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# Paraguay Real Property Tax Key to Fiscal Decentralization and Better Land Use

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## **ACRONYMS AND ABBREVIATIONS**

BNF	Banco Nacional de Fomento (National Development Bank)
CONEAT	National Commission for Land Agro-economic Studies (in Uruguay)
COPLANEA	Comunidad y Planeamiento (Community and Planning Consulting Firm)
FAO	Food and Agricultural Organization
GDP	Gross Domestic Product
GPS	Geophysical Positioning System
IBR	Instituto de Bienestar Rural (Institute for Rural Welfare)
IMAGRO	Impuesto a las Actividades Agropecuarias (Agricultural Income Tax)
INDERT	Instituto Nacional de Desarrollo Rural y de la Tierra (Rural Development and Land Administration Agency)
JICA	Japan International Cooperation Agency
MAG	Ministerio de Agricultura y Ganadería (Ministry of Agriculture and Livestock)
MDG	Millennium Development Goals
MH	Ministry of Hacienda (Ministry of Finance)
OECD	Organization for Economic Co-operation and Development
PIB	Producto Interno Bruto (Gross Domestic Product)
SNC	Servicio Nacional de Catastro (National Cadaster Service)
UNA	Universidad Nacional de Asunción (National University of Asunción)
USAID	United States Agency for International Development
VAT	Value Added Tax
ZF	Zonas Físicas (Physical Zones)
ZHE	Zonas Homogéneas Económicas (Homogeneous Economic Zones)

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## Preface

This report was presented to the Ministry of Hacienda (Finance) in March 2007 in a technical meeting that included representatives from the National Cadastre Service, the Rural Development and Land Administration Agency (INDERT), the Ministry of Agriculture and representatives from the Vice President's Office, which deals with rural land issues.

The report was subsequently presented to the Paraguayan Organization of Inter-municipal Cooperation (OPACI), which acts as forum for the mayors of the approximately 220 municipalities of Paraguay. The report was also presented to the international donors who participate in the local working group on decentralization. At the same time, the local press ran a series of articles on the main messages of the report during the second half of March.

The report is currently being printed in Spanish for wider dissemination in Paraguay to other audiences with interest in the local property tax, such as the Council of Governors, rural organizations including small farmers and those in the modern agricultural sector, and economic research groups. It will also be available on the internet page of the Bank for Paraguay, [www.bancomundial.org.py](http://www.bancomundial.org.py).

It is worth noting the following in response to various points raised in the above discussions. Although the data on land distribution comes from the 1991 census, the most recent census for the entire country (table 1.1), the pattern of land ownership in the Eastern Region does not appear to have changed significantly between 1991 and 2002 (see Table 3.1).

The increment in land value assessments for 2007 (10 percent) followed the same pattern as during the past 15 years, namely no change in real terms, given inflation of 12.5 percent in the preceding year, 2006.

The report's estimates of rural land prices in the Department of Caaguazú, the subject of Chapter 2, were calculated in June of 2006 at an exchange rate of G6,000 per US\$. These values may well be underestimated in view of the recent appreciation of the Guaraní to about G5,000 in March 2007.



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## Executive Summary

- i. This study has at its origin the land question in Paraguay, namely that land ownership is highly concentrated and has become a source of social conflict in the rural areas where one-half of the population lives. A central thesis of the study is that the existing patterns of land use and ownership, in particular, the very large land holdings (*latifundio*), are a reflection in part of the almost insignificant land tax that is charged today on rural properties. Although the property (land) tax is governed by national legislation, it is collected by the municipalities, which are constitutionally autonomous from the central government. The study thus examines municipal finances in Paraguay and estimates the revenue potential of a revised property tax. The study also reviews the economic rationale for effective land taxation and the international experience in this regard. Finally, it suggests improvements in municipal financial administration that are needed in general and, in particular, to administer a revamped and more effective land tax.
- ii. Paraguay has one of the most skewed patterns of land ownership in the world -- 2 percent of the agricultural establishments (about 6,400 farms) occupy 82 percent of the agriculturally exploited land (namely, 20 million of the 24 million hectares in agricultural use, or one-half of Paraguay's total area of 40 million hectares). During the second half of the 20<sup>th</sup> century, a program of "agrarian reform" contributed to these skewed patterns of land ownership. It distributed about 12 million hectares of land, but 74 percent of it went to only 2.5 percent of the beneficiaries. The agrarian reform nevertheless also benefited landless rural poor -- about 160,000 families were settled on 3 million hectares, but very few of these have title to their land.
- iii. The existing property tax (*impuesto inmobiliario*, Ley 125/91) covers all urban and rural land and levies a basic rate of one percent on the fiscal value of property. The existing legislation incorporates many desirable characteristics from an international comparison point of view, but nevertheless suffers from a few key shortcomings, namely that the fiscal values used for assessment are only a small fraction of market values -- the study estimates 2 percent for rural land -- and that the tax law stipulates that fiscal values cannot increase by more than inflation, thus locking in a permanent situation of undervaluation. Fiscal values have actually declined in real terms since 1993. Also, the nominal adjustments have not taken account of land market price developments in different regions, leading to wide disparities in the relation of fiscal values to market values across Paraguay.
- iv. Despite low fiscal values, one-quarter of municipal government revenue is derived from the property tax. However, municipal budgets are relatively small in Paraguay (about 1.5 percent of GDP), and the property tax amounts to only 0.4 percent of GDP (as opposed to 0.8 percent for Latin American countries and 1.9 percent for OECD countries). Furthermore, the great majority of actual property tax collections (about 90 percent) originates from the urban areas. In rural areas, the cost of collection often outweighs the revenue, and it is customary that rural property taxes are paid mainly when

property is sold or mortgaged, at which point several years of back taxes may be negotiated or forgiven.

v. An important trend in municipal finances is the rapidly growing stream of royalties since 2000, when the central government began to share the royalties it receives from the Itaipú and Yacyretá hydroelectric dams with the municipalities. By law, the municipalities should eventually receive 40 percent of total royalties which, at current levels, would be equivalent to 1.6 percent of GDP -- more than their entire budgets at this time. At present, municipalities receive only about 5 percent of total royalties, but are positioned to receive a significant increasing flow of resources in the near future. This situation poses a moral hazard that the municipalities may relax their own “genuine” revenue collection efforts, in particular the property tax. It also requires an urgent improvement in their financial management capacity, which is rudimentary.

vi. Paraguay has a relatively well balanced overall tax structure, following major reforms in 1991 and 2004. The structure is neutral with regard to taxing different sources of income and consumption -- company profits, personal income, agricultural income and value added are all taxed at a uniform rate of 10 percent. Customs tariffs are governed by the common external tariff of Mercosur, and excise taxes are low by regional standards. The main lacuna in the overall tax structure is the local property tax, which yields insignificant amounts of revenue due to the low fiscal values used for assessment.

vii. Central government tax revenues amount to 13 percent of GDP. Non-tax revenues, mostly royalties, bring total resources up to 18 percent of GDP. In contrast, the municipalities have total resources of about 1.5 percent of GDP, or about 8 percent of total (central plus local) revenue.

viii. Chapter 2 presents the findings of a detailed study of land market values in the Department of Caaguazú, which is centrally located in the Eastern region of Paraguay and contains most of the predominant types of land uses in this region – some remaining forests, multiple smallholder settlements, extensive cattle ranching and soybean farming.

ix. Based on a representative sample of 455 properties, the study estimates the average value of land in Caaguazú at US\$1,100 per hectare. Land values range from an average of US\$360 in the district of Carayao to an average of US\$1,969 in the soy farming district of José Eulogio Estigarribia. This wide variation in market values stands in sharp contrast to the low level and very narrow range of fiscal values applicable to the 20 districts in Caaguazú, which range from US\$17 to US\$29 per hectare. Despite annual increases in nominal terms, these fiscal values have remained exactly the same in relative terms since 1992 (i.e., in a ratio of 17:29) and do not reflect the considerable changes in market values that occurred during the past decade.

x. As a result, some of the districts with the highest market values (Mariscal López, for example, at US\$1,642 per hectare) are still assessed with the lowest fiscal value (US\$17 per hectare). The average market value of land in Mariscal Lopez is thus 99 times the fiscal value. In San José de los Arroyos, on the other hand, market values are

only 13 times the fiscal value. **On average, the market value of land in Caaguazú (US\$1,100) is estimated to be 54 times the average fiscal value of US\$20.** Conversely, the average fiscal value is only 1.8 percent of the average market value.

xi. Aside from very low fiscal values, the actual collection of rural property taxes in Caaguazú is far below potential. It is estimated that Caaguazú as a whole collects only 35 percent of the taxes actually due on rural properties. Improving local tax administration and collection alone could triple actual rural property tax revenues, from Guaraníes 375 million to Guaraníes 1,049 million. Changing the tax base from fiscal values to full market values has the potential to increase rural property tax revenues in Caaguazú by a factor of 63, to Guaraníes 66,396 million (about US\$11 million), assuming full collection.

