

8. During the period 1986 to 1988, the total number of beneficiaries was about 60,000 annually. However, in 1989 the number dropped by about 11% to 52,800, and then even further in 1990 to only 45,200. Despite these changes, the percent of short- medium- and long-term loans remained fairly stable, ranging from 78%-82%, 17%-25%, and 0.1%-1.1%, respectively. The total area supplied with credit follows fairly closely the pattern of total disbursements, which reached a peak of 400,000 ha. in 1987, and then fell to a low of 241,000 ha. in 1989. In 1990, the area recovered slightly to 266,000 ha.

9. The most striking observation is that the area covered by short-term loans is more than 90% of total agrarian reform area in every year, and reached as high as 97% in 1989. Therefore, there is very little area which received medium- or long-term credit, indicating a lack of credit for land purchases and improvements.

D. Constraints on Access to Credit

10. In many countries, banks are more willing to lend long-term to agriculture because they are able to insure themselves against loan default by requiring producers to encumber the title of their land as collateral. The land can then be acquired in the event that producers are unable to meet their loan commitments. However, as discussed earlier in this report, the majority of producers (especially those beneficiaries of land titles under the Agrarian Reform Law) do not possess a mortgageable title to their land. Titles give the right to use the land, but not the right to sell or transfer it to other parties, unless under strict guidelines established by IAN and the Agrarian Reform Law. As a result, IAN land titles do not represent sufficient collateral for loans and rural credit markets have failed to develop. Therefore, the issuance of transferable titles to land and the evolution of an active and transparent land market would be important steps in removing an important market failure which prevents the development of a formal credit market accessible to *campesinos*.

11. One of the major goals of the Agrarian Reform Law is to increase agricultural investment through wider access by *campesinos* to credit for working capital, land improvements, and land purchases. As discussed earlier, *campesinos* have been unable to secure loans from commercial banks, and the credit available from state institutions for long-term investments has dwindled to very low levels in recent years. During the mission much anecdotal evidence was obtained indicating that access to long-term credit by *campesinos* is inadequate, and that institutional changes are needed to allow small farmers access to longer-term credit. But one must ask what is the demand for long-term credit? If land reform recipients are obtaining their land for a very low price and at the easy credit terms provided by IAN, then they do not require long-term credit for land purchase. It is those *campesinos* and other would-be farmers who are not beneficiaries of the land reform who may be unable to raise long-term capital and those farmers who want to undertake long-term farm development. There is no way to estimate how important this group might be, but given the moribund formal land market and the relative availability of land at concessional prices from IAN, it is not unreasonable to speculate that, given IAN's credit program, long-term credit is not a constraint to most would-be small farmers. The only time it may be a problem is if the availability of land from IAN is small (and there are reports that the demand for IAN land from *campesinos* exceeds the supply) or if certain individuals who wish to be farmers are considered by IAN to be ineligible or low priority in the IAN land sweepstakes.

Annex Table 3.1: Short-, Medium-, and Long-Term Credit Disbursed by ICAP, 1986-90

	Short-Term	Medium-Term	Long-Term	Total
1986				
Amount (Bs. 1985 Million)	852.3	308.4	88.2	1,248.9
%	68.2	24.7	7.1	
No. Beneficiaries ('000)	49.9	10.4	0.3	60.6
%	82.3	17.2	0.5	
Area ('000 Ha)	326.2	25.6	0.7	352.5
%	92.5	7.3	0.2	
1987				
Amount (Bs. 1985 Million)	769.9	547.2	105.1	1,422.1
%	54.1	38.5	7.4	
No. Beneficiaries ('000)	48.0	13.0	0.3	61.3
%	78.3	21.2	0.5	
Area ('000 Ha)	371.8	26.6	0.7	399.1
%	93.2	6.7	0.2	
1988				
Amount (Bs. 1985 Million)	653.8	292.6	83.7	1,030.1
%	63.5	28.4	8.1	
No. Beneficiaries ('000)	44.3	14.8	0.3	59.4
%	74.6	24.9	0.5	
Area ('000 Ha)	332.5	22.2	0.3	355.0
%	93.7	6.3	0.1	
1989				
Amount (Bs. 1985 Million)	437.4	169.8	24.9	632.1
%	69.2	26.9	3.9	
No. Beneficiaries ('000)	42.7	10.0	0.1	52.8
%	80.9	19.0	0.1	
Area ('000 Ha)	234.8	5.9	0.4	241.1
%	97.4	2.4	0.2	
1990				
Amount (Bs. 1985 Million)	657.9	192.6	24.1	874.5
%	75.2	22.0	2.8	
No. Beneficiaries ('000)	36.9	7.8	0.5	45.2
%	81.6	17.3	1.1	
Area ('000 Ha)	242.1	21.9	2.0	266.0
%	91.0	8.2	0.8	

Source: IAN

12. The uncertainty of tenure is especially a problem for the agrarian reform sector and above all in those states receiving most of their finance from ICAP (e.g., Barinas, Guarico, Monagas, and Portuguesa). In 1990, of the applications received by ICAP, more than 50% did not have title to land, and about 70% of applicants for loans were rejected because of uncertainty of land tenure.

13. In addition to insufficient collateral, the private banking system has been crowded out of the long-term credit market because of the presence of ICAP, BANDAGRO, and FCA that provide long-term credit at below-market rates. For the private banking system to operate, the agricultural sector must be weaned off subsidized credit and there is a need to formally document land ownership so that

the private banking system is willing to play a larger role in financing agriculture, particularly in financing land acquisition.

