Testing the de Soto Theory for Property Records Modernization: An Evaluation of the Model and Its Application in El Salvador with Lessons Learned

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Abstract: As governments strive to improve property registration systems and promote land records moderniza-tion, comparative analysis of different experiences becomes critical. Peruvian Economist Hernando de Soto Polar, and his Institute for Liberty and Democracy (ILD) asserted a high level of success in promoting land records mod-ernization in a simplified, streamlined property registration process (called PROFORM) to formalize tenure and make owners of historically poor and marginalized groups in society. The El Salvador property registration effort is the first example of the export of de Soto's theory outside of Peru. This is a "lessons learned" paper: it evaluates the Salvadoran application of the Peruvian system and draws conclusions from that experience.

The new Peruvian system promised immediate automation, mass titling, and minimum cost. Indeed, if success-ful, the de Soto model would be of paramount interest for governments world wide. This paper details the lessons learned from the Salvadoran experience. Because a traditional project design methodology was not followed, impor-tant stakeholders were locked out of the process. The system failed to capture all relevant data and duplication of ef-fort remains. On the plus side, however, transaction time is a fraction of what it was previously, and service to the public has greatly improved. On balance, as a model, the Peruvian system has failed to live up to its billing. The de Soto model experience in El Salvador underscores the general lesson in all reform projects to follow traditional de-sign methodologies and avoid the temptation to parachute in a system designed for application elsewhere.

As governments strive to modernize land records management and reform property registration institutions, comparative analysis becomes criti-cal. Governments look to take advantage of the suc-cesses and failures of other jurisdictions to improve their own systems. Over the past several years, there has been a great deal of excitement over claims of in-creased investment, employment and productivity ow-ing to a new property registration system designed by the Institute for Liberty and Democracy (1994) in Peru. Its president, Hernando de Soto Polar, has written many articles and traveled the world explaining his new sys-tem. He describes titling generally as a "silver bullet" for economic development across the developing world.[1] So far, however, the only country to implement the Institute's model outside of Peru has been El Sal-vador. Documentation of successful implementation of the Peru model in El Salvador would mean an effective new methodology is available for property registration or formalization both in developing and developed countries.

The U.S. Agency for International Development fi-nanced technical assistance from the Institute for Lib-erty and Democracy (ILD), which promised to assist the Salvadorans to implement the Institute's system. The Peruvians then brought their Lima-based system into El Salvador. This paper sets forth the Salvadorean back-ground and institutional context into which that system was introduced. It then defines the key elements of the Peruvian system, and how it was carried out in Peru. Then, it proceeds to discuss how this system was ap-plied in El Salvador. The paper provides an analysis of the result in El Salvador, and lists several other unre-solved issues, finally ending with conclusions from the Salvadoran experiment, conclusions both for El Sal-vador, and for other countries that may be considering such an initiative.

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The Situation in El Salvador

Land policy in El Salvador must be understood in the context of extreme population density which exceeds India and falls only closely behind Haiti. In the 1970s, due to land shortages, labor was relatively plentiful, and actual wages slid below the legal minimum wage. (Strasma 1989)

In March 1980, a reform-minded civilian-military junta decreed a sweeping agrarian reform in El Salvador. Since that time, a massive reform was instituted amid a civil war. Questions now surface regarding the impact of reform on agrarian productivity, access to land and water resources and the environment.[2]

Despite the agrarian reform, beneficiaries of land reform in El Salvador today occupy only about one-fifth of the farmland and represent only about ten percent of the country's population. The Peace Accords promised land to 12,500 ex-combatants on both sides and 25,000 squatters.[2] Presently, the government is in the process of making good on its promises, one element of which is providing titles to land.

As El Salvador wrestles with problems of poverty alleviation, land access, and sustainable environmental usage, the property registry has emerged as a common thread constraining the government's progress. Consequently, registry modernization has become one element in a broader package of measures designed to achieve the country's development goals. For example, then President Alfredo Cristiani announced in a television campaign that he would make El Salvador a country of property owners[3] ("El Salvador País de Propietarios"), echoing the words used by President Alberto Fujimori of Peru, describing Peru's experimental property registry run by de Soto's Institute for Liberty and Democracy (ILD).

Organization of the Traditional Property Registry

Inscription of property in El Salvador takes place at a traditional property registry, the *Registro de la Propiedad Raíz e Hipotecas* (or RPRH, the "real estate and mortgage registry"). Historically, El Salvador used a *folio personal* system to record property ownership. Under this system, each owner (*persona*) corresponded to a recorded page (*folio*) which listed the owner's property. The *folio personal* system is referenced by the owner's name, not by the parcel. In many ways, the *folio personal* system is similar to the American use of grantor and grantee indexes, which also are organized based on names.

