require titles for access to credit, only certificates of possession, which nearly all campesinos already have. (2) The Agrarian Reform Bank is nearly bankrupt and is in the process of elimination. It has no money to lend even to those with title. With the instability in the region, it is doubtful that any private capital will flow in either. (3) Coca production by local residents in the UHV provides much easier financing than traditional credit. (4) Lack of investment by local residents is not the result of a lack of credit—it is driven by chronic instability and the absence of economically viable alternatives to coca.

The ILD maintains that titling functionally does not exist in the UHV. It contends that aerial mapping will be necessary as well as cadastres. The ILD suggests creating a "streamlined" registry system which will involve far fewer bureaucratic steps and allow people to get title to land they currently possess. For example, fully detailed maps are not needed, according to the ILD. Rather, the registration process could be "informalized" so that only "essential" data and steps are required.

Contrary to ILD's supposition, titling, aerial photography, and mapping do exist in the UHV and are relatively up-to-date and working well. It may be true that as little as ten percent of the rural land in Peru is titled. But in the UHV, nearly all agricultural land is already titled. An additional, less exact system would create legal uncertainty as to which system was the correct one. It also would provide less information to the users. The ILD suggests that restrictions on land rights be eliminated, allowing the owner to sell and partition the land. The reality of the UHV is that landowners already have at their disposal a legal system which allows for the transfer of land. With respect to the ability to partition land, the ten hectare limitation was imposed to prevent minifundios—excessively small farms. Parcels of land smaller than ten hectares are viable only for coca production. Thus, partition of lands beyond a certain point may encourage coca cultivation. Even assuming that eliminating restrictions on land under the ILD hypothesis would stimulate the land market, is such an end desirable? The more active the land market, the more likely that resources will be allocated to their most economically efficient use. In the UHV, this means coca production. The ILD approach, therefore, may actually promote use of land for growing coca.

The ILD would not give title to campesinos holding land in fragile areas. Instead, it would give them title to alternative lands which are appropriate for the farming of legal crops. This assumes that there is unclaimed, "free" land available for distribution. Unfortunately, this is not so. Data affirm that there is almost no available land in the UHV. New land could presumably be created by parcelling existing plots. But this would lead to diseconomies of scale and ever-decreasing lot sizes—*the minifundio* problem.

The ILD proposal would relocate coca producers or compensate them for leaving coca production. Relocation of coca growers to valley agricultural lands also assumes that the coca growers do not already have land in the valley. Again, this is not the case. Some coca growers may actually have abandoned land in the fertile valleys. They climb the hillsides in search of land better suited to coca. If denied access to the hillside land, such growers could return to their original land and would not need additional compensation. Relocation schemes have other undesirable effects. For example, some farmers in the UHV originally refused to produce coca. Because of insecurity in the region, lack of educational opportunities for their children, or possibly deficiencies in the infrastructure, the farmers moved their families to nearby towns. Consequently, they could not protect their lands. Instead, they left them fallow or simply planted a crop and returned periodically for maintenance and eventual harvest. In the absence of some of these non-coca-producing farmers, Sendero has sent in an afiliado—associate—to occupy the land, steal the crops, and plant coca. Should we now "normalize" the tenancy, giving the land to the current occupant? This seems to violate everyone's sense of justice and would be acceptable only to *Sendero Luminoso*.

The ILD's mention of debureaucratization is well taken in Peru, where over-regulation has inhibited many businesses. Yet, by noting the legal steps required to export, the ILD creates the illusion that the UHV would be capable of exporting were it not for the bureaucratic titling and regulatory processes. Yet, even if all campesinos had the alternative ILD title today and all export restrictions were lifted, the producers would not be able to export. They lack infrastructure, security, credit, and technology. In addition, exporting makes little business sense when the domestic market needs servicing. Thus, the ILD-Fujimori observation on market and export over-regulation would appear to have little relevance to the realities of the region.

Robert Litan, Senior Fellow at the Brookings Institution, has been critical of the ILD proposal's ability to deter coca production:

[Let us suppose that we provide property rights and the program takes off. What do economics tell you about what will happen? All things being equal, as some people leave coca, the supply of coca will diminish and the price of coca will rise. What are conditions of entry into coca growing? I suspect there is relatively free entry, requiring a peasant only to cut down forests and plant the crop. Assuming there is a relatively limitless supply of land on which to grow coca, what would

103. Id.
104. Albert Forsyth, Interview with Albert Forsyth and Mariano Cornejo B., *supra* note 99.
105. Id.
109. This polemic was suggested during a meeting with William Binns. Binns, *supra* note 101.
happen in a simplified world is that as some leave coca, others will enter. At the end of the day, the new equilibrium would probably involve a lot more legitimate crops being grown if we solve all the impediments de Soto has talked about, but the same amount of coca. We will have improved agriculture in Peru, which is a net plus, but the problem will not be solved. There are some variables, of course. If the marginal costs of going into coca go up, this will restrain entry. I suspect, though, that the only way to get people out of coca in Peru are the old remedies we all know about, i.e., making it more risky to be in that business through increased law enforcement. In summary, while it seems to me that the Fujimori initiative is good, I am skeptical it will solve the drug problem without the other measures I have mentioned.110

Coca growers are motivated by the high profits associated with coca production.111 De Soto Polar states: "Only a very small area of the land which could be used for coca is actually cultivated. The idea is to convert the whole area to private property, but property that is controlled and where offenders can be punished."112 Yet, coca growers will not abandon lucrative coca production simply because government "policy" has now made production of other crops a bit more attractive. Instead, titling of coca-producing lands may lend coca production a stamp of legitimacy and official recognition.