14. Under credit reforms supported by the World Bank Financial Sector Adjustment Loan, the government is: (i) deregulating agricultural interest rates; (ii) phasing out the portfolio requirements on commercial banks; and (iii) requiring public institutions lending to the agricultural sector for purposes similar to FCA's to lend under comparable terms and conditions. These changes are made to strengthen the initiatives already made by the Government to liberalize interest rates and credit allocation, and to streamline the development banking functions for agricultural financing.

15. With pressure from farm groups, there is a plan under discussion to allow IAN land to be used as collateral. The proposal is that if a private loan is granted to a farmer on IAN land, and the farmer defaults, then the bank would obtain a title to this land. But even under this proposal, the private banking sector is dissuaded from making finance available because the legal system is very slow and unpredictable in settling disputes.

16. With interest rates rising substantially in the last two years, some farmers have been unable to meet their loan agreements. However, banks do not wish to become owners of land, and so they have tried to find ways to restructure existing debt. A possible solution being discussed in the context of the law of the agricultural credit fund, would guarantee loans in the private banking sector. Already, FCA offers credit guarantees of up to 50% of loans, aimed primarily at smaller producers that do not have sufficient collateral. As a complementary measure, the Government has been exploring the various mechanisms that would provide access to credit for small producers, including the establishment of a guarantee fund. However, such insurance schemes are prone to the typical problems of establishing insurance markets -- namely moral hazard and adverse selection problems^{2/}. Commercial banks are providing credit to producers for short-term production and medium term for improvements. Also, banks lend to a pool of farmers, "farmer unions," where membership in the association partially secures the loans. In this case, if one member of the group defaults on the loan, all members are excluded from future access to credit. Therefore, the peer pressure to fulfil agreements is very strong.

17. There are several steps that the Government can take to improve the rural credit market. The first, which is already part of the policy agenda of the present government, is to encourage the development of both formal and informal credit markets by desisting from intervening with credit subsidies and directed credit. Second, providing marketable titles to land and improving the foreclosure process will also stimulate private activity in rural credit. However, the issue of rural financial markets is too complex to be addressed here and will be the subject of a future World Bank study.

^{2/} Since farmers know their riskiness better than the provider of insurance, farmers whose probability of loss is greater are more prone to buy the insurance; this is known as the adverse selection problem. Moreover, once the farmers have insurance, they no longer have adequate incentives to avoid risk. Since their actions cannot be observed, the insurance agreement cannot stipulate the practices and actions farmers are to take. This is referred to in the insurance literature as the moral hazard problem (Newbery and Stiglitz, 1981).

ANNEX 4: THE EFFECTS OF LAND TENURE

1. This chapter draws on the land tenure literature and the experience of other countries to explain the types of effects that may result in Venezuela from a change in property rights on land. Typically the results are positive in terms of income distribution and economic efficiency. The chapter will provide useful information on the effects of land tenure on various measures. The discussion will allow policy makers to anticipate the types of benefits likely to accrue when clear land holdings become more common in Venezuela and may help alleviate the concern that free land markets will result in the reconstitution of *latifundias*.

A. On Farm Size and Farm Output

2. The relationship between land tenure and farm size in Latin America is an indirect one that evolved through the *latifundio-minifundio* structure begun during colonial rule, and extended into the mid-Twentieth Century. Those with secure tenure were the few large landowners (*latifundistas*) who controlled almost all the country's productive farm land. The vast majority of farmers had access to only very small parcels of land, often less than or barely enough for subsistence.

3. Access was gained under several arrangements, none providing secure tenure. The most common was the granting of usufruct parcels on the *latifundio* estates, in exchange for which the farmer and family were obligated to provide agricultural and domestic service, under feudal conditions. Failure to satisfy the obligations could lead to dismissal from the *hacienda*. The feudal aspects of this system were the norm until the 1950s and 1960s.

4. Another tenure system was freeholding *minifundio*, where peasant farmers had managed to maintain small semi-subsistence farms around villages or in isolated mountainous regions. Both of these systems could be seen combined with renting or sharecropping on *latifundio* lands. Most of the land available to the small farmers was of marginal quality.

5. This system came under both internal and external pressure in the 1950s and 1960s throughout Latin America, for equity, efficiency and political stability reasons. The objectives of the Venezuelan agrarian reform were to break the *latifundio-minifundio* system, and to incorporate small farmers into the mainstream of the economy. As stated in the law's announcement, "The objective of this law is to transform the agrarian structure of the country and to incorporate the rural population into the national economic, social and political development, by means of substituting the *latifundia* system with a just system of property, tenure and exploitation of the land, based on the equitable distribution of land, the adequate organization of credit and integral technical assistance for producers so that land constitutes, for those who work it, the base of his economic stability, the foundation of his social well-being and the guarantee of his liberty and dignity" (Soto 1988, p. 83).

6. There is agreement among the free market technocrats and the *agraristas* in Venezuela, that the distribution of land under the Agrarian Reform resulted in farm sizes that are too small, and thus limit agricultural development. A leading *agrarista*, Oscar David Soto (1988), maintains that the process has not yet found a prototype productive unit that will allow the beneficiary to rationally use

the available resource, resulting in farmers that are too small, too isolated, and thus incapable of "adapting to modern scale economies and commercial production possibilities" (Soto 1988 P. 51). The response, however, is different depending on each side's point of view. The free market proponents emphasize the need for a market to determine the proper, presumably larger, farm size, while the *agraristas* prefer cooperative/collective organizations.

7. With respect to whether large farms or small farms are more "efficient," there are really two questions involved: (1) What is the engineering relationship of production per inputs actually used in the production process?; and (2) What is the degree of utilization of the available land resources and the related use of labor?^{3/} Distinction between these two questions helps to organize the information available.

