The Nation Land Capacity Building Model for Informatization– an ICT-based model to strengthen human resource capacity for the sustainability of land administration modernization projects

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Abstract

A capacity building model for human resource strengthening was developed by LX and Consortium to meet the demand for capacity building in the modernization of land sector and land administration. The model called the National Land Capacity Building Model for and Informatization focuses on the analysis, construction, development, maintenance of land service or system that is digitally based by looking at the different sectors of land administration from policy, planning, land data, data acquisition, expertise, etc. It is systematically designed into three areas – assessment tool, development of capacity building model, and finally sustainability to strengthen the capacity in this sector.

In this paper, the NLCBM model is presented by first defining the model based on the background and also its components including the category index and possible curriculum.

By presenting the NLCBM through this paper, the authors hope that this model will be able to provide a good example of capacity tool that can be used in future project related to the modernization of land administration.

Introduction

No matter the size of a country, land is always a scarce resource. It is, therefore, of utter importance that land is managed effectively and efficiently and that good land governance takes place so that land tenure or ownership can be secured and protected for all people, land resources are optimized according to national plans, and there is a sound and fair taxation system. These will lead to the economic advancement that all countries desire and deserve. One of the ways that this can be achieved, which has been and is being discussed continuously, is the materialization of a modern land management system that has a full grasp of all national land information and that this information is shared and fully utilized by all the stakeholders for land administration. In the case of Korea, a modern Land Information System (KLIS) provided the solution to this

end. The KLIS, one of the pillars of Korea's globally recognized e-government, integrates into one system all information on land for all sectors of the government including local and federal on real time basis from transactions and changes, directives, plans, etc. This information is used for policy making, land and urban planning, secure sound taxation, and better public service.

For this efficient system to be fully operational, the government worked centrally coordinating all the pertinent sectors including at the local level. More important, however, was the nationwide capacity building that took place for this massive project to be successfully carried out. Capacity building took place at the public and private sectors and to review existing institutions. New organizations were created for the purpose of managing the creation and maintenance of the KLIS. The most important factor, however, was the strengthening of the human resource capacity. The first step was public awareness campaigns to change the mindset of the people, but more so the public servants. Thus, short, mid and long term education and trainings were carried out not only for the public sector but also for the private sector. This new generation of experts in the field of ICT, land administration, from land surveying with the latest technologies to digitalization, as well as GIS is the generation that is leading the modernization of land administration in Korea today.

Interaction with other countries has shown that until now when embarking on land administration projects internationally, whether with development banks or as bilateral cooperation projects, the strengthening of human capacity usually happened once the project has already been started. This may have worked when projects were installed in a country with advanced systems. The only role of the recipient country was to maintain the system which is renewed on a regular basis by the administrators of these advanced systems. However, today, a country is more proactive with growing expertise in advanced technologies and a population that has full access to ICT and mobile technologies. Therefore, a country wants and needs to take on the leadership role of the project so that this can be sustainable in nature. Only such a sustainability will be able to integrate the project into the overall administrative system; and sustainability can be secured only

when the country has the capacity to do so.

It is for this reason that the strengthening of the capacity must take place prior or as an integrative part of a project. Enemark says that "*it is critical that capacity building is a mainstream component, not as an add-on, which is often the case. In fact such projects should be dealt with as capacity building projects in themselves.*"[1]

Based on this understanding, in addition to the growing experience of working with different countries, LX, the Korea Land and Geospatial Informatix Corporation and its Consortium (2E and Geomex) developed a capacity building model that aims to tailor-make a capacity building model that is most suitable for the country that is seeking to embark on projects for the modernization of land administration.

The capacity building model for human resource strengthening was developed by LX to meet this demand for capacity building in the modernization of the land sector and land administration. The model called the National Land Capacity Building Model for Informatization (hereafter referred as NLCBM-i) is one that focuses on the analysis, construction, development, maintenance of land service or systems that is digitally based by looking at the different sectors of land administration from policy, planning, land data, data acquisition, expertise, etc.   It can be distinguished from other capacity development models and tools in that it focuses primarily in the area of informatization, from digitalization of land data, utilization of new technologies, and ICT-based. The model is systematically designed into three areas -- tool to assess the capacity of the country in the area of land administration, tool for development of capacity building, and sustainability to strengthen the capacity in this sector.

The NLCBM-i undertakes to assess the capacity of the country and also the individuals, and based on the result, a capacity building model is then tailored. This model covers a

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[1] Enemark, S (2003): Capacity Building for Developing Sustainable Land Administration Infrastructures. FIG Article of the Month, July 2003

comprehensive area including planning, introduction, application, assessment, data acquisition, processing, digitalization, analysis, management, digital based land service analysis, architecture, development, monitoring and maintenance, and more.