The global tendency in registry reform projects is toward parcel-based recording systems. (Larsson 1991) In the Caribbean, St. Lucia, Cayman Islands, Guyana, Belize, the Dominican Republic, Barbados and Trinidad and Tobago, and Mexico are going this way. Nicaragua, Guatemala, Argentina, Panama, Colombia, Peru and Costa Rica already have *folio real* systems. Consistent with this pattern, in about 1987, El Salvador embarked upon a conversion from the *folio personal* system to one referenced by parcel, the *folio real*. To date, the newer *folio real* has been implemented in the Municipality of San Salvador, and is obligatory for all inscriptions of small properties from the agrarian reform agency (FINATA).[4]

The *folio real* system is found in many Latin American countries. In Costa Rica, Panama and parts of Argentina and Mexico, this same basic system has been largely automated. In the traditional registry in El Salvador, and other places, like Honduras, Venezuela, Nicaragua, Guatemala, Bolivia and most of Argentina and Mexico, the registry system is entirely manual, using little or no automation, photocopying, or microphotography. Instead, the system uses a series of books (receipt books, *folio real* books and copy books (tomes)).

The Peruvian Institute for Liberty and Democracy Model

With Japanese grant funding through the World Bank, and other funds from the U.S. Agency for International Development, the Peruvian Institute for Liberty and Democracy (ILD) created a new registry system. This section summarizes the Peru methodology. It also reviews system implementation in the Peru context as a prelude to the export of the system to El Salvador.

Most of Peru has a traditional, manual property registration system. The new de Soto system stresses automation and elimination of bureaucracy. The new approach has been limited to portions of the Department of Lima, and almost exclusively in non-contested, low-income areas, where existing documents were already in hand to allow for ready conversion to the new system. The El Salvador opportunity was the first chance to see if this methodology could really be exported, as claimed.

Hernando de Soto Polar has stated that his property formalization methodology is a tremendous success, claiming to have formalized over 150,000 properties much more quickly, and at dramatically less cost, than traditional titling and registration programs. He also notes an explosion of credit opportunities for new beneficiaries.[1] De Soto's claims of big impact for titling projects in general have been addressed elsewhere. (Hendrix 1995a) Instead, this article limits itself to the replicability of the de Soto model. However, in general, it can be said substantial questions have been raised regarding the accuracy of claims for de Soto's Peruvian experience.

After experimentation in Peru, the ILD developed a system called "PROFORM" (property formalization).

What is a "title" or "land registration" system?

Most people use the terms "titles" (or "land registration") and "deeds" interchangeably. But recording of a deed only makes public note of a document. It only evidences who the owner is and does not prove it. The information found in a deed may or may not coincide with previous deeds. Therefore, errors may be consistently duplicated from deed to deed. (Dale and McLaughlin 1990) This is in contrast with "title" registration systems in which the government guarantees the accuracy of registered titles. In short, recordation of title in a deeds systems merely adds to the "pile" of evidence needed to prove claim of ownership. In contrast, in title registration, the title itself is registered and guaranteed by the government.

The system's base includes six components (Institute for Liberty and Democracy 1995; McLaughlin and de Soto 1994):

1. Understanding and engaging the informal sector.
The ILD writes: "A comprehensive and sustained property formalization process requires significant participation from informal communities. We have found that such participation is crucial because it allows them to contribute their knowledge of local proofs of ownership and property boundaries and because it allows us to demonstrate the benefits of property and good land administration to them." (McLaughlin and de Soto 1994)

*2. Integrating formalization into
   the highest policy agenda.*
The system is "designed to link the 'top-down' leadership with the 'bottom-up' involvement of the informal communities themselves." (McLaughlin and de Soto 1994)

3. Reforming property-related institutions.
"The successful development and implementation of a massive property formalization process invariably requires fundamental changes to the property law, rules of evidence, dispute settlement procedures and land administration arrangements of a country." (McLaughlin and de Soto 1994)

4. Reforming organizational arrangements.
"Formalizing property effectively on a massive scale requires creating a single organization dedicated to one central goal: bringing all informal property into the formal system." (McLaughlin and de Soto 1994)

5. Implementing property formalization.
The system is "designed to deal with extensive field titling campaigns, adjudication actions, and registration." (McLaughlin and de Soto 1994)

6. Communicating for consensus.
"The message that property formalization is a win-win exercise for all segments of the community must be forcefully broadcast throughout the land." (McLaughlin and de Soto 1994)

In one review of the PROFORM approach, it was concluded that it did not represent a radical departure from traditional approaches used in land titling, regularization and normalization programs in other countries. (Lastarria-Cornhiel and Barnes 1995) In this regard, the methodology contributes little. Further, these steps are quite vague, and do not really tell *how* the project is to be carried out. From that perspective, PROFORM is not a methodology at all. In Peru, even the general guidelines were followed only at the pilot project stage and have since ceased. (Lastarria-Cornhiel and Barnes 1995)

In Peru, the *Registro Predial* (Property Registry) and the *Registro de Propiedad Inmueble*(Real Estate Registry) are the two places where property registration occurs. Neither address titling, mapping, adjudication or dispute resolution. The traditional registry (the Real Estate Registry) is organized on a parcel-based system, the *folio real*, introduced to Peru in 1970. The newer system, the Property Registry, the one introduced by de Soto, changes little of the old system. It maintains a deeds approach to property ownership, as opposed to moving toward a title system. Consequently, the Peru system (under either registry) still relies on a chain of title to prove ownership.

In the Peru experience, the PROFORM design implies decentralized access to property registration and lower cost. However, decentralization has not been achieved even in Lima with the new system. In contrast, the traditional registry is completely self-financing and decentralized by region, with 42 offices throughout the country, including five offices in Lima itself. In short, the "Peru System" is not the ILD model, but really the more traditional system, with the ILD-promoted Property

Registry being more of a boutique project for Lima. It should also be noted that other non-governmental organizations are also actively involved in titling programs in Peru, such as CEPES, CIPCA and Solidaridad, not just the ILD.