8. With regard to the first issue, regional data from Latin America have shown that the returns to scale are approximately constant in developing country agriculture and, therefore, neutral with respect to the more general issue of farm size as related to output per unit area.^{4/} In fact, it is common to observe even large plantations repeating many-fold the operations carried out by the single farmer on a small family establishment, so that changes in efficiency with scale are not the norm in Latin America.

9. It is the second issue--that of utilization--that is perhaps the most important one. "In an agricultural structure composed of very large estates holding most of the land on the one hand, and a large number of small farms on the other, agricultural production tends to be below its maximum potential level because land is under-used on the large farms, while excess labor without opportunity for fully productive work is crowded onto the small farm sector."^{5/}

10. In Latin America, a number of studies have presented data supporting the conclusion that small farmers (characterized by intensive land use) are more productive than their larger counterparts (characterized by under-utilization of land).^{6/} Productivity is greater on small farms because of their intensity of resource use, even though large farms are characterized by higher-valued export crops and greater yields.^{7/} One recent paper provides a comprehensive economic analysis of this phenomena, integrating land with labor and capital markets and arrives at the same conclusion.^{8/}

3/ R. Albert Berry and William R. Cline, Agrarian Structure and Productivity in Developing Countries (1979), p. 5.

4/ Berry and Cline, *op.cit.* p. 5.

5/ Berry and Cline, *op.cit.* p. 7.

6/ See, for example, Hans P. Binswanger and Miranda Elgin, "What are the Prospects for Land Reform," (World Bank, Report No. IDP-21, Aug. 1988) p. 3; Berry and Cline, *op.cit.* p. 7; Tulio Barbosa and John Strasma, "Land Tenure and Productivity in Maranhao: Some Empirical Evidence," (Land Tenure Center) 1980; and William C. Thiesenhusen and Jolyne Melmed-Sanjak, "Brazil's Agrarian Structure: Changes from 1970 through 1980," World Development 18:393-415 (1990).

7/ Thiesenhusen and Melmed-Sanjak, *op. cit.* pp. 393-415.

8/ Michael R. Carter and Dina Mesbah, "Economic Theory of Land Markets and its Implications for the Land Access of the Rural Poor," Annex I p. 11, in Eric B. Shearer, Susana Lasterria-Cornhiel and Dina Mesbah, "The Reform of Rural (continued...)

11. Similar results have been recorded in Jamaica. There, the best land in the country is held in large estates and has been extensively farmed. Yet this land has had the lowest level of return per acre, despite having the physical and financial resources to produce more intensively. In contrast, small farmers, situated on hillsides, performing both land- and labor-intensive agriculture, have contributed a higher return per unit of land.^{9/} In a World Bank study on plot size and productivity, it was shown 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.^{10/}

12. While the factors that underlie the high yields per land unit on small farms come into play whenever a large farm is split into small ones, such productivity also depends on the operators.^{11/} The pay-off to expanding the land under small farms and increasing its productivity also depends on how long the country will have surplus labor at low opportunity cost. It is often asserted that "...large farmers are more dynamic in the adoption of technological innovations. The premises are that their superior education makes them more aware of technical advances, and that their greater margin for risk-taking and access to capital enables them to shift to new techniques sooner."^{12/} But this supposition has not received empirical support. Using data in Colombia, Pakistan and India, Berry and Cline (page 28) concluded that "The popular association of mechanization with more dynamic adoption of new techniques is generally erroneous. Large-farm adoption of mechanized techniques may just as well reflect the distortions of the factor price incentives facing them (cheaper capital, dearer labor) away from the social scarcity values of factors, as any technical superiority over small farms in the appropriate choice of modern techniques... Even though the larger farms are likely to be the first to adopt innovations, small farms are likely to follow -- and sometimes do so very soon."

13. Griffin (1989) sums up this literature, concluding that there is abundant evidence from all over the Third World that factor productivity tends to vary systematically with farm size. Three findings in particular seem well established:

- (a) output per worker tends to increase with farm size;
- (b) gross output per ha (or yield) tends to fall as the size of farm increases; and,
- (c) value added (or net income) per ha also tends to fall as the size of farm rises.

The agronomic reasons for this are by now clear. First, small farmers use more labor-intensive methods of cultivation for any given crop. They devote more time and are more careful in land

9/ (...continued)

Land Markets in Latin America and the Caribbean: Research, Theory, and Policy Implications," LTC Paper No. 141 (June 1990).

10/ Randy Stringer, John Bruce and David Stanfield, "Reform among the Smallholders: St. Lucia, Jamaica, and Implications for the Caribbean," in William Thiesenhusen, Searching for Agrarian Reform in Latin America (1988).

11/ Agrarian Reforms in Developing Rural Economies Characterized by Interlinked Credit and Tenancy Market," World Bank Staff Working Paper, No. 433 (Oct. 1980).

12/ Berry and Cline, *op.cit.*, p. 3.

12/ Berry and Cline, *op.cit.*, p. 27.

preparation, weeding and harvesting. Large farmers, in contrast, use more capital-intensive methods of cultivation, substituting agricultural chemicals and machinery for labor. A partial exception is fertilizer. In many countries, particularly in Asia, the intensity of fertilizer use is invariant with respect to size of landholdings and some cases have been found in which small farmers actually apply more fertilizer per ha than large.

14. Using cross country national macro-level data, Prosterman and Riedinger (1987) arrive at similar conclusions. Their research showed that only the system of small owner-operator farming has consistently demonstrated an ability to achieve high productivity. Among 117 countries, eleven of the top fourteen countries in terms of productivity are countries in which the system of small owner-operators is dominant. Of the remaining three, two (Great Britain and New Zealand) have a system of larger single-family owner-operated farms; and the third (North Korea) has a collective system. When one adds characterizations based on models of the nonowners' perception of his enforceable legal rights, it becomes overwhelmingly evident that not just formal sharecroppers but all non-owners, to the extent that they have responsibility for investment decisions, will undertake far less in the way of agricultural improvements than owner-cultivators (Prosterman and Riedinger 1987).