xii. Beneficiaries of the agrarian reform occupy an estimated one-quarter of the land in Caaguazú, but most are not yet subject to property taxes due to a lack of title to their lands. If their lands were properly titled and subject to tax at the estimated market value, the potential additional tax from these properties is estimated at Guaraníes 18,121 million per annum (about US\$3 million). In addition to the economic incentives for investment that land titles would provide to landowners, there is a strong cost-benefit case for providing immediate free titles to the beneficiaries of agrarian reform so that they will start paying property taxes as soon as possible after the statutory five-year grace period.

xiii. Using indicative market values for rural land for the other Departments of Paraguay, the total tax potential from the property tax on rural land is conservatively estimated at US\$103 million per annum, equivalent to about 1.1 percent of GDP. This compares with actual property tax collections on rural land estimated at only 0.04 percent of GDP.<sup>1</sup> The difference between these two estimates represents the opportunity cost of maintaining the existing property tax regime. It also represents the potential for increasing local expenditures and achieving a sustainable fiscal decentralization that is financed with own-source “genuine” tax revenues.

xiv. Chapter 3 reviews the academic arguments for land taxation which suggest that land taxation increases the intensification of agricultural land use and leads to some reduction in land concentration. While the Latin American experiences with land taxation have not yet demonstrated significant land use changes, this appears to be due to the region’s weak property tax administration, below-market-value assessments, low tax rates, and low collection rates.

xv. An assessment of land use in Paraguay suggests that there is widespread underutilization of land. This conclusion is reached indirectly through observation of high land concentration in an economy in which the productivity of small farms has been shown to be higher than large farms (when controlled for access to capital), the high percentage of land devoted to extensive cattle ranching (55 percent of land in the Eastern

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<sup>1</sup> Total property taxes in Paraguay are 0.4 percent of GDP, of which 0.2 percent is Asuncion and 0.2 percent from all the municipalities of the interior. Property taxes in the interior are mostly derived from urban properties, with taxes on rural land estimated at only 20 percent of total, or 0.04 percent of GDP.

Region and most of the Chaco), data on the returns to cattle ranching versus high-yield soy production, the abundance of agricultural labor, and the absence of significant tax revenues from rural land which permits underutilized land to be held without cost. In this context of widespread underutilization of land, a significant tax on rural land would likely intensify land utilization and reduce speculative landholding.

xvi. Chapter 3 also examines whether a land tax would induce market transfers from larger to smaller farms and concludes that a realistically designed land tax should induce landholders to increase the intensity of land use (e.g., improve pastures, adopt rotation of herds) in order to increase returns per hectare, or to reduce their investment in land holdings through sale or rental of excess land. This should increase the supply of land to the market, probably resulting in further redistribution from very large holdings to medium sized farms, a trend already apparent in the Paraguayan land market since the beginning of the soy boom. Redistribution to small capital constrained farmers would not readily occur however, but because a higher land tax would lower the market price of land, it would facilitate the existing program of agrarian reform and thus be part of a more comprehensive land redistribution policy.

xvii. Chapter 4 provides a comparative overview of property and agricultural land taxation in six OECD and five Latin American countries (including Paraguay). It notes the importance of property taxes in financing local government expenditures for, e.g., security (police), education and road maintenance. It also notes the positive synergies that are created when locally raised taxes are spent locally for the benefit of local tax payers, thus promoting greater citizen identification with the benefits of their taxes and better citizen control of expenditure.

xviii. Best practices are identified from this international experience that are suitable to Paraguay, for example:

- Using market values as the basis for assessment, periodic reassessments, and an appeal process with transparent procedures. However, where a complete cadastral system is not yet available, as is the case in Paraguay, it is preferable to build up the listing of properties and expand the tax base in alternative ways, rather than to wait for a full cadastral system, which can be completed at a later stage.
- Self-assessment can be an effective substitute or supplement to administrative assessment systems and can act as a transitional mechanism until an effective property tax administration is established. Self-assessment is a low cost approach compared to cadastral parcel by parcel valuation and involves lower risk of appeal. It is an effective solution to increase the tax base when there is strong pressure against updating assessed values, as well as administrative difficulties in undertaking valuations. Self-assessment may be combined with area-based assessment, whereby a minimum tax base is established according to the property size and then adjusted by the self-assessed value.

- Good practice suggests giving local government discretion in setting the tax base and tax rate, but in countries with weak administrative systems like Paraguay, setting a uniform tax rate at the central level appears justified in order to avoid distortions in land markets and/or to avoid tax competition between neighboring municipalities. In this regard, the existing legislation that sets a uniform base tax rate of 1 percent appears appropriate.
- Tax exemptions and relief are not generally justified in the case of agricultural lands. However, relief mechanisms can be considered in the case of small, poor landholders. Similarly, tax exemptions can provide an effective tool for protecting and managing environment and natural resources, in particular, forests.

xix. The principal conclusions of the report are presented in Chapter 5 and can be summarized as follows:

- a) There is a very high concentration of land ownership in Paraguay, and a considerable array of evidence points to significant underutilization of land.
- b) The existing property tax law incorporates many desirable features when compared with international experience, such as a uniform basic tax rate. However, it is not a meaningful instrument of tax policy because the tax assessment is based on fiscal values that are abnormally low as a percentage of market values (on average, 1.8 percent for rural land in Caaguazú). Moreover, the property tax law effectively locks-in the undervaluation of land by prohibiting increases in fiscal values in excess of inflation. An amendment to this provision of the property tax law would be required in order to make it a meaningful tax policy instrument.
- c) Given the limited capacity in Paraguay for updating fiscal values to reflect the actual and constantly changing market values of land, international experience indicates that a self-assessment system could be a viable alternative.
- d) The revenue potential of a meaningful property tax on rural land is considerable and could generate about US\$100 million per annum, or 1.1 percent of GDP.
- e) Property tax revenues from rural land of the above magnitude would double the resources currently available to municipalities of the interior and represent an important step towards greater fiscal decentralization.
- f) The financial administration capacity of the municipalities of the interior appears to be weak and needs to be upgraded substantially if the municipalities are to become effective agents of fiscal decentralization.
- g) International experience indicates that the positive non-revenue effects of a more effective rural land tax are likely to improve other long-term

development issues in Paraguay, namely, the underutilization of agricultural land, excessive land concentration and the cost of financing the existing program of agrarian reform.

xx. Based on the above conclusions, Chapter 5 proposes various policy options for making the property tax a more effective instrument and for improving municipal financial administration.

xxi. Rather than incurring the expense and long gestation period of creating a full national cadastre, consideration could be given to incorporating into a revised property tax law a system of self-assessment of property values that would require rural property owners to declare the market value of their property as the basis for the tax. Such a system of annual self assessment would build on one of the innovative features proposed in the draft legislation for creation of a new tax on rural wealth (Box 1.2). A self-assessment system would have the advantage of developing a market value tax base quickly and should more easily capture changing land market conditions than a formal cadastre system. Self-assessment would also avoid the political resistance created each time the government adjusts the tax base, because the owner himself would propose the property value rather than having it imposed from above by the government

xxii. The self-assessment system could be phased in over five to seven years, starting with the largest properties, in order to provide time for the municipalities to increase their capacity for administering the property tax, including the processing of self-assessment declarations. During this transition period, fiscal values would continue in force for properties not yet covered by the self-assessment requirement. To reduce the underestimation of property values, self-assessed values could be publicly disclosed (again, as proposed in the draft legislation for the rural wealth tax). Also, the value of a property for guaranteeing a mortgage could be limited to the declared self-assessed value. An appeal process could be established at the Department level with power to adjust self-assessments that are significantly undervalued. Penalties for not providing an annual self-assessment would need to be established, as well as powers to seize and auction properties that have not paid the tax after two years.

xxiii. To ease the transition to higher taxes based on market values, a tax rate adjustment period could be considered during which the existing tax rate of one percent could be lowered on self-assessed properties and then climb back up to the full one percent rate over time. This adjustment period would partially compensate the significant jump in taxes that will occur when shifting from the existing low fiscal values to the higher self-assessed market values. The lower rate should apply only to those properties that have entered the self-assessment process, however.

xxiv. Other modifications to the property tax legislation that could be considered include (i) the elimination of the existing schedule of additions and reductions to the basic 1 percent tax rate for certain landholding categories (very large properties and those under five hectares) in order to avoid artificial sub-division of property, (ii) the elimination of certain exemptions such as for political parties and private sports clubs,

and (iii) the immediate and cost-free titling of land for beneficiaries of the agrarian reform to provide them security over their land asset and to get them onto the property tax roles as quickly as possible following the five year grace period the law currently provides.

xxv. Finally, in view of the widespread deforestation that has occurred over the past fifty years, a new exemption for natural forests that are managed in a sustainable manner could be considered. The criterion for the exemption could be that the owner maintain in good standing a certificate of sustainable forest management from a private certification service (of which there are several working in Paraguay).

xxvi. While municipalities are constitutionally autonomous and responsible for their individual finances, the central government and the nation have a vested interest in the sound administration of the municipalities and, in particular, in the efficient implementation of the property tax which remains governed by national legislation. Also, royalty payments are increasing quickly and the municipalities need to improve their financial administration urgently to manage these resources more effectively.