The ILD has also focused on work in the urban areas by cooperating with so-called "base" or community groups. This emphasis has a strong populist or "democratic" appeal. One problem in the UHV, however, is identifying the base group: Who or what is it? Sometimes the base leaders only represent the views of some inhabitants, not all. Some base leaders have been accused of corruption, and in the UHV, some may be senderistas.113

The ILD has met unquestionable success in the projects it has undertaken in urban Lima. The key to its positive reception in urban areas seems to be its efforts to include the people in decision making and in reducing the often burdensome bureaucracy. The UHV, however, demands a more detailed, critical look. Still, with the ILD's urban experience, the institute could make important contributions in the areas of democratization and debureaucratization in the UHV. This, in turn, would stimulate the natural economic abilities of the valley. In this way, the ILD's strengths could be tapped while capitalizing on existing structures.

In short, the ILD's proposed antinarcotics titling plan will not accomplish its goal for the following reasons: Coca producers are motivated not by the legal formality of titles but by economic interest; the ILD plan does not properly consider titling and registration efforts already in place—nearly all of the Upper Huallaga Valley, notorious for high-yielding cultivation, is already titled under the formal system; the dynamic of land markets and coca production in the region; and the role of Sendero Luminoso. Lastly, coca can be and is grown on extremely fragile forest lands. To protect these lands, the government should not grant titles to them, because this would not protect the land but would simply result in coca farmers with land titles.114

Governments have adopted many strategies to cut coca production, but no one single scheme has proven adequate. The current strategy is probably the best—making coca an economically unattractive good to produce relative to other agricultural commodities. This end can be accomplished through a multifaceted approach combining efforts to cut production with attempts to decrease demand. To be successful, Peru will need to improve the property registry base created by the Peruvian Department of Agriculture as one element of a broader package that includes roads, bridges, electricity, phones, basic education, university extension, credit, and access to appropriate agricultural technologies. Repression via police or military patrol can play a role by increasing the costs associated with coca production. Yet, it is not likely to succeed without corresponding efforts—including research and extension programs—to make alternative crop-producing activities economically viable. In other words, without other changes, police activity alone is unlikely to increase the costs of production coca to the point where it is more cost-effective to produce potatoes or other crops.

Despite all the foregoing, the analysis of the coca problem would be intellectually dishonest if we were to disregard the driving force of coca production—demand. The proposed solutions listed above are designed to make alternatives to coca production less expensive and more lucrative, while increasing the costs of coca production. But, as long as demand remains high, they are likely to prove futile, as the profit margin remains tremendous. In sum, simply giving formal title to the poor of the Amazon Basin in the hope that they will not plant coca is illusory.

F. Myth #6: Secure Land Ownership Will Contribute To Political Stability And Democracy, And Therefore Should Be Used As A Counter-Insurgency Tool Or An Anti-Revolutionary Force.

Law professor Roy Prosterman first popularized this theory in discussions concerning Vietnam and later in El Salvador. De Soto Polar has more recently...

110. de Soto, supra note 92, at 12.
111. Binns, supra note 101.
112. de Soto, supra note 92, at 12.
113. Nuñez & Mendoza Mejia, supra note 87. The term senderistas refers to the followers of Sendero Luminoso.
picked up Prosterman's hypothesis in other contexts. The "Prosterman" position is a very difficult one to prove or disprove. In a nutshell, it states that an effective "land reform" program will reduce the appeal of revolution. Unfortunately, the theory cannot really be tested as stated. In the first place, what is an "effective land reform" program? The plain fact is that there has been no single definition of a "land reform strategy." In El Salvador, some critics would argue that the land reform contemplated was not far-reaching enough. Thus, according to them, the Prosterman hypothesis was not really tested in El Salvador. Even if we could settle on a definition, has an "effective land reform" strategy been carried out anywhere? Most Latin American and Caribbean countries have carried out land reform to some degree. In El Salvador, the contemplated land reform program was not fully implemented. Thus, once again, it could be argued that the Prosterman hypothesis was not properly tested. In short, our experience does not prove or disprove Prosterman's view. His position remains a mere theory.