15. Owner-cultivators, when they make improvements, can expect to reap the full profit from those improvements. They can internalize all the benefits of their investment. Moreover, capital improvements that generally have the greatest effect in increasing productivity, such as water management and irrigation, require a multi-year presence on the land for the investment to be recouped. Tenants often lack any reasonable assurance of such a multi-year association with that piece of land. What is even worse, the very making of productivity-enhancing improvements by a tenant may initiate a process in which the landlord takes back the improved land for self-cultivation or for cultivation by a more favored person, or charges the tenant a higher rent for the improved land. Perceiving these various risks, the tenant is overwhelmingly likely to decide not to invest in most of the improvements that an owner-operator would make (Prosterman and Riedinger, 1987).

16. Making titles freely transferable means that agglomeration of landholdings would be possible. But given that there is not an automatic economic benefit via efficiency for agglomeration of landholdings beyond a certain size, this is unlikely to occur. Granting freehold interests allows the market to determine ownership and size. Property will flow to its most productive use. As we have seen, large estates are not more productive than the small estates. Thus, it is unlikely that property will be consolidated by the largeholders, even though the Venezuelan government would be allowing such a possibility to exist legally.^{13/} There would be consolidation of suboptimal sized units, so that peasant farmers could emerge to become small commercial farmers. This would be a desirable outcome.

17. The conclusion that agglomeration of landholdings is unlikely depends, however, on the assumption that the market is functioning properly. This may not be the case. Smallholders in Venezuela may have less access to capital. If this is true, then consolidation biased in favor of large creditworthy landholders may occur.

^{13/} Ecuador is moving away from the latifundio via the market mechanism. Carlos Camacho, *Evaluación del Proceso de Cambio en la Tenencia de la Tierra en la Sierra Norte y Central (1964-1991)* (Quito, 1991).

18. To summarize, large landholdings are not necessarily more efficient than small landholdings. Granting freehold interest to all landholders would allow the market to decide optimal farm size. If the market is functioning properly, it is unlikely that concentration of landholdings would occur to an extent that would exclude ownership by a large share of the rural population. What will happen is that resources will flow to their most productive use, whether that be large, medium or small farms.

B. On Product Mix

19. Owner-operated and partly-rented holdings tend to be predominantly food producing and show a greater degree of diversification of production among food crops. Griffin (1989) concludes that small farmers tend to choose relatively more labor-intensive crops, such as vegetables, whereas large farmers devote a higher proportion of their land to activities which require relatively less labor such as grazing livestock. Small farmers also cultivate a higher proportion of their land, whereas one finds that on large farms a higher proportion is left idle, or fallow, is used for pasture, or is forest. Finally, the cropping ratio tends to be higher on small farms. That is, because of greater use of multiple cropping techniques, small farmers obtain more harvests per year than large farmers. In Venezuela, Hernandez and Prato (1986) found the same tendency among agrarian reform beneficiaries. Horticulture crops, potatoes and dairy displaced wheat and sugar cane when land is subdivided.

20. For those farmers without secure tenure -- whether or not they hold formal title, are squatters or are renters -- production is often based on crops with short production cycles. Vegetables will be planted rather than tree-crops, and chickens and pigs will be raised rather than cattle. Further, any input with carryover benefits to the next season or production cycle, such as some fertilizers and many cultural practices, will be used sub-optimally as the farmer fears that he will not be able to capture all the benefits. It is only when tenure is secure that farmers are free to select from the entire range of alternatives and have a planning horizon that extends beyond one crop or one rental contract. In Venezuela, agrarian reform beneficiaries have tenure security though they do not have freehold title. Yet their production alternatives are limited to those crops dictated under the agrarian reform legislation. Likewise, many other smallholders without clear title do not have that security and this is reflected in the type of production that they undertake. A policy of regularizing titles, providing freehold interests, and lifting cropping restrictions would allow individual operators freedom to select that set of products which is optimum for their circumstances.

C. On Rural Employment

21. Rural employment opportunities, the lack of them and the need for them, is one of the most basic and intractable development and social problem in developing countries. Much of the rural-urban migration and the attendant problems are the result of a severe lack of rural opportunity. In Venezuela, as in most countries, despite massive migration, the rural population continues to grow (Rojas de lo Porto 1985) and look for rural employment opportunities.

22. The effect of agrarian structure and tenure on absorption of the rural population have periodically been recognized, but generally have not been a basis for development policy. An early recognition of the broader social and employment role of agriculture was by Wynn Owen (1966). He used the term "farm financed social welfare" to describe the role that family farms played in

providing employment, housing, food and education, which would not be available had people left the farm. The key point in his argument was that the family farm provided this social safety net and provided it to a larger population, while other forms of agriculture do not.

23. On the other hand, large farms in Latin America, both the traditional *hacienda* and modern farms, never have been known for their labor absorption. Barraclough and Domike (1966) found that while *latifundios* were on average 400 times larger than *minifundios*, they employed only 15 times as many workers. In Colombia and Guatemala, for example, sub-family and family farms had 30% and 28% of the agricultural land, respectively, but 89% and 81% of the agricultural work force. The labor absorption per ha on small private farms and individually operated *ejidos* was 175% and 72% greater, respectively, than on large private farms in Mexico (World Bank 1978).