This model will allow countries undertaking projects on land administration informatization to have an accurate assessment of its current status and provide with the adequate capacity building program allowing the country to take ownership of the project. At the same time, it will allow them to plan ahead and make short, mid and long term plans for its land administration and management projects. This will in essence provide the grounds for the sustainability of such projects and also increase efficiency. A study conducted by the ADB in 2008 on capacity assessment and development emphasizes the importance of project ownership for a country embarking on such efforts in its first pages by highlighting the following – "Ownership is Everything."[2] Likewise, the NLCBM-i model was created with this mind.

Background

An efficient way to manage and systematically utilize national land is closely related to the sustainable economic growth of a country. Generally, the need for the utilization of land increases due to industrialization and economic growth; therefore it is important that land administration become more systematic, efficient, and modernized according to the changing technological environment.

The informatization of the land sector adds tremendous value to increasing efficiency on how land administration is managed by the government and its officials, to elevating the proficiency of the manpower managing the land sector, to securing good governance by policy makers and higher officials, to sharing accurate data on land for effective policy making, and to optimizing all land resources. The enhancement of all these elements will

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[2] "Capacity Assessment and Capacity Development in a Sector Context Tool Kit." ADB. January 2008

naturally benefit the public who will enjoy secured rights on their property as well as good public service. Society will also benefit from such a stable system as transparency in government transactions can be guaranteed, conflict due to land issues can be avoided, more jobs can be secured with increased ICT usage, leading to sustainable economic growth. It is for this reason that today the modernization of land management is priority in the agenda of most developing countries.

However, as Williamson says, "*the relationship of people to land varies in and between countries and regions, and adequate responses in terms of capacity building must reflect these fundamental conditions,*"[3] indicating that when embarking on a project for the modernization of land administration, a clear understanding of the country's capacity to this end must be well understood in advance. Many developing countries today rely on donor projects with the support of MDB's and implemented by experts outside their countries. However, for these projects to be successful and sustainable in nature so that it will have resonance on all aspects of that society, it is important that the recipient country has ownership of the project at hand with the adequate human resource secured throughout the process and stages of the system.

Studies by the international organizations and MDB's recently are echoing the importance of capacity building as a key component of land administration projects in developing and countries in transition. They are also exerting toward creating tools that will be able to address this issue. In 2013, in particular, the World Bank developed the Land Governance Assessment Framework (LGAF), "designed to arrive at a consensus amongst land governance professionals, experts/ specialists and key stakeholders on the status of land governance in a country"[4] Such findings are then introduced and shared with other experts to be used as reference by the policy makers and other stakeholders in the country. The LGAF does not stop at merely making an assessment of the status of

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[3] Williamson I (2003): "Capacity Building in Land Administration – a Conceptual Approach" presented at FIG April 2003

[4] Land Governance Assessment Framework: Implementation Manual for Assessing Governance in the Land Sector .Version: October, 2013

land governance of a certain country but provides the foundation for the stakeholders to decide on what will be the next step based on the results of the findings.

<Comparative Table of LGAF and NLCBM-i>

Model	LGAF	NLCBM-i
Subject and scope	Country	Country and individuals
Type	Assessment framework	Assessment + Capacity Building Model (Good cycle of Growth)
Objective	Capacity Building in land governance	Strengthening of Capacity of Land Informatization
Area of Assessment	Status of Land management maturity	Environment for modernization of land management at national and organizational levels
Range of Capacity Development	Recommendations of policy direction	Tailored curriculum programs for country and individuals

What is Capacity Building?

In 2006 the OECD described *capacity* as *"the ability of people, organization, and society as whole to manage their affairs successfully."* (OECD/DAC 2006). In many of their studies on capacity building, land administration experts Williamson and Enemark also state that the term capacity may differ in meaning and interpretation according to different people and how this is used. But time and again, the two scholars claim that the building or strengthening of this capacity should be more than just education and training and that

there should be a holistic or comprehensive view which not only look at the individuals but also the country as a whole.

The most common definition in many studies is the one provided by the UNDP in its study on the land governance assessment in 1998: "*the ability of individuals and organization and organizational units to perform functions effectively, efficiently, and sustainably.*" (UNDP, 1998).

According to Williamson and Enemark, the UNDP definition implies three important aspects – that capacity is not 'passive but a continuing process;' that the development or strengthening of capacity should be focus on human resource, and that the 'overall context ' of the organization or organizational unit should also be considered in the capacity development.

The NLCBM-i was created based on the understanding of the UNDP capacity concept – that capacity building should incorporate assessment and development of the capacity of not only the individuals or group of individuals that will undertake the task but also that of the organization or the environment, in other words, the country of the group should also be assessed and developed. The NLCBM-i also follows the concept that the strengthening of capacity, both at the individual and national levels, should be sustainable in nature, creating a good cycle of growth from assessment, development, re-assessment, and advanced development.

What is the NLCBM-i?

