệ thống thông tin toàn diện, kết nối dữ liệu nhận được từ các sở có liên quan tới công tác quản lý đất đai tại địa phương (bao gồm sở quản lý đô thị, môi trường và thuế). Do đó, sẽ giúp tăng cường công tác quản lý đất đai (ví dụ như tài sản, giấy phép và thuế) nhờ cung cấp thông tin phù hợp cho các sở liên quan. Hệ thống mới cũng mang lại các lợi ích kinh tế, bao gồm tăng hiệu quả trong giờ hành chính và tăng thu thuế.

Dự án cho phép nhận thức được tính thiết yếu và khả thi của công tác xây dựng các "đô thị thông minh" tại Việt Nam. Dù có một số thất bại, nhưng kết quả dự án thu được từ bốn thành phố đều rất thuyết phục. Rõ ràng, hợp tác cấp địa phương chính là chìa khóa chiến lược giúp xây dựng các "đô thị thông minh".

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1. INTRODUCTION: A VISION OF THE SMART CITY

Before presenting the results of a local government land information management project in Vietnam, it seems important to position the project in the context of smart cities as a whole and, more specifically, in the context of the International Federation of Surveyors' (FIG) working week in Hanoi, which has been organized under the theme "Geospatial Information for a Smarter Life and Environmental Resilience".

FIG gives the following brief description of smart cities:

> "Smart cities are an urban development concept based on achieving sustainable development by using new technologies and multiple information sources to optimise resources."

This definition is similar to that given by other organizations and many agree that it is a rather general concept based on the use of technologies and the optimization of resources.(Government of Quebec, 2017; Mitchell; UN Habitat, 2016). From this, we can retain that the concept revolves around the use of information, the optimization of resources (both efficiency and effectiveness), and the appropriateness of development to needs. The concept is also linked to new technologies and the information management opportunities they provide. However, a smart city project has to be seen as the result of excellent local-level information management; this stops us from falling into the trap of creating a vision to follow the trend. Information management is not just about information technology. It is possible to create information management systems without technology: this is what local governments did before the digital revolution. So, it is important to always keep data management and the systemization of processes (updating, processing and control) in mind. For as long as this level has not been completely mastered, setting up an effective smart city project will be just a pipe dream. Also, when we talk about data management at the local level, it is essential to have at least mastered the management of information relating to land use and properties (rights, taxation). The development of geomatics systems at the local level is a good example of how to build a smart city.

The project we set up in four Vietnamese cities is part of an "innovative" approach (Government of Québec, 2017) that focuses primarily on improving management processes at the local level. This is fundamental to supporting good governance, and the use of new technologies (ICT) is now unavoidable (UN Habitat, 2016).

As you will see, the project targeted the development of management tools and processes linked to land information; these promote efficiency and effectiveness. Given that the local government context was, to say the least, problematic, we essentially had to build a completely new system with more appropriate benchmarks, including of course geospatial locations, which is vital (UN Habitat, 2016).

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The project ran from 2002 to 2015 and made a contribution to the development of land information systems supporting management activities relating to land rights, taxation, and control over development in four cities. The chronology of the project was as follows:

- 2002-2004 – pilot project in a district of Nam Dinh City (through the Urban Management Program (UMP), which involved the University of Montreal, the Hanoi Architecture University, FCM, and the Ville de Saguenay);
- 2005-2009 – project to set up a local level land registry and an information system in Nam Dinh City (through the Global Affairs Canada (GAC) funded Municipal Partnership Program (MPP), which involved FCM, the Association of Cities of Vietnam (ACVN), and the Ville de Saguenay);
- 2010-2015 – replication project in four more cities in Vietnam: Pleiku, Thai Binh, Phu Ly, and Tra Vinh (through the GAC funded Municipal Partners for Economic Development (MPED) program, which involved FCM, ACVN, and the Ville de Saguenay).

2. THE NAM DINH PILOT PROJECT: 2002-2004

2.1. Background and Project Definition

In 2001, the City of Nam Dinh was well aware of the many advantages to be gained from establishing efficient methods to plan and control urban development. At that time, the decline in the textile industry in Nam Dinh was causing serious economic difficulties. The revitalization and diversification of the local economy depended to a large extent on improving the management of urban development and increasing the City's taxation revenues. Rapid population growth – the city was initially planned for a population of some 60,000 but had 240,000 residents – had raised numerous conflicts relating to land use, as well as enormous pressure on aging infrastructure (e.g. potable water supply, sewers, streets, and social housing), and many environmental problems (e.g. degradation of waterways, pollution, and waste management). The City wanted to address these issues and ensure harmonious development by improving its capacity to plan and control urban development.