24. The reason for this phenomenon is straightforward. Pressures for the adoption of labor-saving farm technology in Latin America are similar to those in industry. Accordingly, the trend on large farms in Latin America is toward use of less and less labor per unit of output. Some countries inadvertently follow policies which encourage this effect. Overvalued exchange rates and credit subsidies enable those who mechanize to obtain imported farm machinery at reduced cost. Mechanization is primarily labor displacing and usually does not elevate production as much as equivalent expenditures on yield increasing inputs such as fertilizers, hybrid seeds, and insecticides. (Thiesenhusen 1971).

25. Venezuela's small farms were, and still are, in greater need for social and physical infrastructural investment of all types than are other farm types, because of their origin. First, if the reform farms were created from expropriated or purchased *latifundios*, by definition they would have been severely deficient in modern investment, management, and perhaps land quality. Eckstein states that these farms were undercapitalized in the early years of the agrarian reform (World Bank 1978). Second, after the first few years, most of the reform units were created from public lands. Again, by definition these were on the frontiers and without any modern infrastructure, and probably of much lower quality. Investment was not made in these lands, nor the beneficiaries, to allow them to reach productive potential. On the contrary, the public effort was reduced at the time when most reformed parcels were coming from public lands (Soto 1988). So, the need was greater, the cost was greater, but the amount available was much less. Soto (1988) also identifies a lack of marketing infrastructure and linkages as severe bottlenecks to the reformed sector contributing to the productive process.

D. On Natural Resource Management

26. Land tenure policies are relevant to resource management in a number of ways. Without well-defined property boundaries nature reserves and parks cannot protect themselves from encroachment by squatters and land invaders. In Venezuela, the lack of a national cadastre makes clear determination of such boundaries difficult. In addition, the many properties that are not titled further complicate the determination of tenure, let alone boundaries. While studies show that people who have been farmers (including cattle ranchers practicing extensive grazing) consider the creation of national park boundaries as limiting their rights to use these lands, property delineations proved helpful "...for the planning of development projects which affect the land, such as soil and water conservation, watershed management programs, technological transfer oriented toward particular crops, as well as programs oriented to the solution of problems of extreme poverty due to

fragmentation of land."^{14/} Titling around reserves, combined with access by farmers to affordable intensification technologies, helps stabilize land use in surrounding areas.^{15/} Similar results will result as Venezuela becomes increasingly involved in property formalization.

27. Peasants often invade reserves because of the lack of a land market where they could purchase or rent land. Titling of property allows the landless to purchase land in titled areas, diminishing the need for invasion of reserves. In Venezuela's case, land invasions of reserves is occurring but do not seem chronic. People sometimes invade forest reserve areas to access resources such as timber. When residents of a forest reserve and a game reserve were compared in Uganda, the two groups had differing expectations of their tenure rights and behaved accordingly.^{16/} 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, extractive practice. The difference between the groups was security of ownership.

28. Titling of property surrounding the reserve may promote investment in renewable resources in these 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.^{17/} Thus, titling would have the added benefit of assisting Venezuela to manage and protect its natural resources and forest reserves.

29. Land-titling also provides incentives to individual landowners to engage in environmentally and agriculturally sound (sustainable) practices. Further, people who have security in their land tenure may depend less on reserves, and may be more willing to plant trees and other long-term crops.^{18/} Conversely, if landowners lose secure title, they lose an incentive to plant trees. In Venezuela, on land where landholders have insecure or no title, only annual crops and livestock are raised. On agrarian reform land, although not fully titled, owners are secure and therefore cultivate tree crops. This casual-empirical finding is in agreement with a study in Amazona which found that "the lack of secure title and the precarious *de facto* hold over land mean that reinvestment in erosion control, fertilizer, and irrigation are... both costly and irrational."^{19/}

^{14/} David Stanfield, Edgar Nesman, Mitchell Seligson and Alexander Coles, "The Honduras Land Titling and Registration Experience," (LTC paper, 1990) p. 11.

^{15/} See, for example, Stonich's observations based on data in Honduras, in William C. Thiesenhusen, "Implications of the Rural Land Tenure System for the Environmental Debate: Three Scenarios," to be published in *J. Developing Areas* (1991).

^{16/} John Aluma, Christine Drennon, John Kigula, Steven W. Lawry, E.S.K. Muwanga-Zake and John Were, "Settlement in Forest Reserves, Game Reserves and National Parks in Uganda," (LTC Research Paper 98) (1989).

^{17/} World Bank and the Government of Madagascar, *Environmental Action Plan* (Washington DC, 1989).

^{18/} John W. Bruce and Louise Fortmann, *Agroforestry: Proprietary Dimensions* (San Francisco, 1989). For the African case regarding forestry, fuelwood and resource conservation projects, see John W. Bruce, *Land Tenure Issues in Project Design and Strategies for Agricultural Development in Sub-Sahara Africa* (Madison, 1985) p. xix.

^{19/} Noted by William Thiesenhusen, citing Schminck and Wook, "'Political Ecology' of Amazona," p. 41.

30. Freely-transferable titles in Venezuela would provide property buyers with access to land. Lack of access to quality land may increase environmental degradation.^{20/} One report concluded that:

"Examining the relation of unequal resource distribution to the environment involves a recognition that groups of users place differential demands on resources; the poor have a proximate, direct effect on them, while the impact of those who own ample land and water is indirect but just as decisive in determining resource destruction. If the environmental problem is 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. 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."^{21/}

31. In summary, the evidence from other countries indicates that Venezuela could improve its environmental management of its natural resources by (i) establishing a national cadastre, (ii) providing formal title to landholders, and (iii) making all titles transferable.

^{20/} William C. Thiesenhusen, "Implications of the Rural Land Tenure System for the Environmental Debate: Three Scenarios," *J. of Developing Areas* (accepted for publication, 1991).