The National Land Capacity Building Model for informatization or NLCBM-i is a capacity building model that focuses on planning, introduction, application, analysis of policies surrounding the informatization of land administration; surveying, management, digitalization, analysis and management of land data; and analysis, construction, development, maintenance of digital-based land service or system. And it includes methodology for diagnosis, development, and strengthening capacity, developed

exclusively to enhance the capacity on the informatization of land and land administration.

The NLCBM-i assesses the capacity for land informatization from the national and individual point of view, and based on these results, it designs a tailored capacity building program for the subjects concerned. A re-assessment diagnosis is carried out once again on the subjects who have received the training and education to assess the effects and a next step program is re-designed for further training. This repeated process, or good cycle of growth, will in turn increment on a step by step basis the capacity of the subjected individual or organization so that their capacity is further strengthened, transforming not only the individual and group of individuals but also the society they belong to.

The basic principle that is defined in the objective, scope, concept, and capacity building subject of the NLCBM-i are as follows:

- **Model centering on strengthening the capacity for land informatization:** The NLCBM-i is a model that focuses principally on assessing and developing a model to strengthen the capacity in the area of land informatization from among areas concerning land and land administration. Accordingly, the capacity assessment index and curriculum to strengthen the capacity focus on areas pertinent to land informatization. The indicators, however, also include other areas that cover issues that are relevant when a country is in the process of modernization its land administration.

- **Model to strengthen the capacity at the national and individual dimensions:** The NLCBM-i is a model that assesses the capacity in the land information area at the national as well as individual dimensions. At the national level, the model evaluates whether the nation secures the capacity to modernize its land administration system. Thus, it looks at the legal framework, policies, organizations, and level of digital infrastructure. At the individual level, the

individual's knowledge on land informatization is assessed by looking at his/her knowledge as well as technological knowhow. The diagnosis for national capacity makes assessment of the social and organizational areas. The assessment for individual capacity focuses on the individual's own capacity but at the same time the social and organizational capacity. These areas are evaluated because in addition to the individual's capacity knowledge, his/her social and organization environment must also be evaluated to understand an accurate assessment level of capacity.

- **Integrative cycle model that links assessment and development**
  The NLCBM-i is an integrative model which has capacity development follow capacity assessment. The capacity assessment and development methodologies are linked systematically which have an interactive effect on each other. Moreover, the NLCBM-i is not a one-off education and training human resource capacity building concept but a cyclical model that links assessment, development, re-assessment, and development, etc.   In this manner, the capacity of the nation or individual in the area of land informatization can be continuously assessed and consecutively improved on a step by step basis.

- **A tailored model matching the level of each of the stakeholders**
  The NLCBM-i is a model which can be tailored to the individual needs of the respective stakeholders. The assessment of the model is divided into the following categories: 1) policy makers (government officials), 2) system managers (public sector), 3) system engineers (private sector), and 4) public service managers (government officers). The individuals of each category are assessed through a set of indicators organized for that specific category and capacity development takes place based on the results. The NLCBM-i also is a model where the development model can also be tailored according to the respective needs of individuals belonging in the different categories.

Composition of the NLCBM-i

Very similar to the UNDP concept which looks at capacity in two dimensions, the NLCBM-i is also composed of two principal pillars: capacity assessment and capacity development. The assessment part includes an index and method to evaluate and diagnose the capacity of the country and individuals in the area of land informatization. The development part incudes an educational curriculum for the stakeholders and organizations of the pertinent country to prepare for the development of a land information system or modernization of land management. Each of these parts are inter-related systematically so that the results of one will have impact or affect the other and visa versa.

1) Capacity Assessment

The capacity assessment is composed of social, organization and individual assessment indicators and interview questions in order to make the diagnosis.

The assessment index presents questions and standards to measure the capacity for land informatization. By structuring the assessment index by area, dimension, and indicator, the index was simplified in order to get rid of unnecessary complexities. The area is the highest group level in this index and it is divided into social, organization and individual areas. Each of these areas are divided into different dimensions. In order to assess the dimensions, these are divided into different indicators. The indicators are set up to assess the dimensions and they are divided into different categories with questions which require a 1 to 3 value assessment or yes/no answers.

The index of the capacity development is composed of 3 areas, 12 dimensions, 54 indicators and analysis categories. In addition, in-depth interview questions are prepared to supplement the measurement tool to make a more accurate assessment of the current status in the area of land modernization.

2) Capacity Development

The capacity development is composed of incremental capacity building curricula and are tailored for 1) decision makers (government officials) who have the authority and are responsible to make decisions on major national land related issues; 2) system managers in charge of digital-based land systems (public sector); 3) system engineers (private sector) in charge of land related digital systems; and 4) managers operating a digital based- service system related to land for the public (government officers). Capacity development is composed of education programs that are developed on a step by step basis suited for each stakeholder group. The curriculum also includes a set of basic courses that apply to all the levels. The capacity development part of this model secures a set of programs, curricula and courses that are mixed and matched selectively according to the need after the proper evaluation and diagnosis are made through the assessment tool.