Neither review of the literature nor independent research have revealed conclusive data confirming or denying the idea that land reform contributes to political stability. A conclusive test would be nearly impossible to design. However, a great deal of anecdotal evidence supports the conclusion that land reform or land access policies usually have a positive impact on social stability. For example, Prosterman, Riedinger, and Temple have stated that:

115. De Soto asserts that the Viet Cong in the 1960s and the Shining Path today make gains among peasants by promoting property rights. Third World, supra note 2, at F01. De Soto also claims: "Two of the things that Shining Path does out there are to protect property rights and provide justice . . . . These are things that the Viet Cong did too. The Peruvian state doesn't." Eugene Robinson, Peruvian Guerrilla Group Launches Urban 'Final Campaign', Wash. Post, Apr. 21, 1992, at A1, A16. Some academics have termed the de Soto titling-counterinsurgency hypothesis as 'the war path' (referencing the use of the word "path" in the title of de Soto's book, The Other Path, and his new foundation, the Path to Property). Incredibly, Hernando de Soto went as far as to say that police human rights abuses, illegal searches and seizures, and oppressive intrusiveness by police in Latin America are among large measure due to the lack of registered property, which results in diminished data base for police. He concedes that this view is not found in any academic literature. He also credited a titling program with increasing President Alan Garcia's popularity from a 6% approval rating at the start of a program to a rating of 22% as the program got underway. See de Soto Address, supra note 2.


118. Imagine creating "test" and "control" groups!

In nearly all cases, land reform has been undertaken when the "have-nots" begin to threaten direct action—at least political—if land reform is not forthcoming. In this sense, land reform nearly always has a counter-revolutionary flavor. Theoretically, formal landowners may have significant incentives to participate in democratic society. Insecure landholders have less to lose from engaging in counter-social behavior. Samuel Huntington argues that "a suffering peasantry is profoundly revolutionary; when peasants own land of their own, in contrast, they are a generally conservative force in politics." The relationship between conflict and land reform is well described in recent works concerning Honduras, Nicaragua, and El Salvador. The general consensus of these studies seems to be that land reform has not gone nearly far enough to prevent conflict. For example, in El Salvador one percent of the landowners still control forty-one percent of the farmland, while sixty percent of farm workers are landless or nearly so. These studies argue in conclusion that had land reform been taken place earlier, the conflicts would not have taken place.

More specifically, with regard to Prosterman's view and its implementation in El Salvador, Martin Diskin, Professor of Anthropology at the Massachusetts Institute of Technology, writes:

Prosterman's arguments seldom entered into the empirical detail crucial to making a reform succeed. Nowhere in his writing is there any appreciation of the complexities of the Salvadoran land tenure system, a
knowledge of how credit is provided to the sector, or the availability and adaptability of help from the extension-service. But the point—that giving land to smallholders will deprive the opposition... of possible recruits—fits [the goal of] rolling back communism....

Diskin’s argument seems to be that land reform, properly implemented, would de-radicalize the peasantry, just as Prosterman claimed. However, land reform in El Salvador was not properly implemented because it did not take into account other factors which impact on the land tenure system, Diskin appears to say.

Rupert Scofield, a consultant with Rural Development Services, Inc., argues strongly that land reform is still needed to avert further land-based conflicts in Central America, especially in Guatemala and Honduras. With regard to Prosterman and El Salvador, Scofield writes:

Perhaps the most distinctive feature of the El Salvador land-reform program is the speed with which it was conceived and executed. Indeed, the bulk of the post facto criticism leveled at the decree starts with the notion that the Salvadoran and foreign advisors authoring the decree operated in isolation, and with incomplete or false information regarding the proposed beneficiaries and expropriates of the process.

In short, tenure concerns probably play a factor in political stability. To say revolutionaries gain their support by espousing formalization of property rights is not supported by evidence and probably goes too far. But agrarian reform and titling may form one element in a broader package of measures to promote participatory development and reduce the incentives for insurgency.

III. THE REALITY BEHIND THE MYTHS

Having attempted to clarify some of the claims of impact for titling property, the following interpretations of empirical data and recommendations place the formalization of property rights within the broader context of democratization and economic development. They also take into account factors such as overlapping or secondary rights to land that may be ignored by many titling programs.

A. Recommendation #1: Titling Should Be One Element Of A Broader Development Strategy.

While titling of property may give security, other factors may make investment less attractive. Inappropriate banking policies, lack of credit and technical assistance, imperfect market factors, and pricing of inputs and products all play a role. For example, a titling project in Honduras found a dramatic increase in credit available for agriculture to newly titled property, as opposed to property in a control group (left untitled), although some of the increase may be attributable to other factors in addition to titling.

Interestingly, however, farmer behavior in such areas as investments in new coffee plantation and infrastructure, orientation of family labor toward farm production, yields, use of production technology and overall production, did not change between titled and untitled groups engaged in agricultural production. Consequently, we cannot assume that titling alone will automatically lead to increased credit access or investment. "These results underline the need for a wide variety of programs for improving the productivity of agriculture, one of which may be the titling of untitled farmers."

Empirical evidence from Africa suggests that registration of property without economic opportunities is not propitious. Registration costs for agricultural land produce very little change in agricultural production. Registration seems best viewed as a policy to assist in the evolution of land tenure institutions already established.