The ILD software design, referred to as "Regis-P," is a shell program built around a standard commercial database, FoxBase. It is based on in-house design and development within the Property Registry, and has been modified over time.

From a technical standpoint, there has been concern about the maps being used in the Peru Property Registry. Originally, the advantage of the new system was supposed to be linkage with a cadastre. However, no cadastre exists for either system. Maps are not georeferenced and have not been tested as to accuracy. There is also a perception that the newer Property Registry is less secure than the traditional Real Estate Registry, since the newer one also records "possession rights," initially viewed as an innovation in the 1980s when the ILD project was being conceived. Having said this, the number of actual "possession rights" inscriptions even in the new system has been minimal over the past five years. (Lastarria-Cornhiel and Barnes 1995)

In a major step backward from a parcel-based system, the new Property Registry has been assigning a single parcel number to all properties held by the same owner. This in effect becomes a *folio personal* system instead of a *folio real* system, representing a retreat from the progress made under the traditional system, which had abandoned the *folio personal* system in the early 1970s. No technical manual exists in Peru under the new system for defining procedures for mapping, nor is there a general index map for digitalized documents.

In short, the new Peruvian Property Registry system seems to rely exclusively on the software package. Personnel are not adequately trained in fundamentals such as coordinate systems or map projections. No plan exists for incorporation of textual descriptions of boundaries found in the registry with graphic descriptions of boundaries found in maps, although this weakness is recognized. Further, when ILD withdrew its financial support from the new Property Registry, it lost many of its staff, suggesting that the initiative might not be sustainable but for continued donor subsidy.

The ILD claimed success in titling 150,000 parcels in Peru. Yet data from the registry itself cannot sustain this claim. (Lastarria-Cornhiel and Barnes 1995) The registry itself of course does not "title" anything: it inscribes documents. The government's mapping program did plot out parcels in land invasion areas (called *pueblos jovenes*). At that time, each parcel was assigned a code number. Some set of these parcels eventually made it into the new Property Registry. And perhaps this is

where the ILD number of 150,000 is from, based on the number of original codes assigned. However, this does not represent the work of ILD or the Property Registry, and gives the impression that the program actually had much more impact than it did. To repeat, the new Property Registry does not issues titles nor does it issue copies of titles. (Lastarria-Cornhiel and Barnes 1995)

On the positive side, the new Property Registry in Peru does allow for less expensive inscription of property transactions, albeit with heavy outside subsidy. It also allows for reduced physical space and greater security, owing to the automation of documents, rather than relying on paper which can deteriorate or be stolen, and which takes up space. (Lastarria-Cornhiel and Barnes 1995)

The Export of the Peru Model to El Salvador

Based on the perceived success of the Peru experiment, the U.S. Agency for International Development supported the original establishment in El Salvador of the Social Property Registry (*Registro Social de Inmuebles* or RSI) via the Peruvian consulting group. (AID 1992) Rather than follow any traditional project design methodology, the Peruvian Institute attempted to parachute its Lima-style system into El Salvador to deliver the promised economic benefits. Its stated methodology in El Salvador had three major components.[5]

The first component called for adjustment and training. Activity was to be based in San Salvador. The required technical and human resources were to develop and train to manage the operations of a Lima-style registry. This adjustment and training had three separate goals:

- Adjustment of the Regulations governing the Property Registry. Under this objective, the Salvadoran registration legislation was to be adjusted to meet the requirements of the Lima system. Peruvian staff were to oversee this operation.
- Adjustment of the Lima software and installation of computer equipment in El Salvador. The Lima system allows for scanning of existing documents as part of its automated process. In fact, this technology has never been used in El Salvador.
- Training of Salvadoran property registry staff by the Peruvians.

The second major component of the project called for implementation. A pilot implementation was suggested as an initial stage. Upon conclusion, the system would be implemented on a massive scale. This second component was also broken down into stated goals:

- Preparation and implementation of the title and registration pilot phase. Two months were set aside for this activity.

- Implement massive national titling. Upon termination of this phase, the system should be operating at full capacity within a second two-month period.

The third component was to be maintenance and supervision. Peruvian staff were meant to support in areas where Salvadorean technical staff were insufficient.

Results of the ILD/PERU Model in El Salvador

This section reviews the impact of the ILD/Peru model in El Salvador. The analysis will be organized in terms of the following evaluation criteria: Efficiency, Complexity, Organizational Structure and Maintainability, Cost, Quality, and Utility.[6]

Efficiency

The new design reduces transaction time and provides better public service. Requests for documentation at this new registry are processed in about half an hour. The public makes a request of personnel at the reception counter: they do not directly access the automated database or physical records. The social property registry covers both agricultural and urban lands in which all property disputes have been settled.

As a bottom-line test it is clear, all other things equal, banks favor asset-based lending under the new system rather than the old, traditional registry. This is due mainly to the fast turn-around time of transactions and better service.

