Considerations is Assessing the Potential Success of a Cadastral or Land Information Management Project in Developing Countries - A Case Study of The Thailand Land Titling Project

by

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ABSTRACT

The Thailand Land Titling Project is undoubtedly a successful project combining technical, institutional, management, legal, training and educational components. It is a joint project by the Royal Thai Government, the World Bank and the Australian International Development Assistance Bureau. It is primarily concerned with the issuing of land titles to all freehold parcels in the Kingdom of Thailand, in addition to undertaking land administration reform, establishing a national valuation system, carrying out urban cadastral mapping for all urban areas in the country and developing a national land information strategy. The paper briefly overviews the project, outlines some of the lessons from the project and the significant socio-economic benefits of the project.

However the paper concentrates on attempting to evaluate the reasons for the success of the project. In particular it argues that the institutional, economic, social, legal and political environment at the time of project preparation and implementation was conducive to its success. Such an evaluation is necessary to place the lessons, achievements and benefits of the Land Titling Project in perspective for others who may wish to translate these experiences to their own countries or jurisdictions.

By drawing on the experiences of the Land Titling Project and other projects with which the author has been involved, an attempt is made to generalize the considerations and necessary environment for success of similar projects.

INTRODUCTION

The Thailand Land Titling Project (LTP) is a 20 year project to issue land titles to all freehold land parcels, to improve the cadastral and land administration system, to develop a national valuation system and to produce land parcel maps for all urban areas in Thailand. The project is administered by the Department of Lands (DOL) in Thailand and is jointly sponsored by the Royal Thai Government, The World Bank and the Australian International Development Assistance Bureau (AIDAB). The first five year phase (1985-89) has just been completed. It is undoubtedly a successful project combining technical, institutional, management, legal, training and educational components.

The project provides many lessons for other countries contemplating similar projects. Set out below are some lessons which can be gained from studying the project and a summary of the major benefits which the project is achieving or expects to achieve. The achievements, lessons and benefits of the project must
be seen in perspective. It is argued that in retrospect the institutional, political, legal, economic and social environment at the time of project preparation and implementation was very conducive to the success of the project. This is to take nothing away from the dedication and excellent efforts of all the Thai personnel, the Australian advisers and the World Bank staff who have contributed to the success of the project. It is argued that the project, together with its achievements, lessons and benefits, cannot be automatically transferred to another jurisdiction or country.

An attempt is made to generalize the institutional, legal, social, political and economic environment necessary to support a successful cadastral or parcel based land information system (LIS) project.

THE THAILAND LAND TITLING PROJECT - A BRIEF DESCRIPTION

Thailand is primarily a rural economy centered around the thriving metropolis of Bangkok. It is one of the world's largest exporters of rice. During the last decade however it has had rapidly growing manufacturing and tourist industries. It is a country of about 60 million people.

The original motivation for the LTP was to increase Gross National Product (GNP) in the rural economy by issuing land titles to all freehold parcels of land (in 1983 only about 25% of land parcels had titles) based on the premise that this would lead to increased security of tenure, improved husbandry and investment in the land thereby resulting in increased agricultural productivity. In addition it was believed that such a program would assist with a reduction in rural poverty and assist in balancing adverse income disparities in rural areas.

The above motivation resulted in the primary objective being to accelerate the issuing of land titles over a 20 year program such that all eligible land holders in Thailand would have title to their lands. A parallel objective was to improve the overall efficiency of the land administration system in Thailand. Two separate but related objectives were the establishment of a national valuation system for all landed property and the production of large scale mapping for all urban areas of Thailand including Bangkok.

The first five year phase of the project commenced in 1985 with a budget of about US$75 million, however it must be realized that this was only additional resources being provided to an already very large government department by any standards. For example in 1985 the Department of Lands had about 10,000 qualified permanent employees and was decentralized through 73 provincial land offices and 650 district land offices. The project was based on there being about 17 million land parcels in the country but that is now believed to be closer to 20 million. Project preparation is virtually complete for the second phase of the project (1990-94) with a budget of about US$80 million. The second phase will continue the titling process as the major activity, but will place more emphasis on developing a national land information system and building up the fledgling Central Valuation Authority. AIDAB will continue to support Phase II.