xxvii. For these reasons, the Ministry of Hacienda could consider creating a national program of technical assistance with the aim of upgrading the financial administration of all municipalities to minimum national standards by 2010. The main components of such a program could include the establishment of a uniform municipal chart of accounts, creation of appropriate financial administration software, training and upgrading of human resources at the municipal level, and a public relations campaign to increase civic awareness of municipal finances and local accountability.

xxviii. Consideration could also be given to the “moral hazard” problem of rapidly increasing royalties and the disincentives this may create for the municipalities to raise local revenues. In this regard, the transfer of royalties could be made conditional upon the municipalities meeting certain financial management standards and specified targets for property tax collections.

xxix. Also, a vision could be developed for municipal tax policy. With the advent of a more significant property tax, it would make sense to eliminate many of the local “nuisance” taxes currently collected at the municipal level and concentrate tax collection efforts on a few major items, such as property, vehicles and perhaps commercial / professional licenses.

xxx. Finally, a reflection on the linkages between a more effective land tax policy and the existing program of agrarian reform. While a significant land tax should lead to some redistribution of land to more productive and well capitalized medium and smaller farms, it will not directly put more land into the hands of the rural poor. It will however make more land available to the market and, as such, should lead to lower land prices. The land tax should thus lower the cost of purchasing land for agrarian reform and increase the number of landless that the government could settle in new colonies for the same amount of budget.

xxxi. A significant land tax would also act to address some of the injustices of the former program of agrarian reform which distributed large amounts of land to relatively few people. Trying to recover these “ill-gained lands” (*tierras malhabidas*) would be a long, costly and contentious legal process. Instead, society could recover some of the economic rent from these lands via an effective land tax and use the proceeds to finance social services and infrastructure in the rural areas. An effective land tax would thus provide some “social justice” to the excesses of the past.

xxxii. To conclude, it is noteworthy that some countries have faced similar land distribution problems as does Paraguay today and are addressing these problems via a land tax. Namibia’s newly created land tax, for example, incorporates many of the same principles and features as recommended in this report, e.g., the use of self-assessments, market values and a similar tax rate. It is also based on the same economic principles discussed in this report, namely, the stimulative effect of the tax on production and the moderating effect of the tax on land prices. Namibia mobilized a national political consensus to create and implement a new land tax, which shows that such changes in national land tax policies are feasible in a developing country context.



# Chapter I: Land Issues and Property Taxation in Paraguay Today

## Existing Patterns of Land Ownership

1.1 Paraguay has one of the world's most skewed patterns of land ownership -- 2 percent of the agricultural establishments (about 6,400 farms) occupy 82 percent of the agriculturally exploited land (about 20 million hectares, or one-half of Paraguay's total area of 40 million hectares).<sup>2</sup> Statistical measures of distribution are subject to debate because of the large holdings in the arid Chaco (two-thirds of the country but with only 2 percent of the population). Nevertheless, the inequality of land ownership is evident and has become a major cause of rural social unrest and a brake on pro-poor growth.

Table 1. 1: Number and Area of Farms in Paraguay, by Farm Size, 1991

Farm Size	Eastern Region		Western Region (Chaco)		Paraguay Total	
	Number of Farms	Area (hectares)	Number of Farms	Area (hectares)	Number of Farms	Area (hectares)
Small	254,170	1,462,573	2,402	57,572	256,572	1,520,145
Medium	41,485	1,758,552	2,770	902,727	44,255	2,661,279
Large	4,868	8,207,625	1,526	11,428,692	6,394	19,636,317
<b>Total</b>	<b>300,523</b>	<b>11,428,750</b>	<b>6,698</b>	<b>12,388,991</b>	<b>307,221</b>	<b>23,817,741</b>
----- in percent (%) -----						
Small	85	13	36	0.5	84	6
Medium	14	15	41	7	14	11
Large	2	72	23	92	2	82
<b>Definitions</b>	<b>Hectares</b>	<b>Average</b>	<b>Hectares</b>	<b>Average</b>	<b>Average</b>	
Small	up to 20	6	up to 100	24	combined	6
Medium	20 – 300	42	100 – 1500	326	“	60
Large	>300	1686	>1500	7489	“	3071

Source: MAG, *Censo Agropecuario Nacional, 1991* (the latest with complete coverage of the country) and staff estimates. See Appendix Table 1 for greater detail. Definitions of farm group size according to the recent agricultural income tax, *Ley de Impuesto a las Rentas de las Actividades Agropecuarias* (Imagro)-- Box 1.3.

1.2 The existing pattern of land ownership has its roots in historical factors. Following the War of the Triple Alliance (1865-1870), the Government opened vast tracts of land to foreign investors as part of an effort to attract people and capital to re-populate the country in the wake of the loss of almost the entire male population. Many large holdings, some in excess of one million hectares were established at that time, both in the Eastern region for cattle ranching and forest exploitation as well as in the unpopulated Chaco, in particular, along the banks of the Paraguay river for exploitation

<sup>2</sup> The Gini Index of land concentration was calculated by FAO at 0.93 for Paraguay, the highest in the world, versus indices of 0.8-0.85 for other countries in Latin America (e.g., 0.85 for Brazil, 0.79 for Colombia) and indices of 0.5-0.6 for Asia (e.g., 0.55 for Philippines, 0.58 for India, and 0.61 for Turkey). Paraguay has 5.8 million people, of which 2.5 million live in the rural areas. In 2005, overall poverty was estimated at 38 percent and rural poverty at 37 percent.

of *quebracho* wood for its tannin, which was exported downriver to the leather curing industries in Argentina.

1.3 During the second half of the 20<sup>th</sup> century, Paraguay implemented a program of “agrarian reform” which distributed land to existing and potential farmers, but also contributed to the skewed patterns of land ownership noted above. The program distributed about 12 million hectares of land, but 74 percent of it went to only 2.5 percent of the beneficiaries (Box 1.1). Some of these lands are considered to be “ill-gotten” (*tierras malhabidas*), since they were awarded to friends of the Stroessner regime (1954-89) as favors for political, military or civil service, but without any clear linkage to the agricultural “aptitudes” of the beneficiaries, as called for in the law. As such, many of the beneficiaries of the agrarian “reform” were not necessarily adept at using these lands in a sustainable or economic fashion, with the result that large areas of Paraguay are currently perceived to be “unproductive” *latifundio* or underutilized land.

**Box 1.1: Fifty Years of Agrarian Reform, 1950-2000**

Law 854 of 1963 (*Que Establece el Estatuto Agrario*) established the Agrarian Reform and provided for the distribution of government land to persons who were in possession of and peacefully cultivating the land, and to those who wished to farm based on their merits, e.g., number of family, agricultural aptitudes, being a veteran of the Chaco War or a “repatriated” person, and level of education (Art. 79).

The law’s aim was to incorporate the *campesino* population in the economic and social development of the country via a “just distribution” of land (Art. 2) and a process of colonization with the objective of “populating the interior of the country” (Art. 38). As such, it set generous maximum limits on land per beneficiary: 100 hectares for farming (in both the Eastern and Western regions), and 1,500 has. for ranching in the Eastern Region and 8,000 has. for ranching in the Chaco.

The law was implemented by the Institute of Rural Welfare (*Instituto de Bienestar Rural* – IBR). According to a recent study based on IBR records,\* the program distributed 11.88 million hectares of land (about 29 percent of Paraguay’s total land area), but in a highly unequal pattern. About four thousand persons (or 2.5 percent of the total beneficiaries) received 8.8 million hectares (or 74 percent of the total land distributed) – see the combined “greater than” categories in the following table.

	Beneficiaries	Has.	Average (has.)
<b>Eastern Region</b>	<b>159,814</b>	<b>4,179,187</b>	
less than 100 has	157,313	2,710,543	17
greater than 100 has.	2,501	1,468,644	587
<b>Chaco</b>	<b>4,736</b>	<b>7,704,075</b>	
less than 1,000 has	3,154	346,143	110
greater than 1,000 has.	1,585	7,357,932	4,642
<b>Paraguay, Total</b>	<b>164,550</b>	<b>11,883,262</b>	
combined “greater than”	4,086	8,826,576	

Of the total, the study identified about 1.5 million hectares that had been distributed in excess of the stipulated limits and/or in more than one lot to the same person. The study called for the investigation of these ill-gotten lands (“*tierras malhabidas*”) and for their return to the State for re-distribution to legitimate beneficiaries.

\* “Distribución de la tierra en el Paraguay destinada a la reforma agraria período 1950 – 2000” (mimeo, not published) by Diputado Efraín Alegre Sasiain, Asunción, November 2004.