Ironically, however, a project designed to bring in new technologies failed to consider possible alternative technologies that could be introduced. For example, a sample study carried out in 1993 determined that survey work could be completed eight times faster using global positioning system (GPS) technology, than with the traditional survey methods used in El Salvador under the Peruvian design.[7]

Today, the Salvadorans have addressed these defects. GPS methodologies and orthophotos are now being integrated with help from the Dutch government, mainly in agricultural areas. The Land Titling Program (Programa de Titulación de Tierras, or PTT), a program for relocation of former combatants from the Civil War, has taken advantage of GPS. In urban areas with very small lots, as in the cities of San Salvador or San Miguel, GPS is not being used.

The ILD/Peruvian design also promised to reduce redundant bureaucratic steps. Still, the ILD/Peruvian design did not change the fact that three lawyers had to participate in every transaction in El Salvador: the client's attorney, a notary, and a registrar. In El Salvador, notaries have three functions: (1) witness signatures, (2) act as a legal advisor to the parties executing the doc-

ument, and (3) act as the public's guarantor that the document fulfills all legal requirements. All documents inscribed at the Salvador registry are written by notaries. The registrar is also an attorney and a notary, and must duplicate the entire analysis, resulting in great delays and expense. A registrar must then review the notary's work and qualify it for inscription.

At least one of these attorneys could probably be eliminated. Today, the Institute for Liberty and Progress prefers elimination of the registry's responsibility to review already notarized documents. This would allow the private notary to continue as a legal advisor to the applicant.

Finally, at the traditional registry in San Salvador, there is a room full of problem documents. That office of the traditional registry represents a backlog of about eight to ten years in dealing with these documents. One estimate asserted it would take 500 man-years to clean up this backlog. In general, the office is up to date only until 1986. Is this level of effort worthwhile to bring this data into a form so that it could eventually be put into the social property registry? The Institute for Liberty and Progress Project Proposal does not define a methodology or strategy for bringing information up to date. From the perspective of customers represented by these applications, the new system could hardly be classified as efficient.

Complexity

From the legal perspective, policymakers should really talk first about conversion from the *folio personal* to the *folio real*, before they can talk about automating the process and introducing the data into the social property registry. Conversion from the *folio personal* to the *folio real* requires a great deal of data collection and surveying. It is not clear from the current initiatives to expand the social property registry how this will be accomplished. (Project for Registry and Cadastral Modernization in El Salvador 1994) The *folio real* began only recently in El Salvador. Very little work has yet been done on this system or on gathering data. The Municipality of San Salvador is included in the *folio real* system. However, according to the National Geographic Institute, there is no reference to a parcel file or number (*ficha catastral* and *cédula catastral* respectively) even in the present *folio real* system.

The "massive titling" efforts described in the methodology actually turned out to be simply data conversion. As stated earlier, no massive titling with ILD assistance ever took place and, in fact, would have been impossible given the differences between how land was titled in the Lima effort (give-aways of public land) versus the Salvadoran situation (mostly privately held land).

TABLE 1. Organizational Structure of the Registry as envisioned by the Peruvian ILD.

Organizational View of the Three Separate Property Registration Systems Under the *Registro de la Propiedad Raiz e Hipotecas*	
System	**Comment**
(1) The *folio personal*	organizes information based on the owner's name.
(2) The *folio real*	organizes information based on the property or real estate involved.
(3) The Social Property Registry (Registro Social de Inmuebles).	a computerized subset of the properties within the *folio real* system. To a certain extent, the social property registry is automated and streamlined for enhanced registration capabilities. Work in this section has been contracted out by the traditional registry to the Instituto Libertad y Progreso (ILP)

Conversion of data from the old, traditional system was often blocked until the old records could be updated via the traditional legal processes. This has meant long title searches and cleaning up title defects. No new methodologies or technologies have been introduced into this effort, an extension of the old traditional registry's work. This expensive, complex, time-consuming process has been often contracted out to private attorneys who work under the supervision of Institute for Liberty and Progress staff, a much more arduous task than that envisioned by the de Soto marketing effort which stressed the ease of automation and "massive" titling. In short, while the social property registry can quickly process changes, first time inscription is very expensive and slow.

The ILD/Peruvian system was overly-simplistic in terms of conflict resolution. The government plans to use high-precision methods for determining property boundaries. This is likely to generate disputes. Yet there is no formal dispute resolution mechanism contemplated. Further, little or no concern has gone into assurance of rights and participation by women, ethnic groups, or absentee holders, despite regional evidence that titling initiatives often prejudice these groups. (Stanfield 1985) Similarly, there does not appear to have been much, if any, analysis of alternative legal structures or alternative dispute-resolution mechanisms. Instead, this is left to the traditional court system. In a country emerging from social conflict, these omissions are curious. In summary, the ILD/Peruvian system is very complex for first-time registration, with a perhaps fatal omission of tools to deal with conflict resolution.