The major components of the project are:

1. **Rural mapping and Titling.** The rural mapping and titling program covers all freehold lands in Thailand. The program includes survey control, mapping, cadastral survey and adjudication.

2. **Land administration.** The land administration component includes legislative reform, decentralization of land administration functions, improved design and operation of land registration practices, improved storage and handling of records, improved map and parcel identification and a major building program. In general this component aims to make records secure, up-to-date, efficient and purged of obsolete material.

3. **Urban Mapping.** The preparation of up-to-date land parcel base maps at a scale of 1:1000 and associated parcel indexes for all urban areas in Thailand including Bangkok.

4. **Valuation.** The development of a national valuation system based around a new valuation profession
resulting in equitable valuation rolls for all local authority areas of Thailand.

5. **Land information systems.** The development of a national land information system (LIS) strategy based around the parcel records within the Department of Lands (DOL) has been promoted by the LTP since its beginning. Thailand's current Five Year Plan recognizes the role of the DOL in administering such a system. Phase II of the project will give increased emphasis to the development of the concept and its implementation.

6. **Organization, management and operations (OMO).** Phase I of the LTP had a major emphasis on OMO in such areas as administrative structure, finance, administrative computing and accounting.

7. **Socio-economic study.** The project included a major component to determine the actual socio-economic benefits of land titling in rural areas based on a longitudinal study during Phase I. Already this study and a related cross-sectional socio-economic study of the LTP have produced very important and useful results.

8. **Education and training.** From the beginning the project included a major component of education and training. This included internal training in the DOL; short, medium and long term training and education in Australia; establishing a new valuation diploma; and upgrading the surveying programs at Chulalongkorn University and the Bangkok Institute of Technology.

As stated by Angus-Leppan (1989a) the Land Titling Project will establish the following:

1. A system of survey and mapping control, based on the national geodetic network, with positions expressed in the Universal Transverse Mercator (UTM) coordinate system.

2. A set of new base maps, in the form of photomaps, produced by rectification. In rural areas the maps will be at a scale of 1:4000, and in urban areas 1:1000. There will be approximately 90,000 new rural maps and 15,000 new urban maps.

3. A uniform title system in which all eligible landholders will hold their land by title deed. This will involve issuing nearly 15 million new titles (noting the total number of title deeds in Australia is about 7 million) in addition to the existing 6.2 million deeds.

4. A complete new set of cadastral maps, based on the photomaps and at the same scales - a total of over 100,000 maps.

5. A highly decentralized system of land offices, arranged for the convenience of landholders.

6. A system of land records in the land offices, which will be complete, secure, up-to-date and effective.

7. Land valuation information, which is being built up rapidly and will eventually include valuation rolls for all local authority areas in Thailand.

The above overview is very general. For more information on the project see Angus-Leppan and Williamson, 1985 or the more recent publication by Angus-Leppan, 1989a.

**SPECIAL FEATURES AND LESSONS**

There are many features which make the LTP unique and special, and which must be considered when evaluating the benefits of the Project for application elsewhere. At the same time there are a number of valuable lessons which can be learnt from the Project. Some of these features and lessons are listed below:

1. **The real success of the Thailand Land Titling Project.** By any measure the LTP must be rated as a
successful project. This makes it a valuable project to study. In general the project is meeting its objectives however in any project of this size and complexity it must be expected that some components will be more successful than others and that the project will be continually reviewed and refined; such is the case with the LTP. However it is important to note that the implementation in Phases I and II has not changed the original project design to any significant extent. The technical components which comprise the major land titling activity have proven very successful. The changes in land administration such as legal changes, decentralization and upgrading record keeping, again is being successfully implemented but with more difficulty. The education and training program again has been a success with the internal training within the DOL being the more difficult component. Institutional and administrative changes have been the most difficult areas. In general the LTP has had minimal influence in this area with the exception of decentralization.