^{21/} William C. Thiesenhusen, "Have Agricultural Economists Neglected Poverty Issues?" (Lecture at the Annual Meetings of the Pakistan Society of Development Economists, Islamabad, 5-11 Jan., 1991) p. 19.

ANNEX 5: A STRATEGY TO IMPROVE CADASTRAL INFORMATION AND CREATE A VIABLE UP-TO-DATE CADASTRE IN VENEZUELA ^{22/}

1. The present cadastre is out of date and parts of the cadastre, such as IAN, operate as autonomous institutions without clearly defined or uniform policies. Although IAN is responsible for the provision of titles on *tierras baldías*, no systematic survey of all land has been carried out in Venezuela. Areas nominally known to be *tierras baldías* are identified, but all areas are not systematically surveyed to determine the origins of titles. This non-systematic approach has created a suspect cadastral base and over the long term, could limit attempts to create a viable, up-to-date cadastre in Venezuela.

2. Approximately 64% of the titles provide by IAN over the past thirty-one years are considered insecure and cannot be converted into definitive titles. These statistics reflect the present delicate cadastre situation in Venezuela. However, a strong program of land tenure regularization based on a sound technical foundation would create conditions for the government to extend the benefits of secure land ownership to a large number of small farmers and improve the government's ability to administer land resources.

3. The cadastral component of the project would establish a strong land administration with unified policies, legislation and procedures. In this regard, the project would: (a) develop uniform standards which would ensure the integration of project activities within the content of national land administration; (b) introduce sound, cost-effective management principles; (c) improve inter-agency collaboration; (d) expand the use of appropriate technical packages to create a technically sound cadastral data base; (e) finance intensive staff training; and (f) improve the quality and efficiency of contract procurement and contract awards.

4. The land adjudication process would be systematically applied to all parcels within municipalities and target districts to ensure maximum publicity, make the best use of local inhabitant knowledge and resources, and minimize unit costs. The review of all deeds recorded in the land registry would be followed by in-the-field aerial photogrammetry (orthophoto maps). The participation of property rightholders would be compulsory. Concrete monuments would be located and accurate geodetic positioning of these monuments would be determined by Global Positioning Systems (GPS) thus tying all property boundaries into the national geodetic and facilitating the identification of property boundaries in the future. The monumentation costs would be covered by the project with one corner monument identifying the corner of three or four contingent parcels. Additional monument location and placement would be at the parcel owners' cost. To the extent possible, land adjudication would be carried out in the field under the direction of a land adjudication team composed of a chief of party, an attorney, a land surveyor and an agronomist. The location of most land boundaries would be resolved between adjacent property owners in the field using the

^{22/} This annex was prepared by John McKenna, LATAG, World Bank, for the Interamerican Development Bank. It has been edited for inclusion here.

orthophoto maps; the land adjudication team would then survey the property boundaries and implant concrete property boundary monuments. The surveyed line would be then drawn on the orthophoto map as surveyed in the field and agreed among all adjacent property owners. Any disputes arising from the land adjudication process would be initially resolved by the administration officials.

6. All information generated by the land adjudication process would be entered into a computerized cadastral data bank system which would provide the government with a comprehensive, permanent and maintainable land administration tool with multiple legal, financial and development functions. It would ensure the publicity of land ownership and land transactions (i.e., sales and land transfers) that provide the legal basis for the titles produced. Details of the project features follow.

Aerial Photography

7. Aerial photography operations would cover some 17.0 million hectares to address project needs. Some 14.0 million hectares would be flown at a scale of 1:75,000 and the remaining 3.0 million hectares, located in areas of denser land settlement and smaller parcel size, would be photographed at a scale of 1:20,000. The basic photographic outputs would be negatives, diapositives and contact prints.

8. Ground control, aerial triangulation and mapping activities leading to the production of orthophoto maps at 1:25,000 scale for the majority of the project area and at 1:5,000 scale for areas of small land holdings would cover all photographed areas. All ground control points against which the photographs and subsequent field operations would be referenced would be pre-signalized for ease of identification of control points in subsequent aerial triangulation work. Ground control operations would be carried out using either conventional geodetic methods, airborne inertial positioning systems, Doppler Transit Satellite system or through GPS methods. Aerial triangulation would be carried out using automatic coordinate recording devices and bundle block adjustment software programs.

Cadastre Implementation and Titling

10. All geographic and literal information obtained through the preceding stages would be digitized for computerized storage, retrieval, processing and eventual production of title documents for rural properties. The computerized cadastral data base should incorporate a structured query language (SQL) to facilitate access and retrieval of data. About 30% of these titles would be recognition documents for valid titles issued by past administrations. Data obtained through the establishment of the cadastre would be regularly updated, and data pertaining to the public domain would be made available through a fee charge to all public and private users.

ANNEX 6: SUCCESSFUL SMALL FARMER SCHEMES IN EL SALVADOR AND DOMINICAN REPUBLIC ^{23/}

1. Many agricultural credit programs in Latin America founder, in part because interest rates are too low to cover operating costs and the true cost of obtaining loanable funds.^{24/} However, the biggest cost component is usually losses for uncollectible loans. The delinquency rate is often more than 20% and may reach 50% or more. It is not possible to cover such a loss rate with the interest rate charged to borrowers who do repay.

2. Various governments in Central America and the Caribbean are now considering the feasibility of creating financing facilities to enable the landless and small farmers to buy parcels of farm land in the market. Like agricultural production credit, if a Land Bank is to be viable and replicable, borrowers must repay debts. Given decades of traditional governmental tolerance of non-payment of production debt and of land debts under land reform programs, it will not be easy to persuade borrowers that the "rules" have changed.