Each of the courses included in the curricula and programs have a selective object goal followed by a set of core knowledge that are necessary to advance the area of land administration modernization.

Structure of the NLCBM-i

1) Capacity Assessment

The capacity assessment is composed of tools that evaluate and diagnose social and organizational capacity at the national level and also the capacity of the individuals. The result of the evaluation using the social and organizational assessment tool will serve as the basis to develop and design the capacity development model that fits the country while the results of individual evaluation will be the foundation for a capacity development program or curriculum for the individuals.

      (1) National level capacity assessment (social and organizational areas)

The social and organizational evaluations are composed of questions to analyze the level of the country as well as the organization in charge of land informatization. The social and organizational assessments are divided into 8 dimensions and 54 indicators. Each indicator is evaluated by selecting a value from 1 to 3. The number selected by the most individuals, suggests the level of the indicator. In turn, the answer that receives the most answers will be the level of the indicator. Specialized issues where the qualitative indicator will not suffice to assess the level of development of a particular area and a more precise measurement is necessary, this will be supplemented with interviews and further assessment studies in order to secure a more objective and evidence-based data to make the appropriate assessment.

(2) Individual capacity assessment (individual area)

The individual area and its set of indicators are to assess the knowledge and technological knowhow of the individuals that are to receive the assessment and capacity building program. For this reason, this area is evaluated by using a different standard from the social and organizational assessments. For the individual evaluation, a total of 180 knowledge and knowhow categories related to land and land informatization are the indicators. The question will ask whether the individual has acquired the technology or knowhow in a certain category. If so, at what level – whether beginner, mid or expert levels – is this acquired technology or knowhow? More value is given to the higher levels of knowledge and knowhow. The total is tallied and the capacity of the individual assessed and diagnosed.

2) Capacity Development

(1) Construction of capacity development model fit for the country

The capacity development model for the country is designed by taking into

account the level evaluated by the capacity assessment model by applying the national dimension assessment-development analysis chart. The national dimension assessment-development analysis chart is linking the education courses of the capacity development which are closely linked together from among the eight social and organizational areas. Through this chart, it is made easier to see at a glance what areas of concentration are related depending on the different social and organizational categories. By doing so it is also easier to select the educational programs which are related according to the different dimensions. Here, it is not necessary to select all the courses in the dimension but only those that fall within the range of the level of capacity at the different levels of capacity.

This is then lined up according to the different stakeholders of the country from policy maker to system engineers. In this manner, the curriculum that is suitable for the pertinent country then is designed. The national level curriculum introduces a capacity development that is needed to the individuals at the different levels according to the assessed level of capacity in the area of land informatization from a macro perspective of legal framework, organizational structure, infrastructure, etc.

(2) Construction of capacity development model fit for the individual

Based on the result of the capacity assessment at the individual basis which checks through an assessment indicator the technology and knowhow needed but at the same time the social and organizational indicators that make up the national perspective, a tailored curriculum is designed for the individual by mixing and matching basic courses with those required and recommended.

The basic courses will include introductory courses that are necessary for any individual involved in the area of land administration. They are accompanied by courses that focus on the technological and knowhow needs of the education recipient. In addition, courses can also be recommended by the

assessment experts taking into consideration the capacity of the individual and the different social and organizational environment of the country the individual comes from. Thus, the policy maker will be provided with a curriculum that is suitable for his/her purpose and needs and which will differ from the systems engineer, though they at times share some of the basic courses.

Application of the NLCBM-i

For the NLCBM-i to be most effective, it is necessary to follow the application principles which are as follows:

- **The capacity assessment must be implemented on the local land related experts when assessing national capacity while at the individual level, these must take place on the individual who will receive the program.** The assessment of the country's capacity in the land informatization is evaluating the levels of legal framework, organization, manpower, technology and infrastructure of the country and this must be done by those who are the most recognized in knowing these areas in the respective countries. As for the capacity development, the curriculum is designed based on the assessment of the capacity level of the country in the land sector based on a more average approach. Therefore, the subject of the capacity development are unspecified groups that need capacity strengthening in land informatization and may differ in the expertise level from the one making the evaluation or the local expert evaluator.

  In the case of assessing the capacity of the individual, the model is shaped in a way that the development of the capacity is based on the result of the individual's own assessment. Therefore, the evaluator as well as recipient of the capacity development program must be the same person. For this reason, for the capacity building of the individual, the assessment part as well as the

development part must be conducted by the same person.

- **A tailored curriculum is designed suited for the assessed country (or individual).** In the NLCBM-i, the curriculum will differ depending on the subject of the capacity assessment. If the capacity level of country A and country B are different, naturally their respective capacity development curricula will differ. For the individual, even if two people live in one country, they may have different levels of capacity in the same area of expertise.