During this time, the City of Nam Dinh was also handed the responsibility of developing detailed development plans for each district in the city, which were to be developed in accordance with the Province's master plan. This detailed development plan was to become the urban planning tool used to communicate with residents. It was designed to not only inform residents of what would take place in their district, but also to get them to comply with regulations. The City was responsible for issuing building permits and inspecting buildings of three storeys or less (which comprised the vast majority of buildings in the city).

While the City was aware of the need for good detailed planning of the districts and keeping control over development, there were nonetheless certain challenges. To draw up these detailed plans, the City needed information about land use – and this information was either difficult or impossible to obtain. Normally, the City would be able to get data from a national land registry (the Vietnam Land Administration Project (VLAP)), but the process was very slow and very

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expensive. Nor did the City have the in-house expertise or technology required to prepare base maps[1].

The City wanted to use a strategy based on the development of a local land registry. For each parcel of land, there would be summary information about the land and buildings, who the occupants were, land use, and the quality of the buildings and services (e.g. sanitary, telephone connections, electricity). This type of information is not contained in Vietnam Land Information System (VLIS).

As Nam Dinh was already using Micro Station software, it was decided to keep on using it for mapping and to start the geomatics. Despite its limitations, we decided to use Access software, available through Office, for the databases (given that it was a pilot project). The goal of the project was also to improve staff skills in the area of information management.

2.2. Results

The project aimed to create a registry for two districts in Nam Dinh. The results were excellent: the department responsible (within the Ministry of Construction) generated inventory sheets and two pilot districts were surveyed and the collected information digitized (6,500 records).

The project also helped develop the administrative capacity of the municipality in various areas, including methods for establishing a local land registry, creating a database, and applying a systemic approach to administration.

3. THE NAM DINH INFORMATION SYSTEM PROJECT: 2005-2009

3.1. Background and Project Definition

Given the good results from the pilot project in the two districts, Nam Dinh and Saguenay signed a memorandum of understanding to undertake a new project through FCM's Municipal Partnership Program. Aiming to strengthen Nam Dinh's administrative capacity to control land use and collect taxes, the project was structured around the need to create a land registry for the whole of Nam Dinh in order to strengthen the municipal government in three areas: land management, property management, and taxation management.

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[1] The Ministry of Natural Resources and Environment (MoNRE), at the central government level, is responsible for building the cadastre and controlling land titling (issuance of title deeds is delegated to the local level). The VLAP program has two components – the cadastre and land title. MoNRE is using a comprehensive database, the Vietnam Land Information System (VLIS), to manage information related to land rights (cadastre and land title). The cadaster is a very expansive project and requires a lot of time. It was also designed/developed for the use of central government departments. In other words, the information in the database cannot be easily accessed by local level users (i.e. city staff).

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The project aimed to scale up the pilot project from two districts to the whole city. The partners saw many benefits to this:

- improved knowledge of the city would facilitate planning and control;
- the City would have better capacity to generate and administer local revenue streams; and,
- the City and districts would have improved capacity to define and enforce regulations.

The project was also intended to strengthen the City's capacity to develop an information system for the whole city: process analysis, organization of procedures, surveying and coding, and programming.

At this time, the responsibility for the new project passed to a different national ministry, this time the Ministry of Natural Resources and the Environment (MoNRE). This change was explained by the fact that towards the end of 2003 the government of Vietnam had adopted a new land law (Luật đất đai), representing a major evolution in the recognition of land rights, which had been a significant issue in the country. This law, which came into effect on July 1, 2004, would create strong pressure for municipal departments to issue land property title deeds (red books) to residents. By undertaking the pilot project in two districts, the City of Nam Dinh had taken note of the system's potential to speed up the process to recognize land rights. This change was also made easier by the fact that the project leads from both ministries (i.e. Construction and Environment) had already worked together closely during the pilot project.