1.4 The agrarian reform nevertheless also benefited landless rural poor – the above study indicates that about 160,000 families were settled on 3 million hectares during the second half of the 20<sup>th</sup> century. An official report by IBR<sup>3</sup> states that it established 957 “colonies” and distributed lots to 134,300 families between 1963 and 2001. It notes that the rhythm of colonization increased dramatically following the overthrow of the Stroessner regime in 1989, with nearly one-half of the above lots distributed between 1990 and 2001.<sup>4</sup>

1.5 These new colonies were mainly established in the eastern and northern departments of the Eastern Region (Canindeyú, San Pedro, Caaguazú, Alto Paraná, Concepción and Itapúa) which were those with the greatest areas of “unproductive” forests.<sup>5</sup> The choice of these areas reflects the tendency of rural migration during the 1990s, as well as the preference for forested lands by the landless who often invaded these lands, demanded expropriation and subsequently deforested much of their properties.<sup>6</sup> As a preventative measure, many landowners purposefully cut their forests to make their lands less attractive to invasion. In retrospect, the agrarian reform law, which defined forests as “unproductive” land to be cleared and put into production, together with the authorities’ willingness to expropriate land that had already been invaded, contributed to the deforestation of the Eastern Region, which today retains only about 5 percent of its original forest cover (*Bosque Atlántico*).

1.6 An important finding of the IBR Census of 2001 was that only 5 percent of the censused families<sup>7</sup> had title to their properties. The report attributes this low level of titling to the fact that most of the censused families had only recently been settled and had not yet paid for their properties – the law required that the beneficiaries pay the full fiscal value of their properties before receiving title and provided for a ten year period to make payment. The report noted the precariousness of this situation and the desirability of having clear title for purposes of obtaining credit and investing in the property. The Census found that 9 percent of the properties had already been abandoned, perhaps due to lack of title, and viewed the problems of titling as an important factor contributing to the abandonment of lots and migration to the cities.

1.7 A further problem with the agrarian reform law was its reliance on expropriation without clear rules for compensation. Several large properties were expropriated during the 1990s and early 2000s,<sup>8</sup> but compensation has not been paid, leaving these properties unusable to the former owners but yet unavailable for formal resettlement. Meanwhile,

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<sup>3</sup> *Instituto de Bienestar Rural*, “Censo de Colonias 2001, Informe Final”, Asunción, Julio de 2002.

<sup>4</sup> The distribution of these lots did not necessarily lessen the concentration of land ownership from that as portrayed in Table 1, since many smallholders sold or leased their lots to medium and large scale soy producing farms during the 1990s (“*la famosa venta de las derecheras*,” Ibid. page 27).

<sup>5</sup> Ibid., page 11, “*mayor superficie de tierras boscosas improductivas*”.

<sup>6</sup> The Census argues, however, that the settlers are not “*depredadores*” of their lands and “still conserve an important area (39 percent) as forest,” Ibid. pages 14 and 28.

<sup>7</sup> Ibid. The Census covered 35,576 families in 229 colonies. The average property was 10 hectares, with 55 percent of the properties in the 5 to 10 hectare range.

<sup>8</sup> For example, the 130,000 hectare Antebi property in Concepción.

they are being occupied informally in an unplanned manner with unsustainable practices, e.g. indiscriminate deforestation.

1.8 A new agrarian reform law was passed in 2002 to address some of the above problems.<sup>9</sup> The new law reaffirms the State's guarantee of private property for rural land (Art. 1) and expressly prohibits the expropriation of property that has been invaded or illegitimately occupied (Art. 98). It nevertheless provides for the possible expropriation (Art. 94) of "unproductive lands" (*latifundio improductivo*) and lands that are not "rationally utilized," which are defined as those that exploit less than 30 percent of their agriculturally useful area in an economically and environmentally sustainable manner. Rules for compensation are now clearer with defined timelines for payment. Unproductive *latifundios* will be compensated at their fiscal value, while other lands and improvements will be compensated at their fair market value.

1.9 Importantly, the new law recognizes the environmental value of natural forests and excludes them, as well as required forest reserves, wetlands and wild areas from the calculation of agriculturally useable land. The new law thus eliminates the previous law's bias against forests as unproductive, and thus suitable for expropriation, and the incentives for owners to cut down forests in order to avoid invasions.

1.10 The new law reduces the amount of land that can be distributed per family for farming to a maximum of 30 hectares of agriculturally usable land, but still maintains a generous allocation for cattle ranching, up to 4,000 hectares, but now only in the Chaco Region. The law facilitates the transfer of title by permitting that title can now be transferred once the beneficiary has paid 25 percent of the fiscal value of the land, instead of the full amount. A 30 percent discount is available for those who pay the full price upfront, rather than in 10 annual installments.

### *Assessment*

1.11 The historical policies of land distribution aimed at populating Paraguay rather than creating an optimal distribution of what has become a scarce natural resource (agricultural land). The process resulted in high land concentration, sub-optimal productivity (see Chapter 3), social conflict characterized by invasion and expropriation, and embedded situations of rural poverty.<sup>10</sup> Further agrarian reform is now severely limited by the lack of government lands (*tierras fiscales*) available for distribution,

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<sup>9</sup> *Ley 1863/02 que Establece el Estatuto Agrario* and *Ley 2002/02* which made some further modifications.

<sup>10</sup> While agrarian reform established a large number of peasant communities, a deeper problem has emerged as these communities fail to take root due to the poor quality of agricultural extension services, the lack of social services and rural infrastructure, and the migration of individuals to the urban periphery. A model of agrarian capitalism has contributed to this trend in which the soybean industry has spread far into Paraguay from Brazil, with growers purchasing or leasing land to feed global demand (soy production currently occupies about 2 million hectares in the Eastern Region). The resulting stagnation and displacement of smallholders has contributed to the continuing high incidence of rural poverty (over 50 percent). Also, the lands of indigenous peoples have been increasingly vulnerable to the expansion of soy farming and cattle ranching, leading to a series of conflicts and protests.

particularly in the Eastern Region, and the lack of financial resources to purchase land from willing sellers.

1.12 A more comprehensive approach to land issues is needed to create a vibrant rural land market that would work in favor of reducing rural poverty while fostering agricultural productivity and maintaining the natural resource base. This study focuses on one, but a crucial, element of land policy, namely, land taxation, with the view that a correctly structured land tax would provide an economic incentive for land owners to use their land more productively, and/or to sell or rent their underutilized land to farmers who can.

### **Existing Property Tax (*Impuesto Inmobiliario, Ley 125/91*)**

1.13 Real property taxation has long existed in Paraguay, but as in other countries in Latin America, its importance declined during the second half of the 20<sup>th</sup> century with the advent of value added and income taxation. Real property taxes accounted for 12 percent of tax revenues in the 1940s,<sup>11</sup> but currently represent only 3.2 percent of total tax revenues and 0.4 percent of GDP. Property taxes nevertheless account for about one-half of municipal tax revenue (see next section and Annex Table A3.5).

1.14 Property taxes (*el impuesto inmobiliario*) were previously administered by the central government, but the Constitution of 1992 transferred the collection and use of property taxes to the municipal governments as an autonomous source of revenue. According to the Constitution, 70 percent of property tax revenue is to be retained by the municipality of origin, 15 percent transferred to the respective departmental government (*Gobernación*), and 15 percent to the central administration for re-distribution to the poorest municipalities. Despite local administration and collection,<sup>12</sup> the property tax remains governed by national tax legislation (*Ley 125/91*). Also, assessed values for the tax (*valores fiscales*) are set by the National Cadastre Service (*Servicio Nacional de Catastro*), rather than the municipality.

1.15 The property tax applies to both rural and urban properties, and hence covers all land in Paraguay.<sup>13</sup> Urban properties are taxed on the value of land plus improvements (buildings), while rural properties are taxed only on the site value of land (excluding improvements) so as not to discourage investment. In principle, it would be beneficial to extend this same principle of not taxing improvements to urban properties, but this is a subject that requires additional analysis beyond scope of this report.

1.16 A basic tax rate of 1 percent applies to all property, including improvements in the urban areas. The rate is reduced to 0.5 percent for rural properties less than 5 hectares. An additional rate, ranging from 0.5 to 1.0 percent, is applied to large rural

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<sup>11</sup> Skinner (1991a) "Prospects for agricultural land taxation in developing countries," page 495.

<sup>12</sup> The municipalities are responsible for maintaining a fiscal cadastre -- basically a list of properties with a *cuenta corriente* for urban properties and a *padrón* and *finca* number for rural properties.

<sup>13</sup> Most municipalities comprise an urban center and the surrounding rural lands, except e.g., the capital, Asuncion, which is all urban.

properties (*inmuebles de gran extensión*), namely, those larger than 10,000 hectares in the Eastern Region and larger than 20,000 hectares in the Chaco. The highest additional rate applies to properties of more than 30,000 hectares in the Eastern Region and more than 60,000 hectares in the Chaco. For “*latifundios*” (not defined in the law, but presumably larger than the largest category in the preceding point), an additional charge of one-half of the preceding additional rate is supposed to be added. Maximum tax rates could thus reach 2.5 percent for *latifundios*.

1.17 The law provides for a number of exemptions, including:

- Five years for lands “colonized” as part of the agrarian reform, starting from the date when the lands are formally transferred with title. Given the long delays in the transfer of title mentioned above (only 5 percent of settlers hold title), these lands are, in practice, not subject to the property tax;
- Indigenous lands;
- National parks and reserves, but not privately held natural forests or wetlands;
- Lands held by Chaco War veterans or their widows;
- Properties held by political parties, unions, educational, religious, cultural and civic institutions, and sport clubs;
- Government properties (military, schools, hospitals, etc.) and foreign government-owned properties, etc.;
- Reductions of up to 50 percent in the event of verifiable natural calamities.