126. Diskin, supra note 117.
128. Id. at 142-43.
129. This conclusion appears to cohere with the section on Social Benefits of Property in Edward L. Hudgins, Private Property: The Basis of Economic Reform in Less Developed Countries, Heritage Foundation Reps., May 24, 1990.
130. One study in Kenya found that a national titling program did not produce the anticipated increase in agricultural credit due to factors limiting access of small farmers—factors unrelated to tenure. See Joy Green, Evaluating the Impact of Consolidation of Holdings, Individualization of Tenure, and Registration of Title: Lessons from Kenya at v (1987) (Land Tenure Center Report).
131. Randy Stringer argues convincingly that establishing a land-financing system in Latin American countries may represent a viable institutional mechanism to assist some landless in overcoming difficulties caused by land market imperfections. See Randy Stringer, Farmland Transfers and the Role of Land Banks in Latin America 11 (1989) (Land Tenure Center Report); Randy Stringer, A Profile of Land Markets in Honduras (1989) (Land Tenure Center Report).
132. Carter, Wiebe & Blarel, supra note 54, at 14, state, based on data collected in Kenya, that: "Returns to land title (in terms of productivity gains) are likely to be higher for farms better situated in terms of market access or other productivity-enhancing characteristics."
133. Stanfield, Nesman, Seligson & Coles, supra note 7, at 28-33.
134. Id. at 32.
135. Id. at 33.
under way, rather than as a policy to stimulate fundamental changes in economic behavior. 136

Titling does have a role as an element of a broader program for democratization of the political economy. However, titling itself is not likely to be effective as a sole instrument for social reorganization. David Stanfield, a researcher with the University of Wisconsin Land Tenure Center, notes that linking titling reform with reform in the banking sector could provide greater participation in the political economy, especially if the reform included the development of banks specifically capable of dealing with small-scale agriculture. 137

B. Recommendation #2: Property Records Must Be Maintained And Legal Boundaries Must Be Enforced.

Titling is typically part of a broader registration reform process, 138 one which requires technical expertise. 139 The reform process is indispensable for maintaining a modern cadastral land information system—a database used for property taxation, zoning, and land use purposes. Maintenance of property records and the land information system over time is crucial for an active and transparent land market. In addition, land-titling and formalization efforts are useless without subsequent legal enforcement of boundaries. 140 In the absence of maintenance and boundary enforcement, the entire registration and formalization process is jeopardized. 141

C. Recommendation #3: The Method Of Titling Should Follow Standardized Principles Adapted To The Specific Conditions Of A Country.

One of the primary goals of property registry reform is to provide a legal framework for economic markets. 142 For a legal framework to inspire investor confidence, potential investors must perceive that a solid, high quality institutional basis is in place. This argues for appropriate compensation for land registry employees, as well as other incentives to prevent corruption and encourage professionalism. It also means that all system users should be treated equally and receive equal service. This service should be delivered in a transparent fashion, meaning that the rules are clear and well-publicized, and that documents are open to public inspection. Accuracy standards should never be compromised simply to demonstrate results, as this would undermine confidence in the results generated. As a rule, it is never cheaper than now to make such infrastructural investments in quality. In short, reform projects should do it right the first time.

The methodology of land formalization should reflect national conditions. In Honduras, for instance, a report showed that much of the property there went unregistered, despite titling efforts. 143 This was due to: (1) the legal restrictions on titling parcels smaller than five hectares and (2) lingering suspicions of the government's intentions by the peasantry. Interestingly, data from Honduras also show a continued use of "customary" rather than legal procedures for land transactions even after land had been titled through a titling project. 144

The method of titling should also be tailored to fit distinctive regions within a country. For example, peri-urban areas may have a higher property value, and so justify prioritization in titling. In contrast, rural areas may have lower property values. Therefore, as far as immediate economic impact is concerned, it may be logical to prioritize the recording of high value urban properties over less expensive ones. However, equal standards may need to be applied in order to not undercut the institutional credibility of the cadastral system.

In summary, a new institutional mindset is required. A logical first step is to get a physical description with georeferencing in place at the national level. Second, the georeferenced cadastral system and the property registry system should be linked, if not merged. Third, unnecessary bureaucratic steps to property registration must be eliminated.

136. Barrows & Roth, supra note 4, at 24.

137. AID financing projects exist, for example, in Costa Rica, Guatemala, Honduras, and El Salvador. See Shearer, Lastarria-Cornhiel & Mesbah, supra note 51, at 45-54.

138. For example, the AID Ecuador project involves broader registration reform issues.

139. For example, the Bar Association and the Property Registrar in Guatemala are consulting with technical experts from Costa Rica in the design of the titling reform project in Guatemala.

140. In Brazil, the World Bank found that subsequent to legal demarcation of the land, violations of the boundaries occurred from a variety of sources, including official acts (revocation of decrees, building of roads through reserves) and incursions into Indian lands by poor colonists who themselves lacked alternatives for access to land and resources. See Alaka Wall & Shelton Davis, Land Regularization in Special Amerindian Components of Bank-Funded Projects in Lowland South America 17 (1991) (World Bank Report, available from the World Bank).