Organizational Structure and Maintainability

As part of the implementation package, the Peruvians helped create in El Salvador a self-modeled consulting group called the Institute for Liberty and Progress (El Salvador's *Instituto Libertad y Progreso* or ILP). This private sector group was then contracted by the Salvado-

ran Government to implement the new registry, the Social Property Registry, based on the Lima-based computer system brought by de Soto.[8]

Organizationally, the traditional registry fell under the Ministry of Justice. The new social property registry became a subset of the traditional registry, falling within its governance and jurisdiction. Consequently, with the implementation of the social property registry, El Salvador ended up with three mutually exclusive property registry systems: (1) the *folio personal* which organizes information based on the name of the owner; (2) the *folio real* which organizes information based on the property or real estate involved; and (3) the social property registry (*Registro Social de Inmuebles* or RSI), a computerized subset of the properties within the *folio real* system. To address this organizational weakness left by the Peruvian ILD, the Salvadorans have since changed this structure: they converted the Social Registry into an intermediary stage of development, and ended up merging it, the traditional registry and the national cadaster all into a single institution—the National Registry Center.

Because the social property registry was set up administratively within the broader traditional registry, there are no conflicts over jurisdiction or coverage. In other words, the social property registry was not a parallel registry. Nor does the social property registry significantly change, eliminate or simplify the traditional process: It merely attempts to automate as much as possible. In that sense, the social property registry was a very conservative institution. The structure of that registry is presented in Table 1.

Curiously, the organizational structure allowed a private firm, organized by the Institute for Liberty and Progress, to continue as the implementing agency of the social property registry, in theory under the command of the existing traditional registry. Some critics allege it was set up in this fashion to allow for direct top-down implementation, bypassing the traditional registry and other institutions perceived as excessively bureaucratic.

TABLE 2. Administrative Relationship of the Cadastres in El Salvador, as envisioned by the original Peruvian ILD.

Level of Government	Office	Function
National Level Government	Justice Ministry	Property Registration (Legal Cadastre)
	National Geographic Institute	Physical Cadastre
Local Level Government	Municipalities	Fiscal Cadastre (Tax)

In any event, this orginal structure has since been abandoned in favor of the new National Registry Center.

Everyone would agree that the social property registry should be maintained once it is implemented. To do otherwise would not make sense. The present social property registry system can process documents in about half an hour. At present, the increased role of the social registry corresponds to about 60 percent of all parcels nationally, and includes all housing projects, condominiums and small lots. (*Decreto de Ampliacion* 1994) As the social property registry expands, will it lose some of its ability to respond quickly? Dedicated work groups (*células*) sponsored by local banks can process their transactions in the much larger traditional Registry in as little as two business days. Will the social property registry be as or more efficient? If expansion continues as it has it the past, it appears the social registry will be able to keep pace.

The social property registry currently handles properties of a minimal value. As property values within the social property registry system are allowed to increase, it is hypothetically possible that property owners will require longer, more precise property descriptions. Will this slow down the system?

Municipalities will have a great interest in insuring maintenance of the system if they have a financial interest. According to a recent review by John Strasma, there is no country in the developing world that has an up-to-date cadastre that does not also have a locally based property tax (with at least some significant portion of the revenue remaining in the community). (Strasma 1994) If this study is accurate, this would suggest land taxation is at least a factor in cadastral maintenance, and should be considered as a potential element in a broader strategy for insuring the maintenance of the system.

Municipalities are already members of a national Commission on Decentralization and Municipal Development (along with the Ministry of Interior and twelve other government agencies) to modernize the administration of the state. A fiscal cadastre is an important part of this goal. The U.S. AID has contributed $4 million toward a pilot project to: (1) reinforce participation, (2) reinforce institutions, including a fiscal cadastre, and (3) enact legislative reforms to support the decentralization. The pilot project is being carried out in the Munici-

palities of Sonsonate and Usulután in close coordination with the National Geographic Institute and German development assistance.

Clarification of a legislative framework which links the property registry, municipal tax and national cadastres would promote sustainability of the registry. To date, there are no administrative rules (*reglamentos*) to implement the national cadastral legislation (*Ley de Catastro*), despite relevant legislation having been passed in 1974. There is a great need to define the relationship between the cadastre maintained by the National Geographic Institute, the fiscal cadastre to be maintained by municipalities, and the property registry. Table 2 below outlines the institutional structure as created by the Peruvian consultants.

The U.S. AID is giving support to municipal development projects and decentralization efforts. Part of its efforts in this area include locally-based property taxation. However, there does not appear to be any attempt to link or coordinate the data collection by the social property registry or the traditional registry, with the municipalities or Finance Ministry (*Ministerio de Hacienda*). The municipalities all already have fiscal cadasters for urban areas, which may or may not be accurate. The government has stated the registry reform will not include a fiscal component. It may be that not linking cadastral and registry efforts to land taxation is defended to discourage "beneficiaries" of the titling and registration efforts from not participating simply to avoid taxes. Otherwise, it seems local and national governments do not have the same goals in mind.

An additional problem for sustainability of the registry has been its labor relations. On the plus side, personnel in the social property registry appear to have very positive work habits. Many work past normal business hours, and some work on Saturdays. Employees and attorneys appear to have had excellent training, and many have prior private sector or traditional registry experience. On the other hand, some allege the social property registry/Institute for Liberty and Progress arrangement was constructed to avoid any use of labor union employees. This possibly could present a problem down the road.

Finally, no system can be properly maintained without adequate backup systems in case of data loss. At

present the social property registry has no microfilm capability. However, this is in the process of correction. Microfilm at the traditional registry in San Salvador is maintained in the same locale as the original documents. If there was a fire or other act of God, both documents would be lost. This defeats the purpose of having a backup copy.