2. **The magnitude of the LTP.** The size and magnitude of the LTP is often not fully recognized. The project has at least six separately identifiable components, any of which could have been a separate project in its own right. The land titling and urban mapping components cover the whole country with the exception of forestry lands and some other government lands. The project will deal with about 20 million land parcels, approximately three times the number of land parcels in Australia. It will produce about 100,000 new cadastral maps. The project is administered through the Department of Lands which now has about 12,000 staff operating out of about 600 regional offices. For example in comparing cadastral and parcel based land information system projects, it is very difficult to compare a centralized system with 100,000 parcels or even one million parcels with a system the size of Thailand's cadastral system.

3. **The pragmatic approach of the RTG to cadastral reform.** The Royal Thai Government and the Department of Lands has shown an exceptionally pragmatic and flexible approach to cadastral reform. This commitment to undertake change is not the norm in other systems and jurisdictions. They have recognized the importance of taking a broad view of cadastral reform as part of the overall land administration and land management process. The fundamental changes to procedures and concepts within the LTP would be extremely difficult if not impossible in many "developed" countries. The flexibility and innovation Thailand has shown to cadastral surveying and mapping procedures over the last couple of decades (see Williamson, 1983) by moving from a precise mathematical coordinated survey and mapping system to one primarily using a graphical cadastre, is one of the great successes in cadastral reform. A major program within this continual reform was the NS3K program introduced in the 1970's to issue Certificates of Utilisation based primarily on unrectified aerial photographs. This program is particularly worthy of study. In this case for expediency, Thailand introduced a system which issued millions of land certificates very quickly, however time has shown that the system did not have sufficient technological and administrative basis to provide a long term solution. As a consequence one of the major components of the LTP was to rationalize the NS3K program and to integrate it into the overall land titling process.

4. **Linking land titling with the development of a land information system using the network approach.** An important lesson from the LTP is the approach which has been taken to upgrade the land titling process within a broad land information strategy. As a consequence the land titling process has not been taken in isolation. The LTP is endeavouring to integrate the land valuation process and valuation rolls into the parcel based LIS. In urban areas the project is producing new cadastral maps for all urban areas together with associated parcel indexes. Particularly in Bangkok this information will form the basis of a land information network for the city integrating planning, rating and utility data. Eventually it will produce a computerized comprehensive parcel index at every land office.

5. **The problems associated with the concept of a "complete" cadastral map.** The concept of one "complete" cadastral map as the basis for land administration where all land parcels are shown on the one map with a unique identifier linking each parcel to the relevant registers and indexes, is a fundamental cadastral principle. However to achieve this ideal in practice is often very difficult since it requires significant changes in administrative and legal procedures. The concept of one "complete" cadastral map was fundamental to the LTP however it has proven difficult if not impossible to show 100% of all land parcels on the cadastral maps. This is particularly the case at initial adjudication. The difficulties in
moving towards one complete cadastral mapping base are a valuable lesson from the project.

6. **The management of change.** The LTP is an excellent example where there has been an attempt to introduce technical, computing, legal and institutional changes into a large government department. It is generally regarded that attempting any one of these changes is difficult, introducing any two at the same time is very difficult whereas attempting to introduce three such changes at the same time is impossible. As mentioned above, the technical (and technical computing as distinct from administrative computing) changes were in general very successful. The legal changes have proven much more difficult although the key change to the Land Code was passed early in the project but only after major difficulty and significant political activity. Institutional and administrative changes have proved very difficult. As stated by Angus-Leppan (1989) the project adopted a policy of minimum change and in general adopted procedures which were familiar to the organization. While it may appear that the LTP introduced many fundamental changes, a closer examination shows that the successful changes have been incremental and evolutionary.

7. **The use of appropriate technology.** One of the valuable lessons from the LTP is the use of appropriate technology. This does not mean that high technology such as the use of the Doppler satellite position fixing or the Global Positioning System (GPS) or analytical photogrammetric plotters or digital mapping systems, are not used or considered. The project has adopted methods and techniques which are the most efficient and "appropriate". For example the basis of the cadastral system in rural areas is still a graphical cadastre using mainly the "General Boundary" concept. Automation is used in the project for example in preparing parcel indexes, but only where it can be shown to be cheaper and quicker. Automation or technology has not been able to speed up the adjudication process for example although technology has provided a better base map on which to base the adjudication process.