1.18 While some features of the property tax law are subject to comment and debate, e.g., exemptions for private sports clubs and political parties, and multiple tax rates which create distortionary incentives for artificial sub-division of land to avoid higher rates,<sup>14</sup> **the principal anomaly of the existing law is that the assessed value for tax (*valor fiscal*) is far below the market value of the properties.** Data presented in Chapter 2 for the Department of Caaguazú indicate that the fiscal values of rural properties average only 2 percent of their market values and in some areas are as low as 1 percent of the market value. A similar undervaluation of fiscal values is believed to exist in the other rural areas of Paraguay.

1.19 As a result of these extremely low fiscal values,<sup>15</sup> the property tax in Paraguay raises only limited amounts of revenue, mostly from urban properties.<sup>16</sup> Due to the low fiscal value of rural land, a deficit in local administrative staff, rudimentary collection procedures, and the relatively higher cost of collecting the tax on disperse rural properties

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<sup>14</sup> Annex 1 presents the existing property tax law, *Ley 125/91*, along with annotated comments.

<sup>15</sup> Chapter 4 provides an overview of fiscal and market values for other Latin American and OECD countries.

<sup>16</sup> The data presented in Chapter 2 suggest that for municipalities in the interior, about 80 percent of actual collections originate from urban properties and only 20 percent from rural properties.

versus properties in the urban area (*casco urbano*), municipalities often find it not worthwhile to collect the tax on rural properties. This tendency is reinforced by the absence of effective penalties for not paying the tax. Law 125/91 does not explicitly provide fines for delay in the payment of the property tax, or for seizure and sale of the property following several years of delinquency in the payment of tax. In practice, for rural land, the tax is often paid only when the land is sold or mortgaged.<sup>17</sup>

1.20 The law stipulates that fiscal values should be adjusted annually in a gradual manner to reach market values (*valor real de mercado*), but the annual adjustment should be no higher than consumer inflation in the preceding year and, in any case, not more than 15 percent. **In effect, the law guarantees a permanent situation of under-valuation of property values.**

1.21 The following table shows the annual increases in fiscal values that were approved following enactment of *Ley 125/91*, compared with inflation in the respective previous year.<sup>18</sup> Aside from a significant increase in fiscal values that was applicable to 1993 (in apparent contradiction to the inflation caps contained in the law), the subsequent increases were all relatively minor, or even negative, when adjusted for inflation and viewed in real terms.

**Table 1.2: Increase in Fiscal Values vs. Inflation in Previous Year, 1993-2006**  
(in percent, %)

Year	Increase in Fiscal Values 1/	Inflation in Previous Year 2/	Difference	Change in Real Terms 3/
1993	86.9	17.8	69.1	58.6
1994	-2.3	20.4	-22.7	-18.9
1995	24.9	18.3	6.7	5.6
1996	15	10.5	4.5	4.0
1997	10	8.2	1.8	1.7
1998	6	6.2	-0.2	-0.2
1999	20	14.6	5.4	4.7
2000	10	5.4	4.6	4.4
2001	10	8.6	1.4	1.2
2002	0	8.4	-8.4	-7.7
2003	0.2	14.6	-14.4	-12.6
2004	3	9.3	-6.3	-5.8
2005	10	2.8	7.2	7.0
2006	10	9.9	0.1	0.1

1/ Annual Executive Decrees, *Servicio Nacional de Catastro*.

2/ Consumer Inflation Index, *Banco Central del Paraguay*.

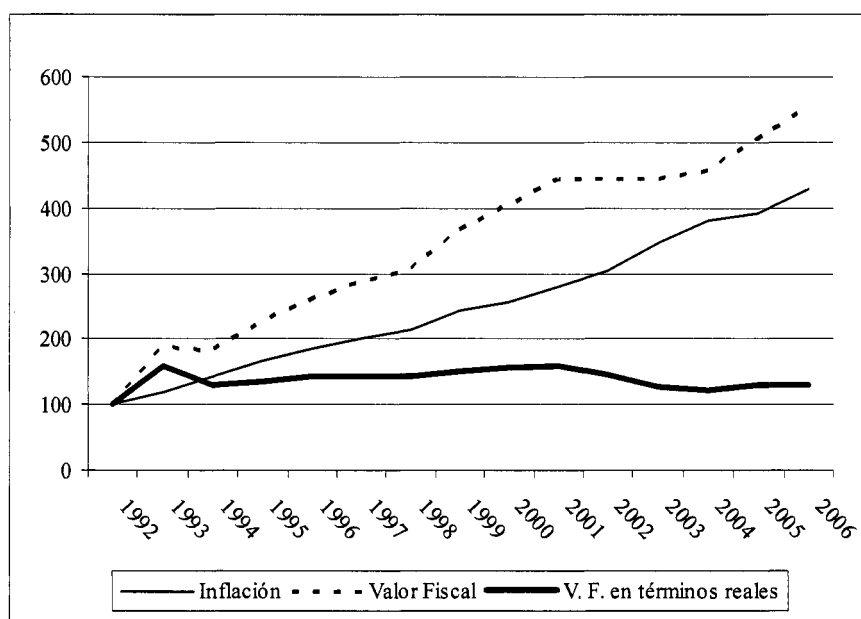
3/ The change in real terms is calculated by dividing the index of the change in fiscal values by the index of the change in inflation and is therefore different than the simple "difference" shown in the third column.

<sup>17</sup> No property may be legally transferred or mortgaged by an *escribano público* without the tax being paid up-to-date.

<sup>18</sup> The annual increase in fiscal values is based on recommendations by the SNC and authorized via Executive Decrees that are normally issued in December of each year and establish fiscal values for the following calendar year.

1.22 The cumulative effect of the increase in fiscal values from 1993 through 2006 can be seen in the following chart (Figure 1.2). While fiscal values have risen by a factor of five (with an index value of 555 on the chart) mainly due to the large increase in 1993, inflation has also been considerable during this period, having risen by a factor of four (to an index value of 429 on the chart). The resulting increase in fiscal values in real terms has thus been very modest -- 29 percent (an index value of 129 on the chart) -- over a fourteen year period. In a sense, the increases have complied with the technicalities of the law – to increase fiscal values towards market values “gradually” while not exceeding annual inflation in the process – but the increase has been so gradual that fiscal values are unlikely to ever approach the law’s stated objective of achieving market values.

**Figure 1.1: Cumulative Increase in Fiscal Values vs. Inflation (1992 = 100)**



1.23 The annual revaluations in fiscal values also reflect the politically sensitive nature of increasing property taxes. Table 1.3 shows the increases that occurred during successive periods of government. The large increase for 1993 was decreed during the last year of the transition military government. During the following two administrations (1994-98 and 1999-2003), the average increases were negative in real terms. Increases during the current administration have been only slightly positive in real terms.

**Table 1.3: Increase in Fiscal Values in Real Terms (%)**

	Cumulative for Period	Average per Annum
Single year – 1993	58.6	58.6
Five years, 1994-98	-9.5	-1.9
Five years, 1999-2003	-10.8	-2.2
Three years, 2004-06	0.9	0.3
<b>Fourteen years, 1993-2006</b>	<b>29.3</b>	<b>2.1</b>



1.24 The second important characteristic of fiscal values during the past fourteen years is that **the increases have been applied uniformly throughout the country, both for rural and urban properties, without regard to changes in relative property values.** Annex 2 documents this practice. It shows the fiscal values for rural land by department and district for all municipalities in Paraguay (Annex Table A2.1). Each department has several fiscal values for rural land that were set in 1992 (for example, there are currently six values that apply to the 20 districts in the Department of Caaguazú). These values have remained the same in relative terms since 1992, namely, they have all been increased by the exact same percentage each year. These percentage increases can be seen in Annex Table A2.2. As can be seen by simple eyeball inspection, the same percentage increases have been applied to all districts in Paraguay, as well as to urban land and improvements (Annex Table A2.3).

1.25 The practice of applying uniform increases in fiscal values to all properties in Paraguay reflects the limited assessment capacity at both the national (SNC) and municipal level. This is understandable given the large number of properties in Paraguay, but the practice ignores real changes in the market value of land, for example, the significant increase in the value of land suitable for soybean production. As documented in Chapter 2, **this uniform revaluation process has created wide discrepancies in the relationship of the fiscal to market value of land**, leading to an inequitable distribution of the property tax burden, even as the fiscal values of all land remain significantly below market values.

### *Recent Attempt at Reform*

1.26 In response to increasing incidents of rural invasions and with a view to jump-starting a rural poverty reduction program, the current administration sent a draft law, Tax on Rural Wealth (*Impuesto al Patrimonio Rural*), to Congress in October 2004. The proposal contained several forward-looking and desirable features from a land taxation policy point of view, such as the use of market values instead of fiscal values as the base for tax assessment, the use of self-declarations to overcome the limited capacity of the SNC and/or the municipalities to carry-out market based assessments, the publication of self-assessments as a means to ensure transparency and civic control, and the creation of adjustment and appeal mechanisms to ensure consistency and fairness in the self-declaration process. These features are presented in more detail in Box 1.2.

