



GIS Cookbook for LGUs: Guidelines for Comprehensive Land Use Plans using GIS

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Abstract

As the Philippines is beset with problems such as flooding, landslides, earthquake and other hazards, it is important that LGUs continually update their CLUPs to be able to guide the city/municipality's growth in the right direction. By providing a guideline in the preparation of Comprehensive land use Plans using GIS technology, it is hoped that more LGUs will be made more capable to update their CLUPs, as it is a very powerful instrument to minimize and reduce the risk in their locality.

Thus, the "GIS Cookbook for LGUs, is a guideline on how to prepare a CLUP using GIS technology which can be used by local planners.

The "Cookbook" will be a step by step procedure on how to prepare a CLUP using GIS technology to make local planners more capable to prepare and update their CLUPs.

With rapid urbanization and dramatic growth of population in urban areas, the Philippines is experiencing increased pressures on its natural resources that contribute to the degradation of the urban environment. In addition, the problems being faced by urban societies such as environmental pollution, congestion and traffic, crime, malaise and unemployment are being aggravated by the lack of housing, transportation and communications infrastructure, as well as poverty, disease and overall lack of basic services. There is also a risk for not properly laid out urban areas being affected by natural disasters such as floods and landslides. These problems,



thus, highlight the need for rational and efficient management of land resources as well as the restoration of management functions that will help these urban areas to implement sustainable development strategies to cope with the consequences of rapid urban change.

The Housing and Land Use Regulatory Board's (HLURB) GIS Activities

The HLURB's mandate in terms of the regulation of land use is to ensure the rational use of land and efficient shelter delivery. One of HLURB's major functions is to come up with guidelines on the preparation of Comprehensive Land Use Plans (CLUPs) for Local Government Units (LGUs) as well as to provide technical assistance to the LGUs in planning. The CLUP is the instrument specified in the Local Government Code as the means to identify the community's needs and translate them into achievable policies and plans, programs and projects. A CLUP prescribes the development pace, direction and strategies in a community as well as its role in provincial, regional and national development. The CLUP is enacted into a zoning ordinance for purposes of enforcement. Currently, the ten-volume CLUP guidelines are being enhanced and updated with the objective of making it comprehensive and user friendly to use by the LGU planners from the lower class municipalities. It contains step-by-step procedure in preparing the CLUP. Parallel to this CLUP guideline updating runs the implementation of the 'GIS Cookbook', which promotes using GIS as a tool in spatial planning. Swedesurvey is assisting HLURB in the work and the project is supported by the Swedish International Development Cooperation Agency (Sida). The 'GIS Cookbook' is a guideline which complements the CLUP guideline which is all about data management for the CLUP preparation.

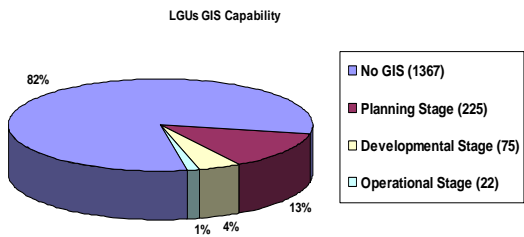
The objectives of the project are to promote coordination, uniform geodata standards and meta database specification between central and local level and equip HLURB Central and Regional Planning Staff to improve the ability to assist LGUs in its land use planning activities using GIS and to transfer the technology to the LGU planners.



The main activities are consultation workshops; development of geodata standards and metadata specifications for uniformity; development of the procedure of CLUP using GIS; training, and seminars. The project has three pilot areas namely: The Municipalities of Pateros in Metro Manila, and Laurel in Batangas Province and Ormoc City in Leyte Province.

LGU GIS Literacy Study

A GIS Literacy Study conducted in 2000 shows that of total 1600 LGUs only about 1% of LGUs are in the operational stage, 4 % are in the developmental stage 14% are still in the planning stage, and the majority, 82% have no GIS. Therefore, the project is focusing on small LGUs with very

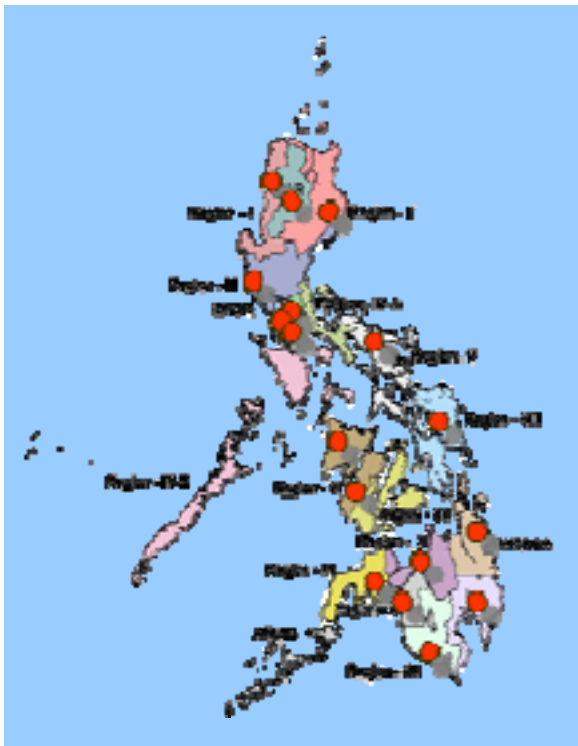


limited resources that currently have no GIS. The idea of the “Cookbook” is to prepare a “GIS on a shoestring guide” which aims to make a simple with minimum requirements for LGUs that wish to embark on a GIS. However, the project has considered that since the majority of the LGUs

have no GIS, the guidebook will also show them on how to manage their data and make better presentations of information using office software such as Excel and PowerPoint. When and if the LGU is already prepared to embark on a simple GIS, the guidebook will contain comprehensive specifications on how to use a simplistic GIS for planning purposes.