141. Larsson, supra note 29, at 118.

142. See, e.g., I. David Stanfield & Maksi Raço, Creation of Albanian Land Markets, Land Tenure Center Newsletter, Spring 1994, at 1, 3.

143. Stanfield, Neiman, Seligson & Coles, supra note 7, at 34.

144. Coles, supra note 26, at 32.
D. Recommendation #4: Development Programs Should Be Attentive To Both Private And Public Needs.

The role security of ownership plays in economic development is important, but should not be overstated. The necessity of balancing social needs against private security of ownership may ultimately limit the optimal level of security. In El Salvador, for instance, article 106 of the Constitution guarantees the government the right to take private property for public benefit, provided there is compensation. In the United States, the Fifth Amendment to the Constitution performs this same function, as does article 8(13) of the Constitution in the Dominican Republic, and articles 39 and 40 of the Guatemalan Constitution. In a like manner, all development programs should be attentive to both needs.

Grenville Barnes, a researcher with the University of Wisconsin Land Tenure Center, lists some of the potential benefits of land titling to public and private sectors. Barnes notes that Thailand, Costa Rica, and St. Lucia show increased investment in land and availability of cheap, long-term credit. Costa Rica reveals increased investment in agricultural inputs as a result of titling. Brazil and Ecuador confirm increased productivity, and in Ecuador, higher farm income. In a number of places marketability of land improved as a result of titling. Potential public sector benefits include: improved land administration, public planning and development capabilities, improved land valuation capability, facilitating land acquisition for public projects, providing a better basis for land use control, and other benefits.

After an analysis of the benefits of titling, Barnes provides an extensive look at the costs of land titling projects in Latin America and the Caribbean. Costs are generally the best-documented aspects of a titling project, but they are almost always portrayed in general budgetary terms. Barnes compares and contrasts costs in Honduras, Ecuador, and St. Lucia. He recommends, in great detail, how several analytical constructs may be used to evaluate the costs and benefits of titling projects. Efficiency, for example, would measure the number of parcels per team month or hectares per team month. Cost per title or per area titled and the maintainability of those documents would also be considered. Quality factors measure the accuracy, precision, and completeness of land tenure information, while complexity of institutional, environmental, and tenurial circumstances is also considered. The utility of system data is calculated based on the potential number of uses for data. Barnes also lists a number of factors which can frustrate the realization of the benefits from land titling.

146. Barnes, supra note 58, at 28-31.
147. Id. at 143.
148. Id. at 32-34.

In short, Barnes does not say that the benefits of titling projects always exceed the costs. Instead, he states that:

The quick “band-aid” solutions envisaged by many titling projects are in most cases inadequate for the accomplishment of the long-term goals associated with tenure security. It is recommended that a long-term program mentality be adopted in place of the short-term project counterpart which is characteristic of current [land titling] implementation efforts.

In Japan, a land titling and nationwide cadastre project, which is viewed as quite successful, cost one year’s property tax revenue to generate. Japan realized that long-term, public-private approaches are most effective. In sum, governments must realize that the true costs and benefits of registry programs are not clear in two years or even ten, but rather in twenty or thirty years, and build in the costs of institutional investments and maintenance.

Finally, it should be emphasized that the cost-benefit equation is dynamic. While only a few years ago, survey costs in a given region may have exceeded property values, circumstances may have changed such that today a survey may be feasible. New technologies such as global positioning systems (GPS), geographic information systems (GIS), and remote sensing are making cost-benefit calculations from a few years ago obsolete. While benefits in terms of information applications are booming, costs may vary temporarily. This may mean that the world is entering an era in which cadastral institutions may insist on high quality geographic data. The impacts of titling may need to be revisited, as technology continues its advance. These changes either have made or will make highly accurate, compatible data for surveys of even small plots more affordable, provided the appropriate technology is selected and institutions are streamlined and professionalized.
E. Recommendation #5: The Process Of Land Titling Should Be Sequenced And Take Into Account The Under-Represented And Historically Disadvantaged.

The titling formalization process can have negative impacts. Indigenous populations, women, secondary right holders, and absentee land holders may be excluded from the system. A World Bank project working with lowland, forest-dwelling indigenous people in Brazil found that "land regularization in and of itself will not be sufficient to protect indigenous peoples' land security. [Thus, even in those projects where large amounts of land were set aside, indigenous people remained] vulnerable to the destruction of their resource base and cultural integrity."154

Persons without title will receive a lesser value for their land or will have difficulty selling it, and investors will not purchase land in which they have no security, or will pay little for it.155 The recent titling project in Honduras demonstrated that the value of titled land increased more than the value of untitled land.156

Titling converts land into a commodity which can be bought and sold. Some critics have argued that giving titles to the poor places them at greater risk of losing their land. Titling, they believe, is a method which enables the elite to obtain access to land. In cases where small farmers have lesser access to factor


153. Feder & Noronha, supra note 24, at 157 (discussing the problems of nomadic farmers in Mauritania, Niger, Senegal, and Sudan).