- **When carrying out the capacity assessment, this must be done by the local coordinator.** The NLCBM-i capacity assessment is composed of surveys and interviews, and for a desirable outcome of the results, the role of the local expert who will be the coordinator is important as he/she possesses the most knowledge and understanding of the current situation in the land sector of the country; he/she must also have a good network in both the private and public sectors. Such an individual can play the role of the local coordinator who can carry out the surveys and interviews. The coordinator will also be in charge of selecting the recipients, carrying out the assessment, and secure an objective evidence-based material of the results.

- **When designing the capacity development, this must be carried out by a land informatization expert.** When designing the capacity development it is necessary to utilize land informatization specialists. The land informatization specialist should be someone who has expertise and knowledge in the area of land information, informatization, capacity building. Accurate diagnosis as well as tailored curriculum must be created by such specialists.

- **The capacity diagnosis and analysis must be evidence-based.** All indicators that are summed up in numbers and scores must be backed up with evidence of the findings. For example, if an indicator in the assessment shows "10% of the entire national territory" as the reply for the question "Level of digitalization of

land register (book)," this reply must be followed or backed up with a document that clearly indicates the reply. This evidence increases the credibility of the replies.

- **The NLCBM-i must be carried out on a regular basis.** The NLCBM-i aims to create a good cycle of growth by maintaining sustainability comprising capacity assessment, development, re-assessment, and further development. For this reason, a one-off assessment and development cycle will not suffice, and must be repeatedly implemented for it to be effective. By making re-assessments of the training and education subject, there can be accurate evaluation of how much the capacity of the individual and thus the group of experts that will serve to carry out the project has developed. It will also render the next stage of the training so that the development program can be effectively carried out.

How the NLCBM-i can be applied depends on the different areas of utilization. These areas include: national capacity assessment, pre-feasibility study, and capacity building projects. When utilizing the NLCBM-i in different areas, one should be bear in mind what Williamson and Enemark say in *"that even if the focus of concern is a specific capacity of an organization to perform a particular function, there must nevertheless always be a consideration of the overall policy environment and the coherence of specific actions with macro-level conditions. Capacity development does not, of course, imply that there is no capacity in existence; it also includes retaining and strengthening existing capacities of people and organisations to perform their tasks."[5]*

1) Application when making national capacity assessment

The NLCBM-i can be used or utilized when a country wants to make an assessment of its level of capacity in the area of land informatization even when there is no particular plan

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[5] Enemark, S. and Williamson, I. (2004): Capacity Building in Land Administration – A Conceptual Approach. Survey Review 2004

for a project to enhance such a capacity.

In order to design a development plan after an accurate diagnosis of the capacity of the country in the area of land informatization the NLCBM-i must be applied at a macro level. Accordingly, the indicator for capacity assessment that include the social aspect (law/policy/ institution; plan/strategy) and organizational aspect (human capital/ organization, educational institutions, standard/infrastructure, public/private cadastral technology, cadastral system management) must be utilized in order to evaluate what type of and at what level are the land informatization resources at the national level. The assessment at the social and organizational areas must be carried out or implemented by experts at both the public and private sectors who have the deepest understanding of where the country stands when it comes to land, land administration and modernization of its systems.

After the assessment is conducted, the capacity development model must be designed as according to the level that was demonstrated according to the outcome of the different surveys and studies. The development model at this time must be designed as a national tailored curriculum taking into consideration the social and organizational aspect and creating a program that will be able to link the assessment with the development model sustainable to develop the capacity of the nation to carry out a national plan for the modernization of the land administration. The national level tailored curriculum is a set of courses at an average level that are selected according to the capacity of the country for those involved in the area of land and land administration as well as its informatization. They are courses that can cover all the subjects, general courses that will be pertinent to all those in the land sector from decision makers, government officials, system engineers (private), service provider and managers, etc.

2) Applying the NLCBM-i for pre-feasibility study

The NLCBM-i can be utilized when a country is planning or has entered into a plan to carry out a capacity building program for its pertinent land experts and officials and a pre-feasibility study is being carried out. As it has been elaborated earlier, international

projects today aspire to implement a separate human resource capacity building project that either runs parallel to the main project or is initiated before so that the beneficiary country will have leadership and ownership of the project. It is for this reason that applying the NLCBM-i to a project's pre-feasibility study can be a recommended step. The NLCBM-i will be able to accurately assess the level of the capacity in the different land sector and what kind of curriculum is needed for capacity development.