1.27 The proposal nevertheless contained a number of problematic features, in particular, it was proposed as a temporary tax to finance poverty reduction programs until 2015. In general, it is undesirable to create a new tax structure for a limited period which leads to redundant bureaucratic systems and creates incentives for tax evasion. Second, it proposed to channel the revenues to the central administration, instead of using them at the local level where there is greatest identification between tax payers and the expenditures financed with the tax. Third, it proposed to suspend the existing property tax (*impuesto inmobiliario*) during this period, without regard to the loss of revenues this would entail for the municipalities or for the dismemberment of their existing, albeit limited capacity for administering the property tax as it is today. Fourth, it proposed to

tax improvements and farm machinery, which would act as a strong disincentive on new investment in agriculture. Finally, it maintained the “progressive” structure of property tax rates that leads to artificial and perhaps uneconomic sub-divisions of rural properties.

**Box 1.2: Proposed Tax on Rural Wealth (*Patrimonio Rural*)**

The Executive sent a draft law, "*Impuesto al Patrimonio Rural*," to the Congress on October 1, 2004. It proposed to create a new tax on rural wealth (land, improvements and machinery dedicated to agricultural production, hence, "*patrimonio*") for the purpose of financing a national poverty reduction program. The principal features of the proposed tax were:

- It would be temporary, for 11 years through 2015, to coincide with achievement of the millennium development goals (MDGs). The existing *impuesto inmobiliario* would be suspended during the period of the new tax.
- It would be based on the market value of rural properties (vs. the fiscal values used for the *impuesto inmobiliario*) plus the value of the improvements (*mejoras*) associated with the land.
- Property owners would be required to make a self-declaration (*declaración jurada*) of the market value of their properties. The value of property in all legal documents concerning its sale and mortgaging would be limited to the average declared value of the previous two years. This value would be used in the event of expropriation.
- The *Servicio Nacional de Catastro* would publish the self-declarations, by municipality, and would be empowered to adjust the declared values based on knowledge of current market transactions. A three person review committee (*Junta de Avalúo*), comprising representatives from the business/rancher sector, *campesino* organizations and the Ministry of Finance (*Hacienda*), would be created to receive protests and settle valuation disputes.
- Holdings of less than 20 hectares in the Eastern Region and 100 hectares in the Chaco would be exempt.
- The tax rate would rise from 1 percent on lands less than 1000 hectares to 2 percent on holdings more than 30,000 has. For the purpose of applying the rate, property owners would be required to make a combined declaration of all their holdings, including properties in the name of immediate family members.
- The tax would be administered by the Ministry of Finance, which would be empowered to make collection-agent agreements with the municipalities and departmental governments, which would retain up to 10 percent and 5 percent, respectively, of the revenues they collect.
- The revenues would be used exclusively to finance the Social Equity Fund (*Fondo de Equidad Social*), which was being created at the time to administer the national poverty reduction program. The Fund would have discretion to use the revenues for the purchase of land for new *campesino* settlements, health and education programs in the rural areas, programs of conditional cash transfer to targeted poor, and other programs designed to meet the MDGs in the rural areas.

1.28 In the event, Congress has not acted on the proposal, which has lain dormant since it was submitted in 2004. In part, this was due to the fact that Congress had approved a contentious tax reform law in early 2004, including a new agricultural income tax (see Box 1.3), and didn't want to reopen a debate that would affect the agricultural sector. Coincidentally, the rural sector was protesting recent increases in the diesel fuel tax, and a

proposed tax on the export of soybean had just been proposed with the aim of stimulating the local processing of soy, 70 percent of which is exported in an unprocessed state.

1.29 Even without the unfavorable accompanying circumstances, the proposed tax would have been politically contentious, since it goes in the opposite direction of creating a viable source of revenues for local governments and promoting decentralization. Also, the proposed law did not provide exemptions for natural forests or wetlands, without which it would increase the incentives for further deforestation. The proposal nevertheless plants some interesting ideas for future debate on how to improve the existing property tax.

## Overview of Municipal Finances

1.30 Consolidated data on municipal finances does not exist in Paraguay.<sup>19</sup> Ever since the municipalities were given autonomous status by the Constitution of 1992, their budgets are approved by their respective municipal councils without reference to the central administration. In principle, they are required to submit their final annual accounts to the Auditor General and the Ministry of Finance, but compliance is spotty and with delays.

1.31 A study by JICA compiled data on the finances of 58 of the 222 municipalities of the interior (excluding Asunción) for 1999-2003.<sup>20</sup> This sample included municipalities from the four groups of municipalities that correspond to their relative size, with Group 1 representing the Head of Department (*cabecera departamental*) plus a few other larger towns and the other groups descending in size to the smallest rural municipalities. The distribution of the JICA sample, as well as the distribution of the municipalities not included in the sample is shown in the following chart.

	Included in JICA Sample		Not Included	
	Number of Municipalities	Population (2002)	Number of Municipalities	Population (2002)
Group 1	14	1,682,629	8	496,783
Group 2	26	628,340	45	952,659
Group 3	14	157,900	98	1,029,136
Group 4	4	28,203	13	86,716
<b>Total</b>	<b>58</b>	<b>2,497,072</b>	<b>164</b>	<b>2,565,294</b>

1.32 Consolidated data for the 58 municipalities included in the JICA sample is presented in Annex Table A3.1. It shows that this group of municipalities have total revenues equivalent to about 0.5 percent of GDP. Of this amount, property tax revenues are equivalent to 0.13 percent of GDP and represent about one-quarter of total revenues and about one-half of tax revenues. Commercial and vehicle licenses are the other main sources of tax revenue, while non-tax revenue comprises mainly fees for garbage

<sup>19</sup> The Ministry of Finance recently compiled such data for the first time (Informe Financiero, 2005), but it is limited in scope, e.g., does not provide details on property taxes nor include all municipalities.

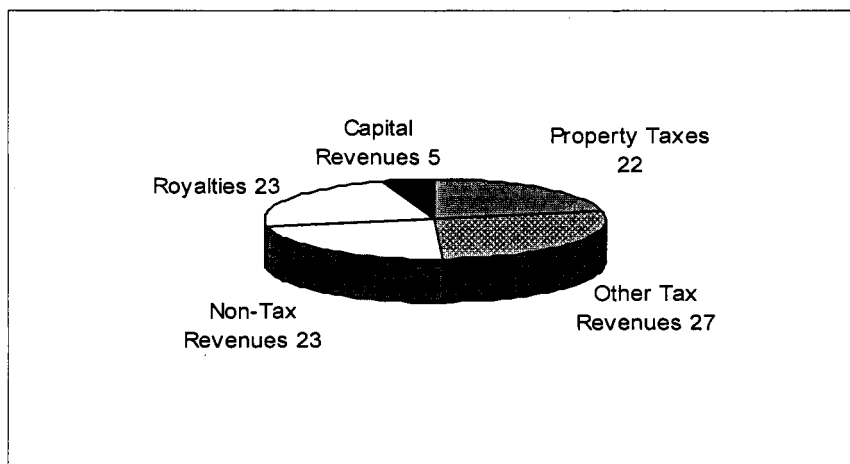
<sup>20</sup> JICA-MH-COPLANEA, Municipalidades de la Región Oriental del Paraguay, 2004.

collection, public lighting, parking and rental of public spaces. Of note, royalties from the Itaipú and Yacyretá hydroelectric dams increased rapidly from zero in 1999 to 18 percent of total revenues in 2002 and 2003.<sup>21</sup>

1.33 To gain an overall picture of municipal finances in Paraguay, an extrapolation of the JICA sample was made for the other 164 municipalities of the interior, based on the relative population of each group.<sup>22</sup> The results for these 164 municipalities, which are dominated by Group 3 municipalities, are presented in Annex Table A3.2. They show similar patterns of revenue and expenditure as the sample of 58, but at slightly lower absolute levels, i.e., these 164 municipalities have total revenues of about 0.45 percent of GDP, and the property tax share is closer to 20 percent of total revenues reflecting more difficult and less systematic tax collection practices in the more rural areas. (See Annex 4 for a discussion of municipal tax administration and financial management issues.) For these smaller municipalities, royalties represent a larger share of total revenues (about 30 percent) than in the sample of 58.

1.34 Data for all 222 municipalities of the interior is combined in Annex Table A3.3. The composition of revenues for these municipalities is shown in Figure 1.2.

**Figure 1.2: Composition of Municipal Revenues for 222 Municipalities of the Interior, 2003  
(Percent of Total Revenues)**



1.35 It is interesting to note from the data in Annex Table A3.3 that actual collections of the additional tax on large properties (*adicional a inmuebles de gran extensión y*

<sup>21</sup> Royalties are received by the central administration and distributed to the municipalities and departmental governments based on a formula that takes account of the relative impact of the dams on the communities, but all municipalities receive some royalties. The sharing of royalties with the municipalities and departments started in 2000 and is supposed to rise to a target of 50 percent by 2010.

<sup>22</sup> Projection by group was done in order to preserve differences in the revenue and expenditure structures of the four groups. An alternative projection was also made based on the number of municipalities in each group, but this produced a larger estimate of revenue and was discarded in favor of the more conservative results based on relative population size. See Annex 3, page 4 for details.