3. Nonetheless, it is possible to eliminate delinquency as a major part of operating costs of credit programs and this annex describes two programs, one public and one private, in which lenders actually obtain 100% collection of loans at low costs. The first uses long-term leases with an option to buy, as a method of land purchase finance. The second uses a novel, temporary, peer intervention as the method of collecting production credit without the costs of foreclosure.

Land Sales in El Salvador

4. The record of *campesino* payment of land debts in El Salvador is very poor. Before the 1980 land reforms, the Banco de Fomento Agropecuario had financed the transfer of about a dozen farms to cooperatives; the Bank paid the former owner, and then the cooperative failed to repay the Bank. The state-owned Bank was unable to evict the cooperative, and the loans were just rolled over year after year.

5. Meanwhile a commercial real estate broker has developed a successful program that could be adapted to rural land. The broker divides suburban lands into house lots, which he sells on long-term leases with an option to buy, by merely making the last payment on time. The advantage of this method is that in El Salvador it is easy to evict someone for non-payment of rent, whereas foreclosure of a mortgage is a long and difficult process.

6. Knowing that he will be evicted promptly if he fails to make a payment, the land buyer makes the necessary effort to keep up to date. The broker has one resident employee at each subdivision who collects payments and counsels the delinquent to sell their rights to someone else,

^{23/} This section is taken from "Making Land Banks Viable, Two Successful Approaches to Collecting Loans Made to Small Farmers in Latin America," by John Strasma, Proceedings of IAAE, Tokyo, 1991.

^{24/} The classic critique of "soft" agricultural lending programs in Latin America is by Dale W. Adams and Douglas H. Graham, *Undermining Rural Development with Cheap Credit*. Colorado: Westview Press, 1984.

rather than be evicted. The new buyer simply assumes the remainder of the debt; the former buyer gets back whatever part of his investment he can persuade the new buyer to pay him.

7. According to the broker, delinquency has never exceeded 8% of amounts due, and that occurs at Christmas time, when it is the broker's policy to tolerate one overdue payment where the employee believes the hard luck story told by the buyer. However, by the time the second payment is overdue, the buyer/tenant must pay or move out. Almost all pay.

8. Most of this broker's business is in ten suburban subdivisions, which are sold as house and garden lots rather than for farming. Based on experience, he strongly prefers to sell to *campesinos* and not to the urban middle and professional class. The *campesinos* are honest and live on their lots so the broker's employee can find them easily when payment is overdue.

9. When an urban professional buys a lot for a weekend pleasure retreat and gets behind on payments, he has to be pursued by telephone or with a trip to the city. He hides behind a secretary or tells you "the check is in the mail," raising the cost of collection and eviction. And at times the broker himself must deal with politically influential debtors, whereas his field agent can deal with the *campesinos* or urban poor who buy most of his lots.

10. The broker's principal difficulty is finding landowners willing to sell on his model, under which the seller agrees to accept payment at the rate (typically, eight years) at which the buyer pays. However, his model appears to be 100% successful in dealing with loan delinquency. And unlike the land reform, there is no doubt about when and how the buyer gets clear registered an negotiable title to the land: just make the last payment. The program demonstrates that full recovery of debts is possible if one sets up an effective mechanism that evicts the debtor at low cost in the event of non-payment.

Agricultural Production Credit in the Dominican Republic

11. The Agricultural Bank (BAGRICOLA) of the Dominican Republic, part of the public sector, has been no more successful at collecting loans made than have most similar institutions elsewhere. However, their loans to rice grower cooperatives achieve virtually 100% repayments due to the invention of temporary peer intervention in place of traditional collection methods.

12. The Bank makes one loan, wholesale, to each Cooperative. These are made up of land reform beneficiaries who now farm individual parcels, but use the Cooperatives to solve problems of input supplies, land preparation, and access to credit. The Cooperative then onlends to each member.

13. All members of each Cooperative accept liability for the production credit debts of all other members. Members agree in advance that when a member is delinquent in repayment, the group may seize his parcel immediately, without legal proceedings. The parcel is then farmed by the cooperative itself or is rented out to a member who can handle more land. With the cash thus obtained, the cooperative reimburses itself for the loan repayment it made on behalf of the delinquent borrower.

14. This model is now five years old, and according to the Bank and to Cooperative leaders interviewed, it is working perfectly. The president of one of these cooperatives was unable to repay

all of their own production debts in 1990. At a cooperative meeting he acknowledged that he was aware of the rules and that in order to make it clear that the rules apply to all, he was leaving his parcels for six months so that the cooperative could rent out the parcels and pay off the debts due.

15. For success, of course, it is essential that the amount of debt due not exceed the rental value of the parcel. This is attainable when the debt is production credit, with the loan being a fraction of the value of this harvest expected. It might not be possible when the debt includes principal and interest on a land debt.

16. These two programs show that it is possible to achieve 100% recovery of debts from *campesinos* if one insists on it, and sets up a mechanism that evicts the debtor at low cost in the event of non-payment.

17. Success also means that governments and lenders must abandon any paternalistic attitude that assumes that *campesino* land buyers must be kept on the land even if they do not make enough money farming to meet their debt service. On the contrary, those who suffer personal misfortunes or are not successful farmers for whatever other reason, must be allowed to transfer their land to another *campesino* and move on.

18. This often means repealing present laws or rules that forbid a *campesino* from selling his assigned parcel to someone else. The essence of the success of the two programs described is that they have both succeeded in evading these rules. The program in El Salvador is set up as a lease, not a sale, but upon making the final agreed-upon payment, the lessor gets the parcel with a full freehold title, duly registered in his or her name. And the lessor/buyer just assumes the balance of the debt due.