8. **The emphasis on education, training and technology transfer in the LTP.** One of the valuable lessons from the LTP has been the major emphasis on education and training. In Phase 1 the largest single group of advisers was concerned with education and training. The training and education program was very comprehensive and included activities in the DOL, in Thailand and in Australia. A continual difficulty however in such a project as the LTP which is primarily "project oriented" is maintaining the interest and support from the operations personnel, for training and in particular education. For example when the project commenced there were only a handful of professionally qualified surveyors in the DOL compared with over 600 personnel with legal qualifications. As a consequence a major objective of the LTP has been to lift the number of professionally qualified surveyors to something approaching 200 over a ten year period. It is these people on which the future of the DOL in the surveying, mapping, LIS and to a significant extent, land administration, will rest. This has necessitated giving significant support to the only university in Thailand which produces survey engineers and which previously only graduated from 5-10 surveyors each year, none of which joined the DOL.

9. **The importance of quantifying the benefits of a land titling project.** An integral component of the LTP has been a six year longitudinal study to determine the socio-economic impact of land titling in rural areas. In addition the World Bank has funded a separate cross-sectional study with a similar objective. In total over US$0.5 million has been allocated for these studies. The cross-sectional study has been completed and has shown that significant benefits are derived from land titling in rural Thailand (Feder et al, 1988). These studies have had a significant impact in maintaining the interest and support for the LTP.

10. **The importance of continual "promotion and marketing" of the project to the RTG, the Australian Government and the World Bank.** Both the DOL and the Australian advisers to the LTP have continually promoted the project to the Royal Thai Government (RTG), the Thai community, the Australian Government, the World Bank, professional groups and the surveying and mapping industry worldwide. The project has produced videos and descriptive material in both Thai and English, has made numerous newspaper, radio and television presentations in Thailand, has hosted conferences and seminars, produced newsletters in both Thai and English, produced many publications and reports on the project and has created a dedicated Operations Room to describe the project to the many visitors. In
addition numerous Thai officials and advisers have presented papers on the project around the world, as well as producing a considerable number of articles in professional journals. But maybe more importantly the project personnel have continually attempted to describe the benefits of the project to the individual institutions supporting it. This has been particularly important for the RTG and AIDAB. The importance of continually reviewing the activities and benefits of the project and communicating these widely, cannot be over emphasized.

THE BENEFITS

The following summary of benefits of the LTP has been extracted from an excellent article on this topic by Angus-Leppan (1989b). Further discussion on the benefits of the project with regard to agricultural productivity is available in Feder et al (1988). For general discussion on the benefits of cadastral and land information projects refer to Dale and McLaughlin (1988) and Williamson (1986):

1. A reduction in land disputes
2. Dignity, security and happiness to the landholder from ownership
3. Improved national security and political stability due to issuing land titles
4. Increase in agricultural output and a parallel increase in land values (also see Feder et al, 1988)
5. Additional income to farmers in rural areas and a consequent reduction in rural poverty.
6. Increase in revenue to the RTG from transfer fees, stamp duties and Capital Gains Tax.
7. A more equitable land valuation and land taxation system.
8. Savings in government expenditure due to multiple uses of the technical products of the project (particularly survey control, aerial photography, valuation data and cadastral mapping)
9. Improved decision making due to the availability, particularly in the future, of more timely and accessible data about land through the development of simple parcel indexes at the local land office level.

THE LESSONS AND BENEFITS OF THE LAND TITLING PROJECT IN PERSPECTIVE

The Thailand Land Titling Project has definitely produced and is continuing to produce valuable lessons and socio-economic data with regard to land titling and the development of national land information systems in developing countries. However care must be taken in applying these lessons and benefits to other countries and jurisdictions. It is important to understand the environment in Thailand and in the Department of Lands at the time the project was developed and implemented. These are briefly set out below. Also included are some comments on the project itself which contributed to its success.