154. Wali & Davis, supra note 140, at ii.

155. Studies in Colombia, Thailand, Honduras, and elsewhere indicate that titled land is worth at least 50 to 100% more than comparable untitled land. See Herman Felstehausen, Juan Carlos Castaldi & David Stanfield, Urban Land Access by Informal Sector Households in Honduras (1990) (Land Tenure Center Report).

156. Stanfield, Neeman, Seligson & Coles, supra note 7, at 21. Similar results were found in Thailand. See Yongyuth Chalamwong & Gershon Feder, Land Ownership Security and Land Values in Rural Thailand, 790 World Bank Staff Working Papers 57 (1986).
under conditions of abundant rural labor, coupled with a lack of non-farm employment opportunities (characteristic of the Central American countries), may indeed prove to be a major obstacle to increased economic development.\footnote{160. Dwight Steen, Agriculture Development Officer with the U.S. Agency for International Development, Land-Related Problems: Central America 7 (Apr. 1984) (available from the Agency for International Development, AID/CDIE, Washington, DC 20037).}

In Latin America, a number of studies support the conclusion that small farmers—characterized by intensive land use—are more productive than their larger counterparts—characterized by under-utilization of land.\footnote{161. See, e.g., Hans P. Bieiwanger & Miranda Elgin, What are the Prospects for Land Reform 3 (1988) (World Bank Report No. IDP-21, available from the World Bank); Berry & Cline, supra note 157, at 7.} This expected inverse relationship between farm size and various measures of production per land unit was recently reaffirmed in a study in Brazil.\footnote{162. William C. Thiesenhusen & Jolyne Melmed-Sanjak, Brazil's Agrarian Structure: Changes From 1970 Through 1980, 18 World Dev. 393-415 (1990). See also John Strasma & Tulio Barbosa, Land Tenure and Agricultural Productivity in the State of Maranhao, Brazil: Some Empirical Evidence (1992) (Land Tenure Center Report).} Productivity is greater on small farms because of their intensity of resource use, even though large farms are characterized by high-valued export crops and greater yields.\footnote{163. Thiesenhusen & Melmed-Sanjak, supra note 162, at 393-415. One recent paper provides a comprehensive, in-depth economic analysis of this phenomenon, integrating land with labor and capital markets. See Michael R. Carter & Dina Mesbah, Economic Theory of Land Markets and its Implications for the Land Access of the Rural Poor, Annex I at 11, cited in Shearer, Lautarri-Cornhiel & Mesbah, supra note 51.}

Studies from Jamaica yield similar results. There, the best land in the country is held in large estates, which have been extensively farmed. Yet this land has had the lowest level of return per acre, despite the fact that its owners have the physical and financial resources to make it produce more intensively. In contrast, small farmers situated on hillsides, performing both land and labor intensification practices—making small amounts of agricultural land more productive—have contributed a higher return per unit of land and provide greater returns in terms of foreign exchange saved, by producing foodstuffs which would otherwise have to be imported.\footnote{164. Randy Stringer, John Bruce & David Stanfield, Reform Among the Smallholders: St. Lucia, Jamaica, and Implications for the Caribbean, in Thiesenhusen, supra note 117.}

The World Bank has studied lot size and productivity not only for owner-operated farms, but also for rented properties. The study found that, all other things remaining constant, a tenant's optimal effort per hectare is a decreasing function of the size of the plot he cultivates.\footnote{165. Agrarian Reforms in Developing Rural Economies Characterized by Interlinked Credit and Tenancy Market (1980) (World Bank Staff Working Paper No. 433).} In other words, the more land the tenant farms, the less production per hectare he realizes.

The notion that land reform can be justified using both equity and productivity considerations has been referred to as the "Institutional School" of thought.\footnote{166. Michael Carter & Jon Jonakin, The Economic Case for Land Reform: An Assessment of the 'Farm Size/Productivity' Relation and Its Impact on Policy 1 (1987) (available at the Land Tenure Center Library).} The School developed out of the perceived shortcomings of traditional development theory, which tended to look at agrarian reform as strictly an effort to achieve equity among a society's members.\footnote{167. Id.}

The dynamic growth of Latin [American] agriculture became that of large-scale export production wherein more capital intensive technologies promoted the concentration of landholdings of increasing size. Unsurprisingly, the displacement of peasant farmers from the land and the substitution of capital for labor in the choice of technologies became the dual accompaniment of growth . . . . The innovative approach provided by the [Institutional School's] reformulation of development theory indicated that both growth and equity could and should occur together.\footnote{168. Id.}

While the factors that appear to underlie the high yields per land unit on small farms should eventually come into play whenever a large farm is split into small ones, such productivity also depends on the operators.\footnote{169. Berry & Cline, supra note 157, at 3.} The pay-off to dividing the land into small farms and increasing its productivity also depends on how long the country will have a surplus of labor at low opportunity cost. The administrative capacity to support small farms must be developed in countries that have a history of neglecting them.\footnote{170. Id.} To remedy this situation, credit and educational extension programs could be offered to assist the small farmer.