During project implementation, data entry had to be undertaken progressively. Given the limitations of Access (software), it seemed necessary to choose another solution, while keeping in mind that the Vietnamese partners would need to develop the information tools themselves (i.e. learning by doing). It was decided to use Filemaker Pro database software, since it was accessible and user friendly, and provided many options for future development and integration. On the geomatics side, given the scope of the project and the many problems to overcome, we decided to continue with Microstation and to progressively improve its capacity. We had to prioritize the work on the databases, which had to combine information coming from various municipal departments (e.g. permits, land titles, identities, and taxation). The databases would have to be used to administer activities, record information, and produce official documents.

As early as 2005, the Province of Nam Dinh was an important driver, and promoted the emergence of the model and new practices put forward through the project. It is also important to note that the value of the Nam Dinh model was recognized by, among others, MoNRE and the Ministry of Construction. This is an essential lesson learned from the Nam Dinh-Saguenay project: informing and engaging these two ministries helped the project succeed.

3.2. Results

The project, which aimed to create a land registry as a management hub proved successful. Almost all of the registered units in the city were entered in the registry, i.e. 73,000 units. The land registry was also connected to the property register (red books) by means of a unique identifier; this enabled the information to be entered in one place, and then used by other areas of the municipal government, i.e. to issue permits or for taxation purposes.

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The methodology used by Nam Dinh was very appropriate since it enabled the City to undertake the survey quickly by decentralizing data collection to the district level.

The creation of the land registry led to many direct and indirect benefits, including:

- a significant increase in annual tax revenue (see Figure 1)
- quicker issuing of red books (title deeds), which brought in significant revenue (from fees associated with issuing the deeds) and met residents' expectations
- an improvement in the City's administrative capacity.

Figure 1: Annual Taxation Revenue in Nam Dinh
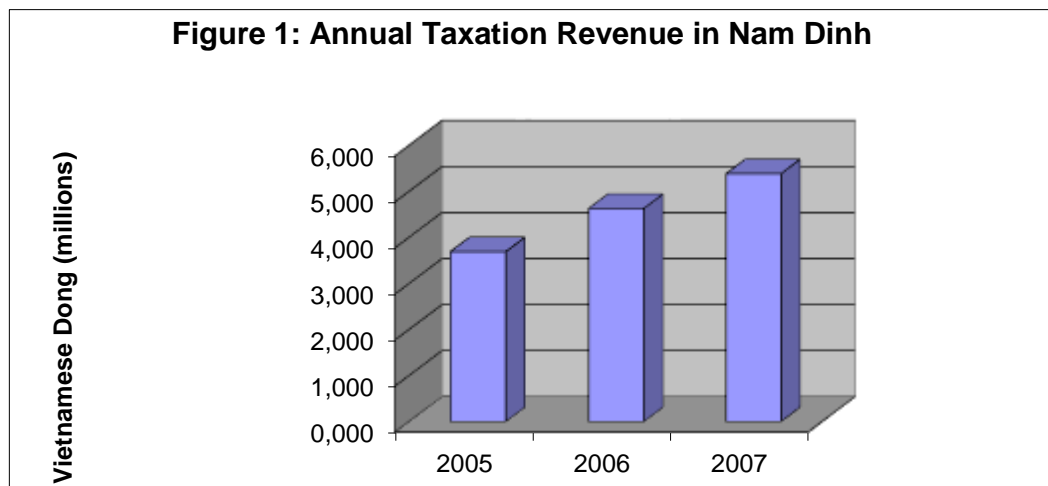
The project revealed the possibility of using an information system to facilitate inter-departmental coordination and cooperation for more effective City governance. Elected officials and senior municipal administrators understood the logic of developing links between different departments to manage local-level information more efficiently (time saved and accuracy).

The interest shown by other cities in the project demonstrated that the project had effectively targeted a strategic element of municipal management in Vietnam, i.e. collaboration between departments, since the setting of priorities and responsibilities was done in "silos" according to national government department. Nam Dinh was, as it were, a prototype for what municipal governance in Vietnam might become.

Nam Dinh can also be said to be a new case for data management. There are no specific laws relating to the creation of a unique information registry in a municipality, and the coordination of three main departments (the Department of Urban Development and Management; the Department of Natural Resource and Environment (DoNRE), and the Department of Taxation) at the local level brought about a new vision of city management. This new vision is illustrated in the figure below (Figure 2), where the creation of a land information system enabled city staff to overcome the challenge of ministries operating in silos for the benefit of residents.