1. Thailand

(a) Thailand is a country with a history and culture of individual land ownership by a large cross-section of the population. The system of individual land ownership is in general not complex, which is in contrast to many other tenure systems.

(b) Thailand has a well established and accepted Civil and Commercial Code and a Land Code, which collectively lay down the rights and duties of individual land owners. These land laws are now part of Thai culture to a large degree.

(c) Thailand does not have significant private sector legal or surveying professions working in conveyancing and land surveying. As a consequence there is no profession to consult or apply political pressure when change in the cadastral and land registration area is considered by the government.
(d) Part of Thai culture is in general a respect for authority and a willingness to accept government and bureaucratic processes, and change. Senior government officials are in general paternalistic and show a genuine desire to help and support Thai society.

(e) At the time of project preparation the RTG believed (and still does) that the issuing of land titles to farmers would increase agricultural productivity, and that it would contribute to increased revenue for the Government through a more equitable and efficient land taxation system and by having more land parcels in the system.

(f) At about the same time as project preparation, Thailand entered a period of rapidly growing economic activity. Interest rates came down and there was greater access to credit at all levels in the Thai economy. This economic prosperity fueled a land boom, particularly in Bangkok. As a consequence land values increased considerably, as did activity in the land market. Together with the more realistic land valuations being provided by the DOL, a more efficient land administration system and the greater number of land titles in the system, revenue from DOL activities has dramatically increased in recent years. The LTP has certainly contributed to the increased revenue however it was fortuitous that there was an economic boom during initial project implementation.

As a consequence the project had the support of government, a receptive population, no professional opposition and was implemented at the "right" time.

2. **Department of Lands**

(a) The Director General of the Department of Lands at the time of project preparation and initial implementation, and the present Director General, have fully believed in and supported the project, and have actively promoted it within the Department, within government and within the wider community. In other words the project has always had a "champion" in the Director General. As a consequence the project has in general had the full support of the officers of the DOL.

(b) The project did not have to build up an infrastructure for support. At the time of project preparation the Department of Lands was a well established institution with a permanent staff of about 10,000 and about 700 regional offices. The Department supported a relatively efficient land registration and land transfer system for Thailand. The DOL was large enough to accommodate the administrative and institutional change envisaged in the project.

(c) Even though the Department of Lands had only a handful of professionally qualified surveyors at project preparation, those that it did have were capable, reasonably well informed technically and in general had some idea of what was needed to implement the project.

(d) At the time of project preparation the Department operated a conceptually sophisticated cadastral survey system. It incorporated both a fully numerical coordinated system in addition to a graphical system where warranted. The Department has been (and still is) one of the best users of aerial photography for cadastral purposes worldwide. Within the coordinated system every parcel corner was marked with a concrete block having its own numerical identifier. Since the late 1960's the Department produced all its coordinated cadastral maps by computer on a flatbed plotter. The number of parcels in the coordinated cadastre at the time of project preparation was similar to the number of land parcels in Australia.

(e) The urban mapping and valuation programs in Bangkok and other regional areas was greatly facilitated because of a very high proportion of parcels which had a land title. In Bangkok this is approximately 95% as compared with many other cities in developing countries where the percentage is often as low as 10%.

3. **The Project**
(a) The Department of Lands undertook with the assistance of Australia a very detailed and comprehensive project preparation. The project was thought through both conceptually and technically and included a detailed budget. As a consequence the project has been relatively well funded during Phase 1 and looks to be similarly funded in Phase II. There were no "short-cuts" at project preparation. If an activity was considered reasonable at project preparation, it was fully funded.

(b) Within Thailand the project was managed and administered by only one government department, the Department of Lands. Some of the funds from the project did go to two educational institutions but this was minimal. This made the overall management and implementation of the project much simpler than projects involving a number of government departments.