Because of technological progress and the Green Revolution in recent decades, the inverse relationship between productivity and farm size appears to be changing.\footnote{171. Id. Still, data from Brazil and India indicate that, even after new Green Revolution technologies have been introduced, output per farm area tends to decline as farm size increases.\footnote{172. Id.} Economies of scale in terms of technology, credit markets, labor supervision, and labor markets are affecting the historically

\footnotesize
\bibitem{163} Thiesenhusen & Melmed-Sanjak, supra note 162, at 393-415. One recent paper provides a comprehensive, in-depth economic analysis of this phenomenon, integrating land with labor and capital markets. See Michael R. Carter & Dina Mesbah, Economic Theory of Land Markets and its Implications for the Land Access of the Rural Poor, Annex I at 11, cited in Shearer, Lautarri-Cornhiel & Mesbah, supra note 51.
\bibitem{164} Randy Stringer, John Bruce & David Stanfield, Reform Among the Smallholders: St. Lucia, Jamaica, and Implications for the Caribbean, in Thiesenhusen, supra note 117.
\bibitem{167} Id.
\bibitem{168} Id.
\bibitem{169} Berry & Cline, supra note 157, at 3.
\bibitem{170} Id.
\bibitem{171} Carter & Jonakin, supra note 166, at 15.
\bibitem{172} Id. at 22.
inverse relationship, and possibly eliminating the advantages of breaking up large estates.\(^{173}\)

In as much as this is the case, one can argue that there are no productivity gains to be made by breaking up the larger farms through land reform. In this respect the presence of internal and external economies of scale on large farms would be ignored only at the risk of a loss of efficiency.\(^{174}\)

Of course, this is true only if the large estates are fully utilized. And, land reform can be justified for social equality reasons as well as for enhanced efficiency.

In any event, we should not assume that small-holders will necessarily be more productive with their land. Whether the poor operate under a favorable competitiveness regime vis-à-vis larger farms is an empirical question and one that will vary with changes in soil quality, access to markets, type of agriculture, and availability of agricultural extension services, among other factors. In this line of inquiry, transaction costs are a key consideration. For example, in Latin America, it is common to find very large and very small units of land coexisting. Due to market rigidities—lack of title, for example—it is difficult for wealthier individuals to consolidate multiple small-holdings. Similarly, it is difficult for small-holders to buy a small piece of land from a much larger unit due to subdivision and legal costs.\(^{175}\) Depending on local market variations and imperfections, benefits of returns to scale might generate a competitive position that favors either large-holders or small-holders. If we assume a competitiveness structure where the poor are not in a competitive position vis-à-vis large-holders, then the market rigidities actually work to shelter the poor from being overtaken in the market. Removal of the barriers to property alienation—for example, a program to improve titling and reduce registration costs—may actually cause the market to push the poor off their land. In other words, under these circumstances, formalization by titling of property can in fact accelerate the exit of small-holders.

In summary, where small-holders are less efficient, all other factors aside, we should expect market forces to reallocate land from small-holders to large-holders when market barriers are removed. Conversely, where small-holders are more efficient, we should expect the market to allocate land in their favor as market facilitation measures are introduced.

2. Does The Market Allocate Resources Toward Or Away From Small-Holders?

The land market is often the most imperfect input market in the agriculture sector.\(^{176}\) In all countries, land markets are more distorted than the markets for labor and capital, and land markets in the Latin American and Caribbean region are even less likely than those of the United States or Western Europe to meet the hypothetical conditions for a perfectly competitive market.\(^{177}\) Thus, predicting how this market functions is problematic. And, despite high levels of interest in the subject, very little empirical work has been undertaken.

The few land market studies in existence show mixed results. In Venezuela, one empirical study concluded that those with superior access to credit have fared better in the land market.\(^{178}\) In parts of Guatemala, another empirical study found that land reform beneficiaries tend to hang on to their property, even when given the legal power to buy and sell their property without restriction. There, the true threat was from inheritance, which divided estates among children and in that way created increasingly smaller lots.\(^{179}\) In the northern and central highland areas of Ecuador, another study found that from 1964 to 1991, the land market has in general reallocated resources from large-holders to small-holders.\(^{180}\) In Paraguay, a recent empirical study found that where small-holders were more competitive, they gained land. Conversely, where small-holders were not competitive, they lost land. The level of access to preferential credit for large-holders seemed to determine whether small-holders were competitive or not in Paraguay.\(^{181}\)

In the African context, some research has concluded that market or legal barriers in a land market actually produce inequities in land distribution. Those with access to the legal system—the more affluent—use the system to their advantage. These individuals are likewise protected in their transactions, since their social status ensures that no legal or societal counter-measures will be taken against them. Further inequality arises where governments recognize sales only

\(^{173}\) Id. at 26-7.

\(^{174}\) Id. at 27-8.


\(^{176}\) Shearer, Lastarria-Cornhiel & Mesbah, supra note 51, at v.