GIS as Tool in CLUP Preparation

There is a network of sixteen regional offices of HLURB nationwide that provides services to different clientele. Each of the regional offices have planners providing technical assistance to the LGUs in CLUP preparation. Therefore, the GIS

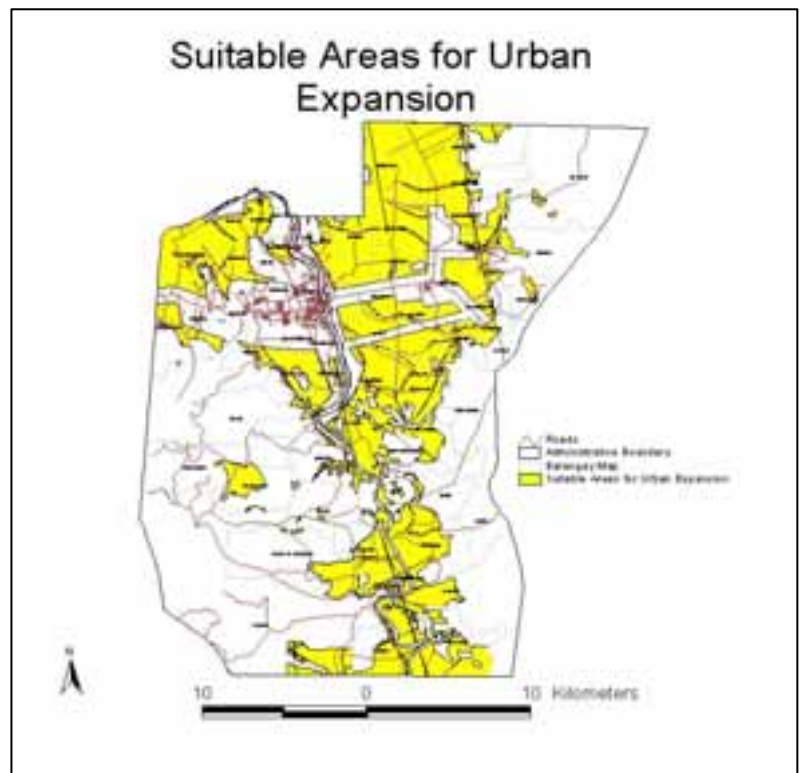


advocates are the HLURB regional planning staffs. The City/Municipal and Development Office (CPDO/MPDO) for each LGU plays an important role in land use planning. The staff is responsible for the preparation of the CLUP. It is , therefore, important that there is coordination with HLURB and the LGUs.

The 'GIS Cookbook' will contain a linkage between the CLUP preparation process and how GIS can be used as a tool. It contains an introduction to GIS and steps on how to embark on a GIS. In addition to the narrative text there is a toolbox which presents methods, procedures, case studies and templates that LGU planners can use in their planning activities. Furthermore, the 'Cookbook' will contain standard hardware set-up (minimum requirements, software) procedures for base map preparation, how to use GPS, how to make analysis, sample layout for maps and sample Excel tables and quick start exercises for those who would like to learn GIS because this will contain sample data.

Suitable Areas for Future Urban Expansion

As the Philippines is beset with problems such as flooding, landslides, earthquake and other hazards, it is important that LGUs continually update their CLUPs to be able to guide the city/municipality's growth in the right direction. It is very critical that potential areas for urban expansion for the LGUs be identified in the beginning to ensure the safe location of communities and to be proactive in prevention of future disasters. With the use of the new CLUP guideline together with the 'GIS Cookbook', it is hoped that more LGUs will be made more capable to update their CLUPs, to minimize and reduce the risk in their locality. The use of GIS in CLUP is a powerful planning tool which has the ability to separate layers of



information as well as to integrate other layers to be used as a decision making tool for local governance. One major step in preparing the land use plan is the determination of areas for future urban expansion. This is done using the overlay analysis method by combining several thematic maps such as fault zone map, flooding map, protected areas and other hazard maps. By providing criteria on the best suitable site for locating urban areas, the GIS will be able to come up with the areas which are best suited for urban expansion.

Human Resource Development and Advocacy

The 'GIS Cookbook' contains training materials and documentation for future training of the HLURB regional planners. It is hoped in the near future that after HLURB planners at regional level are trained and made more capable to provide technical planning assistance using GIS, they will be able to transfer this technology to the LGUs. Although the Cookbook is customized for CLUP preparation, once the LGUs are more adept in using GIS technology, they can gradually move forward to use GIS for other advanced applications in their municipality such as Real Property Tax Assessment, Cadastral Mapping among others. It is also foreseen that all departments will be linked and share their data among the different sectors in the municipality.

Lessons learned from previous experiences

What we build today will last for many years and will have great impact tomorrow. A bad adhoc decision could jeopardize future development. By bringing in risk factors in strategic planning process, unsuitable areas for development are identified and thus avoiding future disasters. A good plan will consider locating future communities in safe areas. GIS will be the tool in determining safer location of our communities.

Some food for thought: Hazards are inevitable, elimination of all risks is impossible but technical measures and experiences reduce the severity of economic and social disasters. Human behavior can be changed. "what if it happens?", for me, don't be there when it happens. I think this is a basic planning principle.

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