(c) Australia has drawn on a large number of senior and experienced professionals from the academic, government and private sectors in Australia to give input to the project. It is very relevant that the personnel involved in designing the project had broad experience from outside Australia and were not committed to an Australian surveying/land administration ideology. Australian academics had and continue to have a particularly significant input into the project. One visible and beneficial result of this is the large number of articles which have been written about the project.

(d) One important albeit small component of the project was a series of study tours to Australia for senior personnel in the Department of Lands. The benefit with regard to the success of the project, of these tours in exposing senior management in the Department to Australian institutions, technology and most importantly society, cannot be over estimated.

A GENERALIZED VIEW OF THE PLANNING CONSIDERATIONS

The following outline of considerations in planning a land titling, cadastral or parcel based land information management project is by no means complete or definitive. It draws on the experiences from the Thailand Land Titling Project as well as other projects in developing and developed countries. In addition the author has drawn on his experiences as a land information consultant with the World Bank during the latter half of 1989. In considerations for success, reference has been made to a number of World Bank publications, namely "The Project Cycle" (Baum, 1982) and "Project Monitoring and Evaluation in Agriculture" (Casley and Kumar, 1987). The determination of the criteria for success has many similarities with the World Bank's Project Evaluation Phase in the project cycle however there are a significant number of other factors that should be taken into account in evaluating a land titling, cadastral or land information system project. Matters for consideration have been divided into four groups; country environment, technical and project design considerations, institutional environment and economic considerations.

Country Environment

1. Social Environment

(a) The complexity of the existing land tenure system is very significant. The simpler the tenure system, the less difficulties with the project.

(b) The history of individual land ownership in the country or jurisdiction is very relevant. As an example systems with large multiple ownership or customary tenure make a project more difficult and complex.

(c) The acceptance of government bureaucratic processes by the community at large is important. In contrast there is a dislike of government authority and bureaucratic processes by the community in many countries.

(d) The acceptance of change by the community at large is important. Some cultures and communities are much more traditional and adverse to change than others.
2. Economic Environment

(a) The economic activity in the country can have a major impact on a project due to the support for an active land market, the provision of housing finance and credit, and the ability or desire for a government to support a project fully. This is tied in with the level of interest rates and the access to credit to support a land market.

(b) The existence of land taxation and its acceptance by society is important since it can be a key factor in obtaining and maintaining government support through revenue generation. While revenue generation through valuation can not be regarded as an economic benefit in the true sense it can certainly make the difference between a successful or not successful project due to government support or the lack of it.

3. Legal Environment

The complexity and completeness of the laws and regulations dealing with land ownership, transfer, subdivision and development can be a major constraining factor on implementing a project. For example there are few projects where some legislative reform will not be necessary however that should be kept to a minimum. Simply legislative reform is always difficult and slow.

4. Political Environment

The political support for the project in any country is always critical, particularly in the long term. It is very beneficial for example if the project is highlighted in the countries' national plan. But maybe more important is the ability and willingness of the key government officials and politicians to effect necessary legislative change.

Technical and Project Design Considerations

1. Management Considerations

(a) The project management experience of the institution is an important criteria in considering the potential success of a project. It is important that the institution have some internal expertise in both the technical and project management areas.

(b) The ability to manage institutional and administrative change is critical in determining the potential for success, especially if the project is large. For example can the institution manage a major increase in staff?

(b) The awareness of potential bottlenecks and major problem areas in project implementation is essential particularly at project preparation.

2. Technical Considerations

(a) The technical feasibility and chance of success of the project is obviously essential.

(b) The appropriateness of the technology is very important, however this does not mean that the latest technology may not be the most appropriate and cost effective.

(c) The technical experience and capability of the institution's personnel is very important. It is important to have a good core of professionally trained and relatively experienced personnel to implement the project. In cadastral and land information system projects, institution building, training and technology transfer are key components. As a consequence it is not desirable for advisers from outside the institution to be undertaking or implementing the project itself.

3. Project considerations
(a) Size of the project is very important since strategies and technologies will change in proportion to the size. A good gauge of the size of a project is the number of land parcels which will be included. This can range from tens of thousands to tens of millions.