The assessment part of the NLCBM-i must be applied at the national as well as private levels, thus at the macro as well as micro levels. Even when trying to make an accurate assessment of an individual expert, the assessment of the entirety is also necessary since this particular individual generally and for certain must belong to an organization and group. Therefore, in order to make an accurate assessment of the individual, accurate assessment of the organization that the individual belongs to must be also take place in addition to the environment where this organization is, therefore, the country. With this in mind, the indicators for the assessment of the individual will include knowledge and technological knowhow of land related fields but also indicators of social and organizational evaluation at the national level.

The assessment of the social and organizational areas must be carried out by the local government officials or private sector expert or land expert who have a good and comprehensive understanding of the current land and land informatization situation. The assessment of the individual are carried out on the individuals; however, because this is a pre-feasibility study stage, the assessment must be conducted on a sample of those who are to take part of the designed program (about 10% of the entire group expected to receive the training).

The capacity development for the pre-feasibility study stage is focused on the individual tailored curriculum. The courses for the curriculum are selected based on the planned capacity building project with the selected group of individuals who are to take part in the future project. Therefore, it is important to assess what kind of knowledge and knowhow the individuals possess so that the most suitable courses can be selected for the curriculum.

3) Applying the NLCBM-i when carrying out a capacity building project.

The NLCBM-i can be applied when a country has concrete plans to strengthen the capacity of its land experts in order to carry out a land administration modernization project and a separate budget is allocated for this purpose. The model can make an accurate assessment of the group of individuals that are to take part in this project and a development program designed with a clear objective and the curriculum carried out

Very much like a feasibility study, the level of capacity of the individuals, groups and the country must be evaluated accurately and comprehensively for such a project to be implemented. Therefore, the micro as well as macro perspectives are important and indicators for both the individual and the country must be both utilized. The social and organizational areas indicators must be assessed by having the local experts and government official take part of the assessment while the individual assessment is carried out on the individual who will be part of the capacity strengthening programs.

When a capacity building project is carried out, this must be focused on an individual tailored curriculum so that each area can be focused on and also addressed. Each area with the end goal of modernizing the nation's land administration must be the concentration and the curriculum designed according to such needs, fitting to the plan of the project as well as the financial resource allocated.

Jamaica Case

The NLCBM-i model was applied to Jamaica, and a capacity assessment and development project was carried out from late 2013 to 2014.

The targeted recipients of the model were decision makers from the Ministry of Water, Land, Environment, and Climate Change, policy experts from the Ministry of Finance and Planning, land management workers from the National Land Agency, and system managers from the Ministry of Water, Land, Environment, and Climate Change.

For the assessment, the indicator surveys were used in addition to supplementary interviews. A separate land information assessment report was prepared.

a. Application: Jamaica>>National Capacity Assessment

From the assessment, the judicial system was reviewed at societal area; organization, human resource, informatization level, systems level, and ICT infrastructure were evaluated at the institutional or organizational level, and assessment was conducted at the individual level. For this a capacity building program was designed for the targeted participants and also Jamaica for its plan to improve the land management system.