In summary, the new ILP registry was organized under the existing registry, but implemented by a private firm responsible to the presidency. As the new registry expands, it is unclear whether present output can be maintained. Further, by not including municipalities in the original design, the project missed an opportunity to take advantage of local incentives to maintain the system. Labor relations and the lack of back-up copies also threaten the maintenance of the system as orgininally designed.

Cost

None of the three project components envisioned by U.S. AID was ever implemented by the Peruvian ILD in El Salvador. The ILD wrongly assumed untitled or informal land belonged to the state, whereas in about 90 percent of the cases, it actually belonged to individuals, albeit with informal ownership arrangements. A Peruvian-style mass give-away of public lands via a massive titling program was consequently impossible to import into El Salvador.

Experience has shown that not following a standard, participatory project design methodology can lead to incompatible or unreliable data, poor maintenance, low utility, unforeseen expenses and cost overruns, delays and ultimately lack of political support for a project.[9] Further, correction of design defects often leads to sharply increased costs during the implementation phase. As the Salvadoran project intended to parachute in a Peruvian technology, a standard design methodology was not followed. This strategy proved immensely problematic in El Salvador.

Consequently, assurance of the soundness of the basic concepts and scope of the social property registry is problematic: it is uncertain whether there has been sufficient, adequate or appropriate streamlining of procedures for users of the legal services associated with registration, since the resulting social property registry system basically automates the traditional registry process rather than streamlining it, or introducing alternatives for registration. Thus, a cost-savings opportunity was missed.

Three concerns are apparent in the efforts to make the registry self-financing. First, El Salvador hopes to charge users fees appropriate to recover the costs associated with registry services. But, charging for use of the system could well become a deterrent to participation in the system. If so, this could lead to a return to informality. In Honduras, a great deal of money was spent by international donors to promote land titling and registry reform. Yet the projects were not sustainable, as participants dropped out and returned to informality, due to transactions costs. Such lack of maintenance makes the original effort futile. These results must be avoided if a registry modernization project is to be seriously contemplated. To date in El Salvador, there has been no serious evaluation of this concern.

Assuming the public is willing to pay an appropriate fee to make the entity self-sustaining, there is question over who gets to keep the money generated. The San Salvador office of the traditional registry itself collects 2 million *colónes* (about $230,000 with c8.72 = US$1 in March 1994) a month in user fees for property-related transactions. However, the 1983 Constitution forbids any governmental office from retaining special funds. All revenues must be paid to the national treasury. So if the registry cannot keep the money it generates, it cannot be self-sustaining without government support. Will the government allocate sufficient revenue to support the system? This question was overlooked in the Peruvian design, but has since been overcome by the new National Registry Center.

The restriction against retaining income may have been made at the time when donor agencies were encouraging governments to get control over their budgets by including all revenues and expenses in a single budget. Those conditions have changed. Should the government change its constitution? How would the donor community respond to a change, creating a precedent for other special interest funds and incomes to be set up, circumventing centralized budgetary control? If the restriction is not removed, a policy of self-financing seems misplaced.

Second, allowing registries to retain user fees can create opportunities for corruption. This may be especially problematic during the conversion phase, when money begins to come in, but the process still lacks a high degree of transparency. This is no small concern in a country noted for problems in the area of rule of law and land administration. The Salvadorans have since addressed this concern by reinvesting income in the system and increasing wages for employees to reduce the incentives for corruption.

Third, perhaps the biggest problem with the self-financing proposal is its view of what the service of the registry is. Emphasis on self-financing has focused on the service of parcel transaction inscription. But this represents only one user of the system. Additional users of the system include other governmental units and the private sector, all of whom seek geographic information on a regular basis.

Today, the social property registry process externalizes most costs. Thus, its budget understates actual government expenditures on property formalization. For example, the social property registry does not resolve disputes during the property formalization process. It will only inscribe parcels already "qualified" for registration, i.e., when there are no disputes, current cadastral information is in hand, ownership records are in order, etc. Thus, documentation of actual costs today underestimates the true costs of operating the office. Assuming the principle of a self-sustaining, modernized registry is accepted, how will the accounting include costs for public employees or public facilities in the future? This was a serious design defect.

To address this concern, today the Salvadorans put all revenue in a special account designated for registry and cadastral modernization. This account is now managed by the National Registry Center.

Quality

Data quality and software adequacy issues emerge in the lack of a cadastral base along with data conversion problems. Further, the ILD/Peruvian system failed to allow for the inscription of all possible forms of property transactions permitted under Salvadoran law.

The organizational structure of the Peruvian initiative in El Salvador left the Social Registry without any cadastral base to give solidity to boundary descriptions. To cure this original design defect, the Salvadorans later merged the National Geographic Institute and the Registry, to create a National Registry Center (*Centro de Registro Nacional*), to include a more streamlined commercial registration system as well.

Two quality-assurance issues complicate data conversion. First, there is no guarantee of the accuracy of current data in El Salvador. A World Bank study in Venezuela demonstrated the potential low level of data confidence possible in cadastre modernization projects. (Hendrix 1995) That study reviewed the confidence level of documents within the traditional system. It found accuracy levels to be stunningly low, with less than five percent of titles having correct cartographic and legal descriptions correctly recorded, arguing for a strategy of new data collection rather than data conversion in that country. With no evaluation of data reliability in El Salvador, it is difficult to say whether data conversion will be possible, or whether the government is actually talking about new data collection.