The project included elements relating to planning, regulations, the granting of user rights, access to information about the municipality, and the financing of operations at the local level.

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These elements are very important to implement decentralization (a path the national government seemed to want to take), and foster local economic development (LED), which is an important issue around the world. However, in Vietnam, the local level is simply a devolution of services from the government, and operating in silos was a significant problem for the project and had an impact on the results.

Figure 2: New Vision of Management at the Local Level
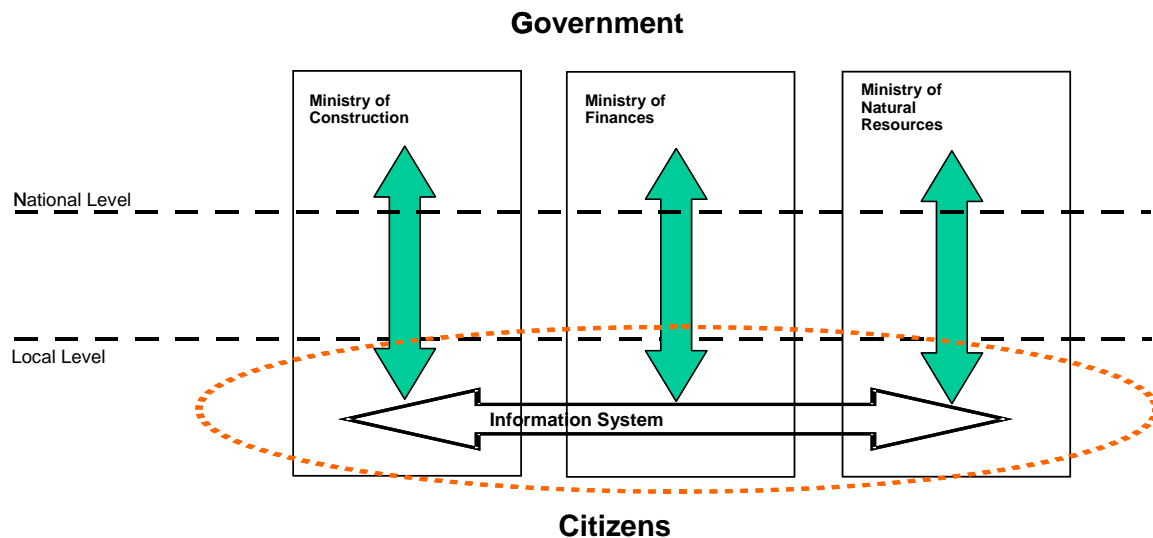
4. REPLICATION PROJECT: 2010-2015

4.1. Background and Project Definition

Following the success of the initiative in Nam Dinh, three cities expressed interest in being part of a replication project: Pleiku, Phu Ly, and Thai Binh. It should be noted that a fourth city, Tra Vinh, replaced Phu Ly from 2012 on (see the explanation in section 4.2). Working through the MPED program, the Vietnamese and Canadian partners agreed to undertake the replication project with a view to supporting LED.

As was the case with Nam Dinh, one of the main objectives of the project was to link the data from the three departments involved in municipal urban management (urban management, environment, and taxation) through the creation of an integrated land management system. This new way of operating would also lead to economic benefits (including an efficiency of staff time and increased tax revenue), and disseminate information appropriately (leading to greater transparency and increased trust among residents and investors).

For the Cities involved, the stakes were high:

- deliver and control land use rights
- control and promote economic development

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- increase municipal revenues.