a. Application: Jamaica>>National Land Capacity Assessment

THE WORLD BANK

2. Case of NLCBM-i Application
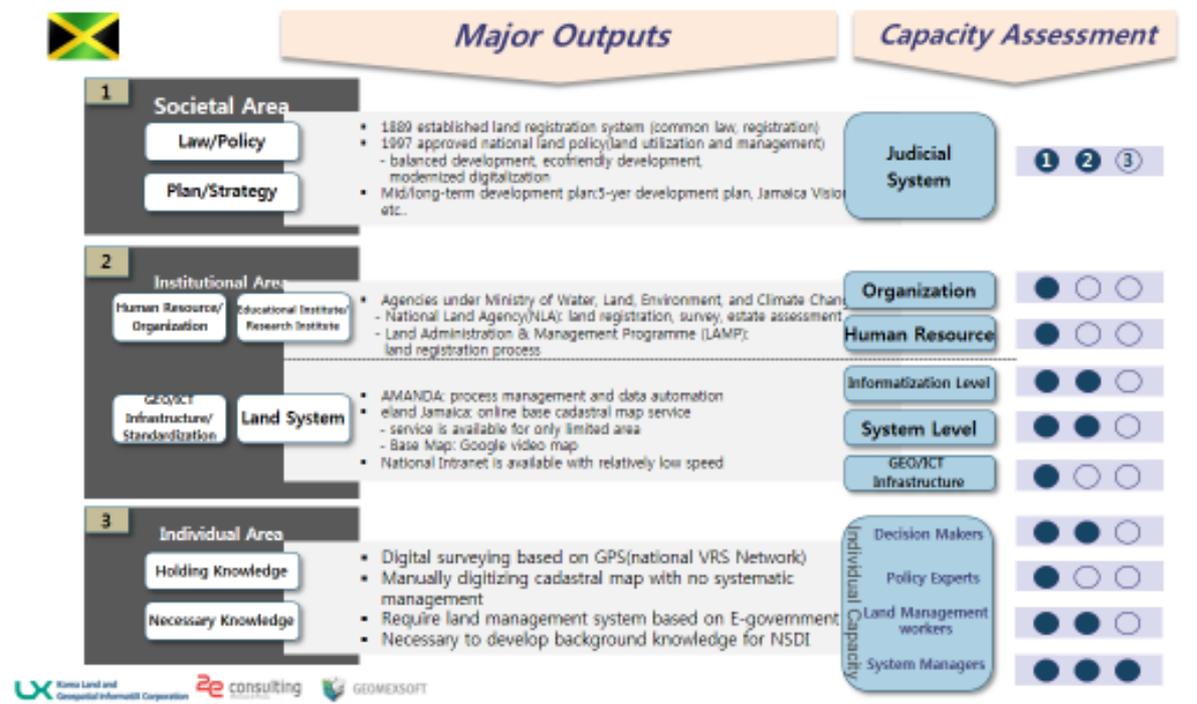
The designed program included a basic curriculum that included courses on land registration, land assessment and taxation; mandatory curriculum that included 3D photogrammetry, LIS open platform; and recommended curriculum that included courses like Korea's LIS, e-government system, spatial information system and others.
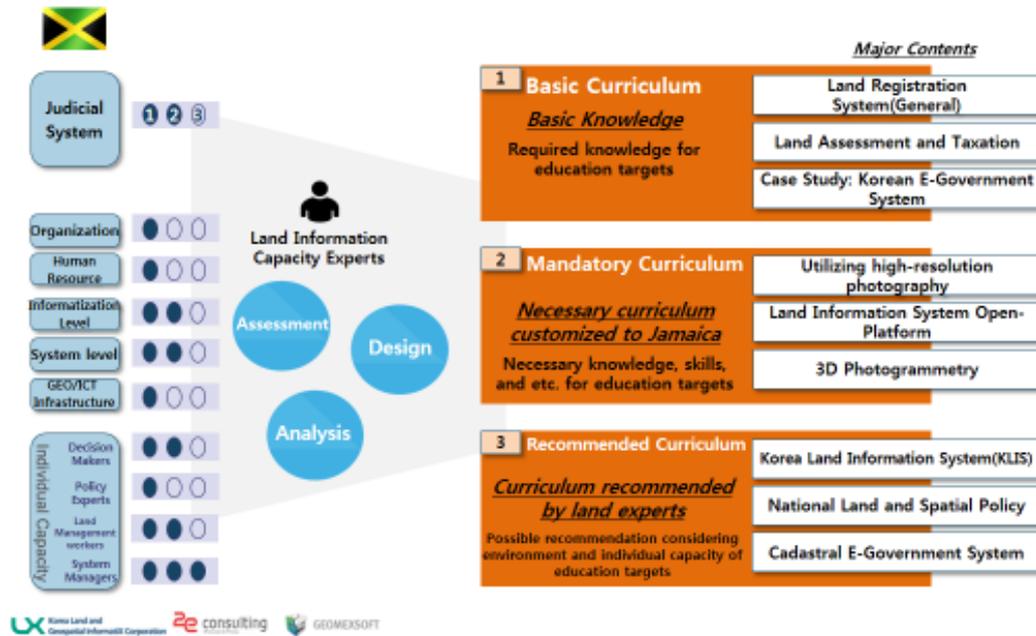
The expected results included: customized education based on demand analysis; ideas for national level master plan and detailed action plan; improved land management, land administration, land policy, system infrastructure capacity; and sharing of Korea's experiences for sustainable development
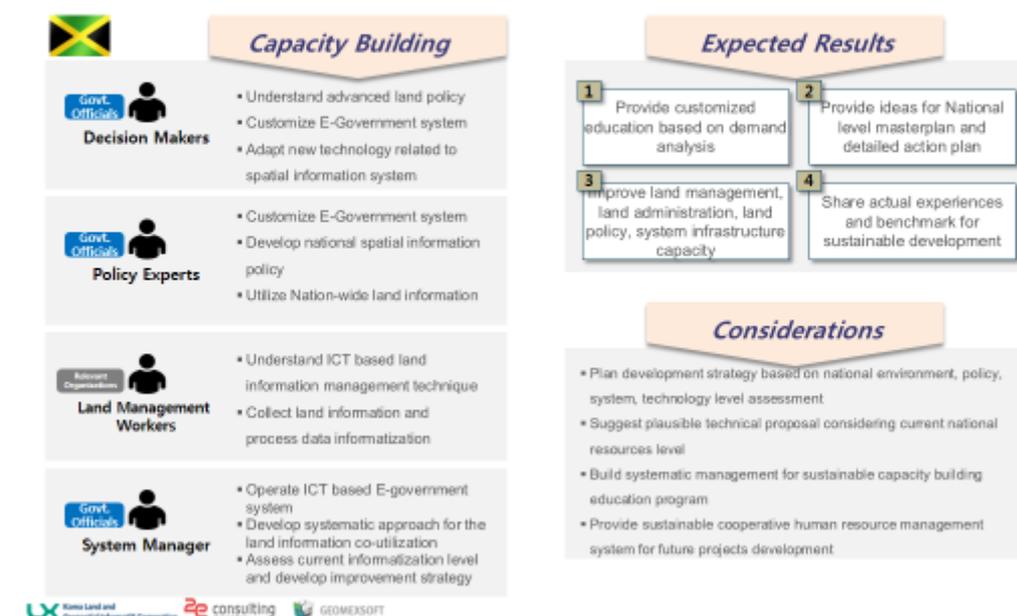
Conclusion