(b) The extent to which a project is placed in the national economic environment will influence the design of the project and the future support the project may receive. Simply cadastral, surveying and mapping activities are not ends in themselves. Such programs must be seen as part of a national social and economic strategy.

(c) The extent to which a project is placed in a broad land management and land information environment is important since it will reflect on the appropriateness of the design of the project. Again cadastral, land titling and LIS projects are not ends in themselves; they are the methods, systems and techniques to implement broad land management and land information strategies.

(d) The extent and type of change which the project will incur in the institution is an indication of the difficulties which will be faced in the project.

(e) The emphasis in the project on education, training and technology transfer will be a good indication of the long term impact and success of the project.

(f) The emphasis regarding on-going project monitoring and evaluation will give an indication of the success of the project since monitoring and evaluation is so closely tied to good project management.

(g) The emphasis on continual "promotion and marketing" in the project again will give a good indication of the success of the project due to it being in general an integral part of good management.

**Institutional Environment**

(1) The amount of institutional support from within the responsible institution which can be provided for a project in most cases will directly determine the success of the project. Institutional support means not only the support of management and staff, but also the ability to accommodate the project through the provision of accommodation, office support and specialist facilities, but most importantly the ability to introduce appropriate policies and procedures, and to provide appropriate staff to undertake the project.

(2) The institutional support from within government as a whole is essential and will influence the success of the project. Very few projects operate in isolation from the rest of government, and especially cadastral, land titling and land information projects. As a consequence it is important to have the support if possible of other government departments, ministries of finance, budget and management and from politicians.

(3) The history of institutional reform in the institution will give an indication of the ability and willingness of the institution to accept change. This can be an indicator of potential problems and of success.

(4) The level of support from the CEO and senior management in the institution responsible for project is essential and is a major indicator of success. In most cases this translates into the need for a "champion" of the project and preferably the CEO.

(5) The educational support from universities and other tertiary institutions is important since only through an integrated approach to education will the project, and particularly cadastral, land titling and land information projects which concern institution building, be successful in the long term.

(6) The level of institutional and technical support from tertiary institutions and the private sector is important since it is rare that the one institution can provide the wide range of institutional and technical support required to make a project a success.
The extent of documentation about the institution and its processes in an easily readable and comprehensible form reflects on the existing management of the institution and also has an influence on the introduction of change.

Economic Considerations

An attempt should be made to determine the cost-benefit of the project although this can be very difficult to achieve quickly in land titling, cadastral and land information projects. As mentioned previously a methodology has been developed to determine the cost/benefit of land titling projects in rural areas. A similar methodology has been developed to assess the cost-benefit of tenure security in squatter settlements in urban areas (see Jimenez, 1984 and Friedman et al, 1988).

Costs however are relatively easy to determine and in some cases these can be used to quantify the benefits from the reduction of duplication, where appropriate, of products, staffing and services. A good example of this is the preparation of a large scale cadastral basemap by one institution for use by many. It is also desirable to attempt to cost the various technical options or solutions available to a project. Both these activities can be estimated by deriving unit costs for the major "products" from the project.

While it is difficult to deal quickly with the benefits quantitatively in an economic sense it is possible to use indicators such as the value of titled and untitled land, to give some economic basis to a project. On the other hand a qualitative review of benefits is easier and virtually mandatory. The World Bank's view is clear, "Whether qualitative or quantitative, the economic analysis always aims at assessing the contribution of the project to the development objectives of the country; this remains the basic criterion for project selection and appraisal" (Baum, 1982:15).

CONCLUSION

The Thailand Land Titling Project has been and continues to be a successful project. Its benefits and lessons are well documented. However care must be taken in transposing the lessons and benefits to other situations and countries. This paper has attempted to put the benefits and lessons in perspective. In particular the paper has attempted to describe briefly the social and institutional environment, and some of the aspects of the project itself, which have contributed to the success of the project. The paper has then drawn on the experiences within the LTP to list some issues to be considered when attempting to evaluate the potential success of a land titling, cadastral or land information system project.

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