*latifundios*) specified in *Ley 125/91* (see para.1.16) is only 1 percent of total property tax collections. This fact reinforces several previous points, namely that collections from rural properties are estimated to be only a small fraction of total property tax collections (around 20 percent) and that enforcement of the actual property tax law is uneven at best with little attention paid to collecting the “additional” tax.

1.36 Data was also collected independently for Asunción, which is presented in Annex Table A3.4. Two significant differences mark the structure and pattern of Asunción’s revenues compared with the municipalities of the interior. First, property taxes are a more important share of total revenues in Asunción (34 percent) than for the municipalities of the interior (22 percent), in part because Asunción receives a relatively small amount of royalties amounting to only 2-3 percent of revenues. Table 1.4 illustrates this difference in the structure of revenues.

**Table 1.4: Composition of Municipal Revenues, 2003  
(as percent of Total Revenues)**

	Asunción	Interior	All
Tax Revenues	66	49	55
Property Taxes	34	22	26
Other Tax Revenues	32	27	29
Non-Tax Revenues	31	23	26
Royalties	2	23	15
Capital Revenues	1	5	4
Total	100	100	100

1.37 Second, for reasons not readily apparent, total revenues in Asunción declined significantly as a share of GDP, from 0.68 percent in 2001 to 0.5 percent in 2003 and 2004 (see Appendix Table 2). As a result, Asunción began to register slight overall deficits, on average about four percent of revenues, in 2002-04.<sup>23</sup> Such deterioration did not occur in the municipalities of the interior, which experienced an increase in overall revenues during this period as a result of rising royalty income and increasing property taxes. The municipalities of the interior maintained slight overall surpluses, in the range of 5 to 10 percent of revenues, during this period.

1.38 One factor that may have contributed to the decline in Asunción’s revenue performance was that the fiscal values for property taxation were not increased at all in 2003 and by only 3 percent in 2004, far less than the combined 24 percent inflation for these two years (see Table 1.2). The erosion of fiscal values in real terms was thus about 20 percent, equivalent to the percentage decline in Asunción’s property tax collections which fell from 0.18 percent of GDP in 2002 to 0.17 percent in 2003 and 0.15 percent in

<sup>23</sup> The measurement of deficits for the municipalities is problematic due to inconsistent financial accounting practices that, for example, treat cash balances from the previous year as income in the following period. Also, interest and amortization are lumped together as an expense, rather than treating amortization as a below-the-line financing item. Adjustments to reclassify municipal accounts according to public finance standards have been made, to the extent possible, to the data in Annex Tables A3.1-A3.5.

2004. The same erosion of fiscal values applied to the municipalities of the interior, but in contrast to Asunción, they actually improved their property tax collections from 0.2 percent of GDP in 2001 to 0.22 percent in 2003.<sup>24</sup>

1.39 Key revenue statistics for the municipalities as a whole (Asunción plus Interior) are summarized in Table 1.5.

**Table 1.5: Key Revenue Statistics for All Municipalities (Asunción + Interior), 1999 - 2003**

	1999	2000	2001	2002	2003
	----- as percent (%) of GDP -----				
<b>Total revenues</b>	<b>1.45</b>	<b>1.55</b>	<b>1.63</b>	<b>1.60</b>	<b>1.49</b>
o/w Interior	0.81	0.87	0.94	1.02	0.98
<b>Tax revenues</b>	<b>0.87</b>	<b>0.90</b>	<b>0.87</b>	<b>0.84</b>	<b>0.82</b>
o/w Interior	0.51	0.51	0.49	0.49	0.48
<b>Property taxes</b>	<b>0.36</b>	<b>0.39</b>	<b>0.40</b>	<b>0.39</b>	<b>0.39</b>
o/w Interior	0.19	0.20	0.21	0.21	0.22
<b>Royalties</b>	<b>0.0</b>	<b>0.05</b>	<b>0.18</b>	<b>0.25</b>	<b>0.23</b>
o/w Interior	0.0	0.05	0.18	0.25	0.22
	----- as percent (%) -----				
Property tax / revenues	25	25	24	25	26
Royalties / revenues	0	4	11	16	15

See Appendix Table 2 for details on Asunción. Also, Annex Table A3.5 for underlying numbers and other ratios. Annex Table A3.5 consolidates the financial data for the three sets of municipalities, i.e., actual data for the 58 municipalities of the JICA sample, estimates for the 164 municipalities not included in the JICA sample, and actual data for Asunción.

1.40 Together, the municipalities had total revenues in 2003 equivalent to about 1.5 percent of GDP, of which the municipalities of the interior represent about two-thirds, or about 1 percent of GDP. Within total revenues, tax revenue performance appears to have weakened since 2000, especially in Asunción but also somewhat in the interior. Property tax collection, however, remained constant, both as a percent of GDP (0.39 percent) and as a share of total revenues (about 25 percent). Improved property tax performance in the interior compensated for weakening performance in Asunción.

1.41 Royalties have become increasingly important to the municipalities of the interior since 2000, when the central government began to share royalties with the municipalities and departmental governments. This trend is expected to continue through 2010, when the municipalities and departments are supposed to receive fully 50 percent of the royalties received by the central government.<sup>25</sup> In 2003, the municipalities received royalties equivalent to about 0.2 percent of GDP. This was, however, only 5 percent of the total royalties received by the central government, which were equivalent to 4.2 percent of GDP (see Table 1.6).

<sup>24</sup> Perhaps because some of these municipalities participated in a USAID project to improve property tax collections in their urban areas (see Annex 4). Data for municipalities of interior are not available for 2004.

<sup>25</sup> Ten percent for the Departments and 40 percent for the Municipalities, per *Ley 1309/98*. See Annex 4 for a more detailed description of royalty sharing.

1.42 If royalty flows to the central government remain at their current levels (about 4 percent of GDP), and if the sharing of royalties with the municipalities reaches the specified level of 40 percent, thereafter the municipalities could expect to receive about 1.6 percent of GDP per annum in royalties. **This amount would be considerably more than the current level of total revenues of the municipalities of the interior (about 1 percent of GDP) and poses several major challenges:**

- A moral hazard that with such large flows of “effortless” resources, the municipalities of the interior would relax or even abandon their collection efforts for current tax and non-tax revenues;<sup>26</sup>
- The need to improve financial administration to manage effectively a quantum increase in resources and expenditures; and
- The need for better planning and implementation of expenditures, especially capital expenditures, since *Ley 1309/98* stipulates that 80 percent of royalties should be spent on capital investment.

1.43 Given the pending bonanza of increasing royalty income, the worst outcome would be for the municipalities to substitute royalties for existing “genuine” sources of revenue, thus weakening their hard-won local revenue collection efforts. A better outcome would be for the municipalities to improve their financial administration and investment planning capacities so that they can effectively apply increased royalties to productive public investments in the rural areas, for example, rural road maintenance, new health and education facilities, etc. Such an effort to improve financial administration and investment planning capacity could perhaps be assisted by the Ministry of Finance in the form of a nation-wide program to standardize municipal accounting practices, upgrade financial administration systems and provide best-practice advice about investment planning, monitoring and execution.

1.44 An ideal outcome would be that in addition to improving financial administration capacity, the municipalities would match the increase in royalty income with increases in locally generated revenues, in order to raise the overall level of municipal expenditure to levels that could finance a more ambitious decentralization of public services, including security and some health and education recurrent expenditures. This report argues that the property tax is the preferable instrument to raise resources at the local level due to its stimulative effects on production and the desirable synergy it creates between property taxpayers and the control over local expenditures.

1.45 Chapter 2 estimates that the property tax, if applied at market values, could raise about one percent of GDP in revenues in the rural areas alone. Together with their existing level of revenues (about one percent of GDP) and the expected increase in

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<sup>26</sup> Data on municipal finances for 2005 from the Ministry of Finance (Informe Financiero, 2005), which is not necessarily consistent with the above compiled data for 1999-2003, indicates that this phenomenon may be occurring. Tax collections by the municipalities of the interior fell from 0.48 percent of GDP in 2003 to 0.36 percent of GDP in 2005, while royalties received by the municipalities of the interior rose from 0.22 percent of GDP to 0.49 percent of GDP over the same period. See Appendix Table 2.

royalties (about 1.5 percent of GDP), the municipalities of the interior could aim to reach a total level of resources of about 3.5 percent of GDP by 2010. This level of resources, if managed carefully, would provide a significant increase in the ability of the municipalities of the interior to deliver services and improved infrastructure to their communities and would represent a major step towards effective fiscal decentralization.

### ***Institutional Capacity at Municipal Level***

1.46 The municipalities' capacity for financial administration is at a rudimentary stage in particular in the smaller municipalities of the interior (groups 3 and 4). Basic shortcomings include the lack of (or non-use of) a uniform chart of accounts, financial planning instruments in the preparation of revenue and expenditure estimates, cash flow control mechanisms during the course of the year, expenditure monitoring and reporting systems, low capacity for the preparation and/or analysis of capital investment projects, and qualified accounting personnel in general. The larger municipalities are better positioned in these areas than the smaller ones, but all municipalities are in need of some strengthening of their capacities. **Annex 4** provides a more detailed discussion of financial management and tax administration issues at the municipal level.