More than ever before, the efficient management of land resources is important for the economic growth and sustainable development of a country. It is for this reason that many developing countries are placing priority in tackling their land challenges above other issues. With the advancement of new technologies, from T/S (total stations) for surveying, drones, satellites, mobiles, web-based systems, and more, these countries may find faster solutions to take on such challenges. The issue, however, is preparing the national capacity, especially in the human resource, to carry out the tasks.

Aware of this, international organizations and project donors are stressing the importance of strengthening the human capacity prior to or parallel to embarking on large size land administration projects

As Williamson and Enemark say, *"A major problem in most land administration projects is that the focus is on the project as such, while the sustainability of the system in the longer term is only sporadically addressed within the project. There is need to ensure sustainability and continuity, and to develop a corporate memory of land administration experience within the country."[6]* The way to do this is creating a human capacity building that will be sustainable as it 1) addressing the specific needs of a country and 2) creates a good cycle of growth by creating a sustainable assessment-development model.

The NLCBM-i, developed by LX and its Consortium is unique in this sense but also it focuses more specifically in the area of land informatization, an area that Korea is known for from its experience in developing its land information system (KLIS) and e-government. Applied in various countries where cooperation in the land sector has been carried out with Korea, the NLCBM-i has proven to be a useful tool in sharing Korea's experience in the modernization of its land administration.

However, the developers of the model are well aware that despite the expertise and good will that is contained in such a capacity building model, it may render less than

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[6] Ibid

expected results if the beneficiaries are not able to take full ownership of such projects.

In the introduction of an article by Williamson and Enemark, the two scholars claim that "*the capacity building concept is often used within a narrow meaning such as focusing on staff development through formal education and training programmes to meet the lack of qualified personnel in a project in the short term... and that capacity building measures should be addressed in the wider context of developing institutional infrastructures for implementing land policies in a sustainable way.*"[7]

The Korean experience shows, however, that the principal means to strengthen the capacity in the modernization of land administration is to start with human capacity. As it was stated in the introduction of this paper, one of the strongest initiatives taken by the Korean government when the KLIS was developed was to carry out a large scale human capacity building of the public and private sector with public awareness. It is believed that the success of the KLIS started with the change in the mindset of the people but also the government officials which was made possible through such fit-for-purpose education and training. And this is the expertise behind the NLCBM-i.

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[7] Ibid

REFERENCES

1. "Capacity Assessment and Capacity Development in a Sector Context Tool Kit." ADB. January 2008

2. Enemark, S. and Williamson, I. (2004): Capacity Building in Land Administration – A Conceptual Approach. Survey Review 2004; 37(294), 639-650.

3. Enemark, S. and Molen, P. (2008): Capacity Assessment in Land Administration. ISBN: 978-87-90907-64-8. International Federation of Surveyors (FIG)

4. Klaus D., Harris S., and Anthony B. (2012): The Land Governance Assessment Framework. The World Bank LGAF website:

5. http://web.worldbank.org/WBSITE/EXTERNAL/EXTDEC/EXTRESEARCH/EXTPROGRAMS/EXTARDR/EXTLGA/0,,contentMDK:23680141~menuPK:9816714~pagePK:64168445~piPK:64168309~theSitePK:7630425,00.html

6. Land Governance Assessment Framework: Implementation Manual for Assessing Governance in the Land Sector .Version: October, 2013

7. Solomon H., Ombretta T. and Remy I. (2013): Towards a Capacity Development Framework for Land Policy in Africa. Article of the Month – July 2013. International Federation of Surveyors (FIG)

8. UNDP (1998): Capacity Assessment and Development. Technical Advisory Paper No.3.

9. UN-Habitat and GLTN (2014): The GLTN Capacity Development Strategy. HS Number: HS/007/14E. UN-Habitat

10. Walter T. and Liza G. (2015): Developing a Methodology for Capacity Development Assessment to Implement Land Policy. FIG Working Week 2015. International Federation of Surveyors (FIG)

11. World Bank (2013): Land Governance Assessment Framework_Implementation Manual. Version: October, 2013

12. World Bank's Poverty Net Glossary, URL: http://go.worldbank.org/7BKU4R5560