These elements are highly significant for the implementation of decentralisation and the fostering of LED. Based on the Nam Dinh experience, we knew the project would be implemented in a difficult context, due to some of the following issues:
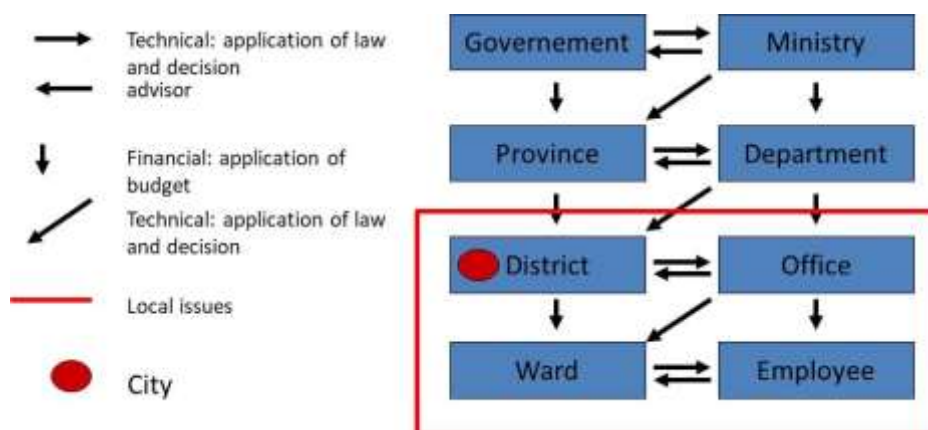
- weak local capacity (training and skills) to cope with increased responsibility
- an entrenched way of working in silos in each of the ministries, as well as a certain amount of competition between each ministry
- local expenditure primarily under the control of the province
- limited levels of trust among residents about how their tax revenue was used
- a centralized approach to governance.

There were, however, several positive elements supporting the project's success, including:

- the links between departments were much stronger at the district level (than at the provincial level)
- the government was considering the possibility of strengthening local taxation and keeping this additional revenue for use at the local level
- the engagement of elected officials and senior municipal administrators at the outset of the project
- the government wanted to promote the simplification of procedures and of administration in general.

The will to decentralize was certainly there, but where was also an impulse to maintain control and maintain a centralized approach even if it slowed down the process and complicated governance. In addition to the problems caused by operating in silos (identified above), we also had to take into account the unwieldy nature of the links between the various orders of government (national government, province, district). The highly complicated structure brought about issues of dual allegiance and stifling bureaucracy. The following diagram (Figure 3) provides a schematic illustration of how the system works.

Figure 3: Schematic View of Government Operations in Vietnam

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Local officials are concerned about financial autonomy. Not only are they dependent on receiving approval for their expenditure from the province (which does not have the same priorities), cities are increasing in size and costs are escalating.

Municipalities are also very concerned by land rights management (properties). The procedures remain highly complex and there is a great deal of discontent and concern about how this sector is developing. This is a priority file and you can sense there is a lack of trust from residents. Add to that the fact that compensation for expropriation is insufficient (as the market moves faster than laws), and it is clear there are difficult situations to be managed.

The Nam Dinh project aimed to strengthen administrative capacity by introducing an information management tool. Its success shows that a project with a relatively narrow scope can have positive effects on an entire local government and, in this sense, municipalities saw in this an opportunity to improve progressively. The new project that was to be implemented aligned perfectly with the UN vision for LED and local governance (ONU-Habitat, 2005 and 2009, UN-Habitat, 2009).

In terms of LED, by improving local-level information management, the project strengthened the capacity of local institutions and consequently improved the conditions for business. This was illustrated by the Vietnam Provincial Competitiveness Index business surveys of 2009 VNCI-USAID, 2009). The report highlights four key factors that would improve the business environment and to which the project might contribute. These key factors were:

- cost of business start-up: acquisition and time needed to obtain land, an operating licence or other related issues:
- transparency: access to planning and regulatory information and updates, predictability and stability;
- cost of bureaucracy: time lost in the labyrinth of bureaucracy; time spent on inspections; and,
- informal charges: unforeseen (hidden) costs of bureaucracy; corruption.

Finally, the partners decided to keep the same technical components for project implementation as were used in Nam Dinh. This was for two reasons:

- the excellent results achieved by Nam Dinh staff in setting up and developing databases and mapping;
- the possibility of using Nam Dinh expertise to train and assist staff from other cities.

Meetings with each of the cities involved allowed for consensus about the implementation of the system and the development of components. As a result, the three new municipalities taking part in the project considered it preferable to include all parcels of land (to promote use) and to limit themselves initially in the scope of the data (i.e. the minimum requirements – user rights and taxation).

The project was to be completed within a reasonable timeframe so as to facilitate integration into day-to-day management. The first important step was to obtain digital map data and information. For one of the cities, this was a significant step because it required field surveys

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to be undertaken. In another case, information from various sources had to be imported and validated. For one of the cities, setting up the information system was easier as it was going to benefit from the information contained in VLIS through the national land registry reform project (VLAP).