\(^{177}\) Id.


by people from a particular group—like chiefs—or where transactions in land involve complex procedures with uncertain results. Influential individuals and civil servants can use their knowledge of the law to acquire land at the expense of the poorer and less knowledgeable.182

3. At What Point In The Development Process Should Titling Be Used To Benefit The Poor?

Market imperfections often determine whether the small-holders are competitive or not vis-à-vis larger estate-holders.183 This fact argues for purposely sequencing policy interventions to promote participation by historically disadvantaged groups. For example, where large-holders receive credit subsidies making them more competitive, a titling program could have the effect of pushing the poor off their land. A more appropriate approach would be to sequence reform of the credit sector first, to place the poor on a level playing field with the more affluent. Only then should land be titled. The creation of linkages between titling and banking reforms may result in greater participation in the political economy, particularly if the reform includes credit access programs tailored to small scale agriculture.184 Titling land in reverse order in this context could push the poor off their land. Consequently, whether land titling is a good idea or not depends on an empirical analysis of the competitiveness regime of small-holders and the proper sequencing of policy interventions.185

F. Recommendation #6: Land Registration Programs Should Be Employed For A Positive Environmental Impact.

Land tenure policies are relevant to resource management in a number of ways. For example, without well-defined property boundaries, it is difficult to imagine how nature reserves and parks can protect themselves from encroachment by squatters and land invaders. In Honduras, a titling project was successful in providing, for the first time, detailed information concerning the distribution of landholdings located in national and ejidal land.186 One study in particular showed that people who have been farmers, including cattle ranchers practicing extensive grazing, consider the creation of national park boundaries as limiting their "traditional rights" to use these lands.187 In Honduras, property delineations have proved helpful for development project design in areas such as soil and water conservation, watershed management programs, technological transfer oriented toward particular crops, and poverty alleviation programs addressing fragmentation of land.188

Titling around reserves, combined with access by farmers to affordable agricultural intensification technologies, helps stabilize land use in surrounding areas.189 This in turn generally produces several results. First, it reduces the incentives for land invasion. People sometimes invade reserves because of "land hunger."190 Titling of property may thus allow people to purchase land in titled areas, diminishing the need for invasion of reserves. This has the effect of decreased pressure on the reserves. Second, it reduces the pressure to invade reserves in search of wood. In these instances, buffer zones surrounding land reserves are an important tool.191 These buffer zones offer agro-forestry projects or wood lots around reserves. In Madagascar, for example, these lots took away the uniqueness of the reserves as a supplier of wood. People then had access to the wood without invading the reserves.192

In a study in Uganda, residents of a forest reserve and a game reserve were compared.193 These two groups had differing expectations of their tenure rights and behaved accordingly: people on the game reserve felt secure in their rights, and planted trees, mulched soils, and built permanent structures, while those in the forest reserve had temporary housing and engaged in short-term agricultural

center to be directly used by the group's members. Often, the land cannot be acquired, transferred, mortgaged, divided, or sold without elaborate legal procedures.187. Gerardo Budowski, The Socio-Economic Effects of Forest Management on the Lives of People Living in the Areas: The Case of Central America and Some Caribbean Countries, in Socio-Economic Effects and Constraints in Tropical Forest Management 87-102 (E.G. Hallsworth ed. 1982).
188. Stanfield, Nesnan, Seligson & Coles, supra note 7, at 11. 189. See, for example, Stonich's observations based on data in Honduras. Implications, supra note 61, at 1.
191. The case in Niger is discussed in Bruce & Formann, supra note 55, at 17.
193. Aluma et al., supra note 190.
practices, using the land as an extractive resource. The difference between these groups was security of ownership. In the African context, security of ownership is a subjective function of law, custom, and practice, including titling. In more formalized, economically developed contexts such as Latin American, formal titling probably takes on a much greater importance relative to custom or practice. Titling of property surrounding the reserve may promote investment in renewable resources in those areas. This in turn may relieve some of the pressure to invade reserves. In other words, land security in outside property will encourage the use of outside property as an alternative to the reserve. This was also found to be the case in Madagascar.194

Lack of access to quality land may increase general environmental degradation.195 One report concluded that unequal resource distribution and its relationship to the environment is a function of disparate demands on resources by user groups; the poor have a proximate, direct effect on resource destruction, while the impact of those who own ample land and water is indirect but just as destructive, if not more so. William C. Thiesenhusen, Director of the University of Wisconsin Land Tenure Center, says "Indeed, it appears that if the environmental problem is ever to be alleviated, the lock which large landlords have on most of the productive resources in some Third World areas must be substantially modified or broken through land reform."196

Problems of deforestation, for example, probably need to be solved in the major farming regions of the countries involved, far from the site of actual resource damage.197 In Kenya, fertilizer and chemical input levels are highest on titled farms. Thus, one study concluded that tenure security in the form of a title provided an incentive to invest in the maintenance of soil fertility.198 The World Bank's projects are heading in the direction of linking land regularization efforts to the promotion of sustainable development programs that incorporate indigenous peoples' knowledge of natural resource management and environmental conservation.199

200. Frank Place discusses the importance of non-tenure factors in agroforestry adoption, for example. Place, supra note 32, at 7-10.