19. In the Dominican Republic, the program works because the land reform agency and the government bank look the other way. Despite laws prohibiting rents and the transfer of land reform parcels, the debtor's friends and neighbors foreclose, temporarily, on the delinquent borrower and rent his parcel out for cash with which to pay off his overdue debt. Thus the *campesinos* themselves overcome one of the problems associated with inalienable land titles to *campesinos*.

*Annex 7: Gini Index Values for Concentration of Land Ownership
in 54 Countries in Various Years ^{a/}*

A. NUMBER OF COUNTRIES IN RANGE			
Range of Index Values	Latin American Countries	Other Non-industrial ^{b/}	Industrial Countries ^{c/}
.80 and over	12	3	3
.70 to .79	5	4	4
.60 to .69	0	7	4
.50 to .59	0	4	3
.40 to .50	0	3	3
Total	17	21	17

B. GINI VALUES FOR SELECTED LATIN AMERICAN COUNTRIES			
Bolivia	.94	Brazil	.84
Venezuela	.89	El Salvador	.83
Peru	.88	Uruguay	.82
Guatemala	.86	Dominican Republic	.79
Ecuador	.86	Honduras	.76
Colombia	.86	Nicaragua	.76
Argentina	.86	Panamá	.74
Mexico	.69		

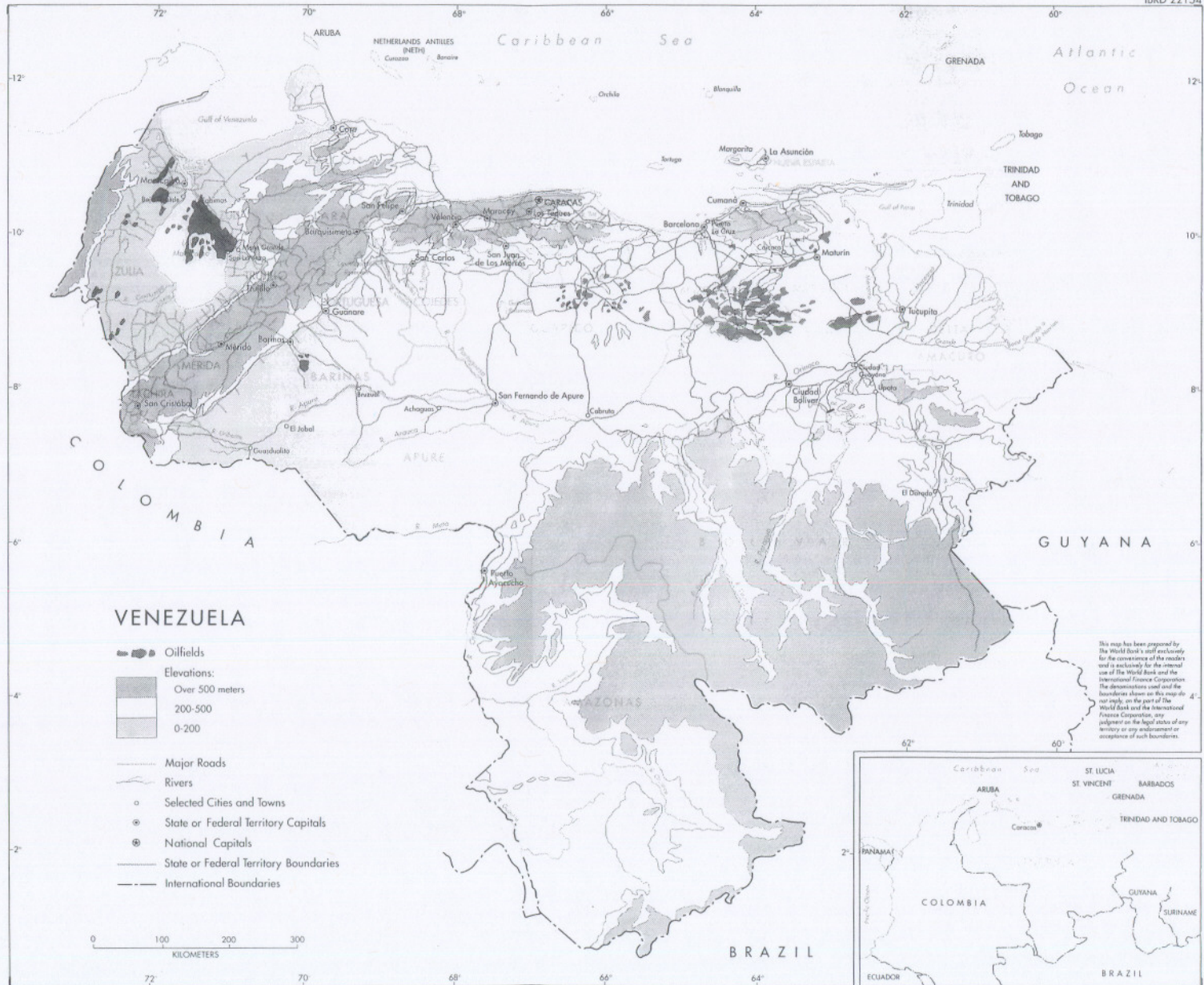
^{a/} Years when data were available, usually the 1960s. For three countries, index values prior to and after land reform were available. Pre- and post-reform values were, respectively: Mexico 0.96-0.69; Egypt 0.81-0.67; Taiwan 0.65-0.46.

^{b/} Countries from Asia, North Africa, Southern Europe, plus Jamaica.

^{c/} Industrial countries are defined as those having less than 30 percent of their labor force employed in agriculture.

Source: Samuel P. Huntington, *Political Order in Changing Societies* (New Haven, Conn.: Yale University Press, 1968)

Table 6.2, p. 382.



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