Second, even assuming accuracy of primary data, the Institute for Liberty and Progress simply scans in maps without any georeference. Often, the costs of titling of small parcels are greater than the value of the land. Unfortunately, alternative land information technologies have not been considered. It is also suspected that the Institute for Liberty and Progress has been paying top dollar for services from a major GIS software vendor. For example, the Institute for Liberty and Progress paid about $100 per map scanned. Commercial prices in the United States are less than $8 per map. Lack of a clear methodology appears to have created an inefficient and perhaps wasteful use of technology.

The imported system failed in two other important aspects in terms of comprehensiveness in addressing the needs of the local legal system. First, the system was incapable of addressing fractures of estates, especially in the case of land invasions. Although the Peruvian model was adequate for formalizing land invasions in Peru, it was inadequate in addressing the formalization of partial land invasions as found in El Salvador. For example, in Villa El Salvador (a land invasion neighborhood outside of Lima, Peru), the land invasion took all of the original parcel. In San Bertolo Ibu (a land invasion area in El Salvador) on the other hand, the illegal invasion took only a portion of the larger estate. The Peruvian methodology handles the first case but not the second, which is actually a common occurrence in El Salvador.

In El Salvador, when property is owned by a third-party individual, and an occupant is squatting on the land, the only way to get ownership title to the occupant is by compensating the documentary owner. In Peru, invasions most often took place on state land. While in Peru it is possible to give away state land to a new owner as a way to clear up land ownership questions, such a simple process was impossible in El Salvador and should have been foreseen by implementors.

Second it was inadequate in addressing all forms of property ownership which legally should be eligible for registration. The social property registry system as designed by the Peruvians did not capture antichresis—a type of mortgage or pledge in civil law systems—which it should have under the civil code. Fortunately, this is an extremely rare occurance, and this oversight has since been corrected. Perhaps it should also register rental agreements with option to purchase (*contratos de promesa de venta*). These were two important legal instruments which the original Peruvian design did not contemplate and which were not later re-included as the Institute for Liberty and Progress modified the original design.

Eventually, most of the software and approach of the Peruvian Institute for Liberty and Democracy system had to be scrapped because it did not correspond to local conditions or realities in El Salvador: The Salvadoran Institute for Liberty and Progress/social property registry found it necessary to adapt the Peruvian system to local legal reality and social structure. According to social property registry staff, perhaps less than five percent of the original Peruvian design remained of the

originally installed Peruvian system. From this vantage, the Peruvian turn-key program could be viewed as having been largely inoperative and therefore a failure. On the other hand, it did alert the Salvadorans to the possibility of transaction automation which has now been embraced in the social property registration system.

Today, the social property registry employees themselves are aware of many of the defects that still remain, and are working collaboratively to address these concerns. Some of the major problems resulting from the original project methodology that remain unresolved include: stakeholder concerns, methods of self-financing, capturing actual costs, limited data utility, difficulties in data conversion, and lack of information flows and missed opportunities to reduce cost through new technologies.

Utility

Normally, design of registry modernization efforts should include both review of user needs and the needs of coordinating agencies. The new registry and proposals to expand and improve it represent the official position of the government. However, they have not been coordinated with the National Geographic Institute or the traditional Registry. Consequently, it is far from a consensus strategy. As a result, it might be concluded that the process intentionally excluded some stakeholders from participating. It should also be noted that the original support by U.S. AID for the implementation of the social property registry did not involve a user needs assessment, nor even an inventory of who the users were. Consequently, it is difficult to ascertain if all interested stakeholders have participated in the process.

Data collection by the social property registry could be of great value to other governmental agencies. However, it is not clear that the information will be compatible or include sufficient detail or attributes to be useful to other system users. For example, according to National Geographic Institute in 1994, there was no cadastral information feedback from social property registry to National Geographic Institute. Further, even if data were referred back, there may be questions of quality, compatibility, scale, and so on. On the other hand, the social property registry maintains it sends the information promptly, but that the National Geographic Institute simply does not use it. The social property registry also maintains the data are of high quality. There seems to be problematic communications resulting in lack of data maintenance in the extreme.

To be fair, this situation with the social property registry is not unique. The National Geographic Institute did not receive relevant geographic information from the planning office for San Salvador (OPANS, *Oficina de*

Planificación de la Area Metropolitana de San Salvador), nor from either of the two agrarian reform institutions (ISTA and FINANTA). According to one account, similar or identical data were being collected independently by the social property registry, the National Geographic Institute, the Ministries of Agriculture, Health, Water, Electricity, Environment, Roads and so on. It is inconceivable that no review of this multiplicity of effort was undertaken by the Peruvian consultants. Today, at least, the National Registry Center is having greater coordination with OPANS, but much more needs to be done.

The social property registry allows for normal inscription activities. As it is part of the more traditional registry, all social property registry inscriptions carry the same legal effect, including mortgages, liens, sales, easements, restrictive covenants and so on. Like the traditional registry, the social property registry is limited to recording property-related transactions, and not other documents like marriages, titles, birth certificates, corporations, patents, etc.