4.2. Replication Project Results

4.2.1. General: Data, Updates, Use, System

The project to replicate the successful Nam Dinh project in three cities was also a success. However, it is important to note that one of the cities that had been selected at the start, Phu Ly, had to be replaced during the project as a result of a lack of local political will and buy-in by senior municipal administrators.. However, the City of Tra Vinh, which was selected to replace Phu Ly, demonstrated an unwavering commitment to the project, as well as great capacity, and managed a very good project in just three years.

In 2015, at the end of the project, the cities involved had a computerized information system. The system included information on virtually all urban plots. The cities had also developed applications for various aspects of urban management. These applications typically used data from the land registry. The cities and their staff demonstrated creativity in developing these IT management tools for components not covered through the project. It is clear that the cities involved have built their capacity to face new challenges.

The City of Nam Dinh is a good example because, in addition to developing and maintaining a land use database of 152,000 units, staff were also able to use it to put in place a system to manage a new government-imposed tariff relating to industrial waste

The City of Pleiku has set up an information system containing 135,000 parcels of land. Staff involved in the project have also implemented specific system-related applications to manage farmland conversions, as well as an internal tracking system for work and requests (40,000 units in 2015).

The City of Thai Binh had to wait until the end of the project to obtain the data from the central government's land registry. The data was only integrated into the system in 2015. However, the people involved in the project were not idle. They developed applications for the management of land titles (24,000 files), mortgages, requests from residents, and another to manage and track council decisions. This data was used to update the information from the land registry, which led to considerable savings as all of the updates were made at the same time.

Finally, by the end of the project in 2015, the Tra Vinh team had been able to record 48,000 units in the database in just three years.

However, even though the system implemented in each city enabled communication between the different departments, the result was rather disappointing. While the absence of a computer network was a handicap, most of the problems encountered were mainly as a result of working in silos. Municipal administrators understood the value of working across departments however

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the reflex, and the institutional mechanisms in place (particularly the lack of a computer network), hindered a cross-departmental approach to addressing a particular challenge.

4.2.2.   Economic Impact

In 2015, ACVN commissioned a study on the economic impact of the project. Development and Policies Research Center (DEPOCEN), the consultancy firm mandated to do the study, concluded that the project had had a significant impact in the four cities where it had been implemented (DEPOCEN, 2015). The impacts can be classified in into two broad categories: impact on efficiency, and impact on taxation revenue.

According to the consultant's analysis, the development of information systems in each of the cities made it possible to speed up administrative processes in the areas of user rights and permits, thanks in particular to the reduction of time required for research and verification. There was a significant impact on operational costs as a result of a reduction in management time, which also led to a reduction in the amount of human resources needed.

The improvement in efficiency had already been reported by the Vietnamese project partners. The DEPOCEN study, as well as the cities involved in the project, have also indicated an improvement in efficiency, as the cities have more accurate information at hand.

As for the impact on taxation revenue, the DEPOCEN study confirmed this impact would be significant, despite serious issues relating to the collaboration between the various departments (such as working in silos, lack of an information system, etc.) (DEPOCEN, 2015). This is in line with the observations made in the cities during the project.

In addition to the increase observed in Nam Dinh during the 2005-2007 phase of the project (see Figure 1), a comparison of data from the national land registry and data from the taxation departments revealed significant differences. The consultant indicated a potential increase of 30-50 per cent in revenue. For example, in a district where the data enabled a comparison for each parcel, only one-third of all of the parcels were registered in the taxation system. Worse still, the average area of the parcels registered for taxation in this district, which is a direct indicator of the amount of tax to be collected, was only a third of the area recorded in the national land registry

DEPOCEN also noted significant impacts on governance, including four components recognized in the national program for governance and public administration (PAPI) (DEPOCEN, 2015):

- improving the work of the local government
- minimizing land disputes
- improving the business environment
- improving the quality of life for residents.

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5. CONCLUSION

The development of a land information system, one that allows information to be shared at the local level, is one of the foundation stones on which cities can rely for land management, land-use planning, infrastructure management or environmental management. As mentioned in the introduction, this land information system is, in our opinion, the essential precondition for building a smart city. It is a complex but essential step. It is the foundation of the building, and it must be solid.

5.1. Lessons Learned

According to our municipal partners in Vietnam, the project can be implemented in other cities because it is so efficient – even if it is a little complex.

As the economic impact study shows, the development of a local land information system strengthens cities in terms of efficiency and transparency, and capacity for effective local governance. The choice of IT technology – which was user-friendly and not too expensive - , was strategic. With a reasonable financial investment and some training, staff were able to achieve a good level of skill, thus enabling the independent implementation of locally adapted management tools. This contributed substantially to the sustainability of the results.

In addition, by bringing together several cities in the same project, we are able to take advantage of the fact that they face the same issues and problems. By creating this synergy between cities, it promotes the search for appropriate solutions.

5.2. Challenges

The main challenge, which has been only partially solved, is that ministries work in silos and there is a very low level of autonomy at the local level. Decentralization is a significant issue in Vietnam. Despite the national government having expressed its will to decentralize, there remain internal obstacles that slow down progress significantly.

The national government must realize that if it wants to encourage LED and even the emergence of "smart cities" in Vietnam, it will have to find a solution to foster greater local capacity. At a minimum, the national government has to find a way to ensure the cooperation of ministry offices at the local level to mitigate the silo effect (Government of Quebec, 2014; UN Habitat, 2016; Simard, 2011). This might be through a data management framework (production and control) that promotes use at the local level.

In terms of complexity, our Vietnamese partners stress the need for training programs for local staff that will allow them to be more than just mere implementers. As shown in the project, they have to build capacities to improve local management and be able to develop tools adapted to the digital age.

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5.3. Key Steps and Project Monitoring

As stated in the introduction, it is essential to see a smart city project as the result of excellent local-level information management including, at a minimum, information about land use and property rights and taxation.

Experience shows that institutional processes, and the roles and responsibilities of particularly departments within those processes as well as the individuals doing the day to day work, do not seem to be subjected to systematic analysis at the local level. This would identify duplication, gaps and inefficiencies, and promote resource optimization. It would be a first step towards systematization and possibly computerization (Government of Quebec, 2017).

It is impossible to promote the development of smart cities without granting a minimum of autonomy at the local level. An extension of the powers conferred on local authorities must also be accompanied by measures strengthening their capacity to exercise these powers (ONU-Habitat, 2009). Everything can be seen as a progressive vision, but for information management, it is absolutely essential to promote local ownership and not impose a top-down model. The national government could adopt a program that promotes the emergence of these smart cities by supporting training and the development of IT infrastructures. The national government should also ensure proper project monitoring by setting up formal project management groups at the local level and setting targets. The biggest incentive however, is financial - This approach makes it easier for municipalities to generate tax revenues that can ultimately be used by local authorities to invest in local development.

5.4. Benefits for Residents

The project demonstrated a significant improvement in land information management in terms of the administration of land rights, taxation and the issuing of permits. This improvement paves the way for local governance that is better suited to actual needs. The ultimate vision for smart cities is to ensure decision making based both on the needs of residents and on their increased participation. At the end of the process, it is the citizens who are the winners; they get services that meet their needs, and this in turn promotes development (UN Habitat, 2016).

Residents deserve good local governance, but this must be based on sound data management (UN Habitat, 2016). In Vietnam, urban growth and the opening up of land rights have exacerbated the problem of data management relating to land use. Residents are the customers, and without proper care, there will be little or no benefit for them.

5.5. Funding the Necessary Investments

As previously mentioned, the completion of the land information management project generated additional local tax revenue. This potential revenue increase could provide the funding for the necessary investments to develop a land information management project (first step towards a smart city). The economic impact study (DEPOCEN, 2015) suggests a potential increase of 30-50 per cent in tax revenue. This would largely finance operations.

Tax revenue at the local level is essential, and the improvement of land information (land use, property, architecture, etc.) validates and ensures sound management (more exhaustive and

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verifiable). But a good project deployment strategy could enable the government to reform local taxation so that it is more responsive to needs (UN Habitat, 2016, Trinh and McCluskey, 2012).

It appears that the Vietnamese Constitution might be amended soon to include a chapter on local governments. This would be an excellent opportunity to start a process that leads to a brighter path towards smart cities.

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CONTACTS

Mr. Trung **Hai** Ngo, General Secretary, Association of Cities of Vietnam. acvn@fpt.vn www.acvn.vn

Mr. Luc **Desbiens**, Urban Planner, Ville de Saguenay Québec / Self-Employed. lucdesb@hotmail.com

Federation of Canadian Municipalities (FCM) 24 Clarence, Ottawa, Ontario. Canada www.fcm.ca

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