Summary and Conclusions

The Salvadoran and Peruvian experiences are of keen interest since they both utilized the Institute for Liberty and Democracy (ILD)/Hernando de Soto model, which promised de-centralizaed, low-cost, participatory approaches to land records modernization. Consequently, the Salvadoran application, the first of the de Soto model outside of Peru, takes on high significance for other jurisdictions contemplating similar reform measures.

To understand the role of the Peruvian ILD in El Salvador, it is necessary to understand the previous state of the registry in that country in terms of conceptualization, institutional change and technology. The Peruvian ILD work in El Salvador contributed near zero in terms of conceptualization or technology. Today, the ILD self-styled Institute for Liberty and Progress (ILP) in El Salvador has been jettisoned from the new Social Registry. In this light, the one institutional change that did take place as a result of the ILD intervention—the creation of an ILD-type think-tank—can be said to have been a step backwards. Today, the Social Registry has been incorporated into the new National Registry Center, which today includes the legal and graphic descriptions of land. On the other hand, the greatest possitive change resulting from the project was probably an increased awareness of the potential for automation of records management.

With all these concerns, it is clear the Peruvian model did not live up to its billing. In many respects, it is difficult to say whether the ILD model was really tested in El Salvador, since the ILD itself seems to have aban-

doned its own stated goals of participation, local interaction and reduced costs. Instead the ILD sought a top-down approach which did not involve any field survey work or grass-roots collaboration. In this context, was the ILD model even tested? It appears more likely that it was not.

Further, it is unclear that the ILD Model, or PROFORM, is a model at all. Originally, the Peru ILD Project had no written methodology. "PROFORM" was a retroactive attempt to document how they did it in Peru. As a methodology, PROFORM is a disaster, since it does not address fundamental considerations like data quality, maintainability, collection, conversion or transfer. It neglects cost recovery or administration details. From this perspective it is hardly a "model" for project design. Closer examination reveals the Peru experience of titling 150,000 parcels did not measure up, and claims were exaggerated. Perhaps the ILD did not follow its own methodology in El Salvador because it did not have much to offer.

At this point the social property registry is very far along in its development. To address these concerns, rather than going back and trying to re-design the project from day one, the government has undertaken a project evaluation to address these concerns in detail and make necessary mid-course corrections to provide the level of confidence needed for continuation with registry reform. Otherwise, the government risked repeating the effort a few years down the road after losing precious time and donor resources, while failing to achieve the policy goals supported by the registry modernization effort: poverty alleviation, economic growth and sustainable natural resource usage.

As far as other countries are concerned—ones that may be considering the de Soto/ILD approach—the Salvador experience underscores the danger of parachuting in a software package designed for another country. It emphasizes the need for a standard design methodology, including clear user needs and cost-benefit analyses prior to project implementation. It also demonstrates again the need to be careful as to acceptance of claims about how great a system has worked somewhere until it is analysed carefully.

On the other hand, the de Soto approach in El Salvador does remind governments of the possibilities to take advantage of computer technology, even in a third-world environment, to reduce transaction time and provide greater user benefits. While the ILD ideals and analysis are superficial and unoriginal (participation, reduction of bureaucracy), de Soto makes a forceful spokesman for these objectives and can stir enthusiasm for change.

Notes

1. See Hernando de Soto, "Third World Ought to Hear Dogs Bark," *Sacramento Bee*, Jan. 2, 1994; and de Soto, Hernando. 1993. "The Missing Ingredient," *The Economist*, September 11, 1993. (Hernando de Soto stated the invisible hand of Adam Smith was no longer invisible because it is called property rights, and used the word "magic" to describe the effects of property law regularization.) See also de Soto, Hernando. 1994. Address, "Property for the Poor: The Path to Development" Conference, Washington, DC April 12, 1994.

2. For a solid introduction to agrarian reform in El Salvador, see Thiesenhusen, William. 1993, "Agrarian Reforms in El Salvador: A Contemporary Assessment" Land Tenure Center, (photocopy, July 28, 1993). For a discussion of land markets in El Salvador, see John Strasma, "Land Market Profile"

3. Art. 1 of Decree No. 17, Feb. 26, 1991, Diario Oficial Vol. 310, No. 40, Feb. 27, 1991 established the official campaign to promote the ILP.

4. Decree 207.

5. The methodology and project description are detailed in Attachment II of the Cooperative Agreement between the U.S. Agency for International Development and the Institute for Liberty and Democracy, Id.

6. This is a slight variation of the framework suggested by Barnes, Grenville. 1990. "A Comparative Evaluation Framework for Cadastre-Based Land Information Systems (CLIS) in Developing Countries." Land Tenure Center Research Paper 102.

7. Conventional survey took one day, while GPS survey took one hour per parcel. See Morse, Warren S. and George A. Allport. 1994. "GPS Surveying in El Salvador," in *The Compiler* (July 1994) 15, 18.

8. Decree No. 16, Feb. 26, 1991, Diario Oficial Vol. 310, No. 40, Feb. 27, 1991.

9. See generally, Williamson, Ian. 1988. "Lessons and Issues in Establishing Land Information Systems in Developing Countries," presented at the seminar on "Low-Cost LIS" at Brisbane, Sept. 12–15, 1988); Parr, Daniel and Barry Wellar (editors), "Introduction to GIS" (URISA, July 1993) at 6-3.

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