1.47 With regard to administration of the property tax in particular, not all municipalities have fiscal cadastres – a basic list of taxable properties with registered owners. Of the 58 municipalities in the JICA sample, 52 had an urban cadastre but only 23 of these had been updated. And of the 58 municipalities, only 23 had a rural cadastre, most of which were incomplete or outdated. Much of the information on rural properties exists only because the owners had paid taxes on previous occasions when they sold or mortgaged their property. Part of the problem is due to insufficient sharing of information between the municipalities and the SNC, which issues cadastral certificates for property registration.

1.48 In some municipalities, property information is stored on simple Excel spreadsheets, but this information is not linked with tax collection information. Collection problems are exacerbated by the lack of specific sanctions in the tax law for non-payment of property taxes, while the judicial process for claiming overdue taxes is long and costly. Late payment fees are minimal and are often waived via periodic tax holidays. A five-year statute of limitation exists before the liability to pay the overdue tax expires. Given limited human resources and budgets for collection, municipalities tend to focus their efforts on urban areas where notification costs are lower.

### **Property Taxation within the Context of Paraguay's Overall Tax Structure**

1.49 Paraguay's existing tax structure is the product of two major reforms: (i) a modern tax law that was approved in 1991 (*Ley 125/91, que Establece el Nuevo Régimen Tributario*), which introduced a value added tax, updated the excise and company profit taxes, and assigned the property tax (*impuesto inmobiliario*) to the municipalities; and (ii) a tax adaptation law of 2004 (*Ley 2421/04, de Reordenamiento Administrativo y de Adecuación Fiscal*), which tightened up loopholes and exemptions under the previous



law for profit tax and VAT, reduced the profit tax rate from 30 to 10 percent, introduced a new personal income tax of 10 percent (to become effective in 2007), and transformed the previous but ineffective presumptive tax on agricultural income (which was, in practice, a tax on the fiscal value of rural land) into a tax on actual agricultural income that is consistent with and complementary to the new personal income and company profits taxes (see Box 1.3).

**Box 1.3: New Agricultural Income Tax (*Imagro*)**

The tax reform law of 2004 replaced the former agricultural income tax (*El Impuesto a las Actividades Agropecuarias – Imagro*) with a more modern version. The former tax was a presumptive tax on agricultural income that was, in effect, levied on the fiscal value of rural land. However, given the low fiscal values and various deductions that were allowed under the former tax, it was generally considered to be a nuisance tax that was more costly in accounting fees to file than the actual tax due. Indeed, the former *Imagro* never yielded any significant revenue to the central government.

The new *Imagro* was designed in tandem with the new personal income tax, which is to be phased in starting in 2007 for individuals with monthly income 10 or more times the minimum wage, with coverage to expand over seven years to reach eventually individuals with three or more minimum wage incomes. The new *Imagro* taxes the income of individuals with income from agricultural activities.

Both taxes, however, were designed primarily to complement the value added tax and help formalize the economy. They both allow the individual to deduct all expenses on which he has a legal receipt and/or paid VAT, including food, clothing, education, travel, entertainment, etc. The tax rate of 10 percent is the same for both taxes and is applied to the net income after deduction of the above expenses.

The new *Imagro* is applicable to all individuals and businesses that generate agricultural income on combined properties larger than 20 hectares in the Eastern Region and 100 hectares in the Chaco. For taxpayers with properties in the 20-300 hectare range in the Eastern Region (and 100-1500 hectares in the Chaco), the taxpayer can choose whether to calculate the tax based on actual recorded income, or on a proxy income that is related to the production coefficient that corresponds to the taxpayers district (e.g., 1500 kg of soybean at the current year's market price). Taxpayers with properties larger than the above, must calculate the tax based on actual expenses and recorded monetary income. Businesses cannot deduct personal expenses, as can individuals, but can deduct all normal business expenses including wages and inputs.

The new *Imagro* entered into effect for the first time in 2006, so it is not yet known how much tax revenue it will generate directly, although it should increase VAT receipts.

One half of the revenues from the new *Imagro* are earmarked by law to fund the land settlement programs of INDERT, including land purchase, settlement and subsequent support services to beneficiaries of the agrarian reform.

1.50 As a result of the 2004 tax adaptation law, Paraguay's overall tax structure is relatively well balanced and neutral with regard to taxing different sources of income and consumption. Company profits, personal income, agricultural income and value added are all taxed at a uniform rate of 10 percent. Customs tariffs are governed by the common external tariff of *Mercosur*,<sup>27</sup> and excise taxes are reasonable (indeed, some

<sup>27</sup> Mercosur has provided extensive temporary exceptions and lower rates for Paraguay, e.g., on information technology, vehicles and "tourist" trade items (liquor, cigarettes, perfume).

could be higher).<sup>28</sup> The main lacuna in the overall tax structure is the local property tax which, as discussed above, yields insignificant amounts of revenue due to the low fiscal values that are used for assessment.

1.51 Together, the above taxes generate about 13 percent of GDP in tax revenues, including central government employee “contributions” to the government pension fund (*Caja Fiscal*) which the Government categorizes as non-tax revenue but are included as tax revenues in the following table.<sup>29</sup>

**Table 1.6: Evolution of Central Government Revenues, 2000 – 2005**  
(as percent of GDP)

	2000	2001	2002	2003	2004	2005
Profit tax	1.9	1.7	2.0	1.7	2.1	2.1
VAT	4.6	4.5	4.3	4.4	4.7	5.1
Excise taxes	1.8	2.2	1.8	2.0	2.4	2.2
Customs taxes	2.0	1.9	1.7	1.9	2.2	1.8
Other taxes 1/	1.7	1.6	1.4	1.4	1.5	1.8
<b>Total Tax Revenues</b>	<b>12.0</b>	<b>12.0</b>	<b>11.2</b>	<b>11.3</b>	<b>12.9</b>	<b>13.0</b>
Royalties	3.2	4.9	4.3	4.2	4.0	3.6
Other Non Tax Revenues 2/	2.0	2.0	1.9	1.5	1.5	1.6
<b>Total Revenues</b>	<b>17.2</b>	<b>18.8</b>	<b>17.5</b>	<b>17.0</b>	<b>18.4</b>	<b>18.2</b>

1/ mostly contributions to the Government Pension Fund, about 1.2% of GDP.

2/ includes interest received, transfers from public entities and external grants.

See Appendix Table 3 for values in guaraníes.

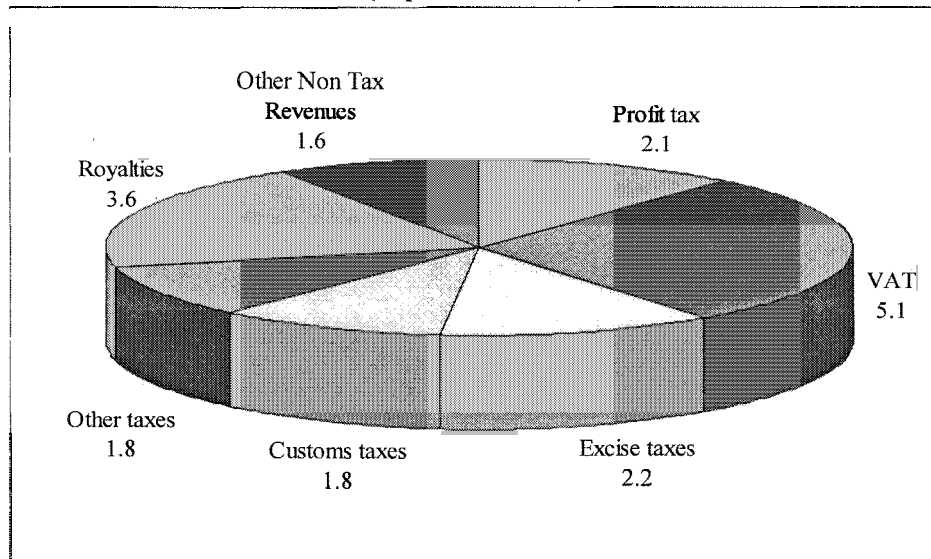
1.52 Tax revenues increased by about 1 percent of GDP in 2004 and 2005 (compared to 2000-01) as a result of improved tax administration and the changes in tax policy that were introduced by the tax adaptation law. Of particular note is the increase in company profit tax despite the reduction in the profit tax rate (to a transition rate of 20 percent in 2005). VAT collections improved significantly, reflecting greater formalization of the economy. Excise taxes increased due to a significant increase in the tax on diesel fuel (which was as low as 5 percent in 2002).

1.53 In addition to tax revenues, royalties from the Itaipú and Yacyretá hydroelectric dams provide about 4 percent of GDP to the central government. As previously discussed, these royalties are being increasingly shared with the municipalities. Figure 1.3 depicts the composition of total revenues in 2005.

<sup>28</sup> Excise taxes on cigarettes and liquor are 8 to 12 percent, on diesel fuel 12 percent and on gasoline (*naftas*) about 30 percent.

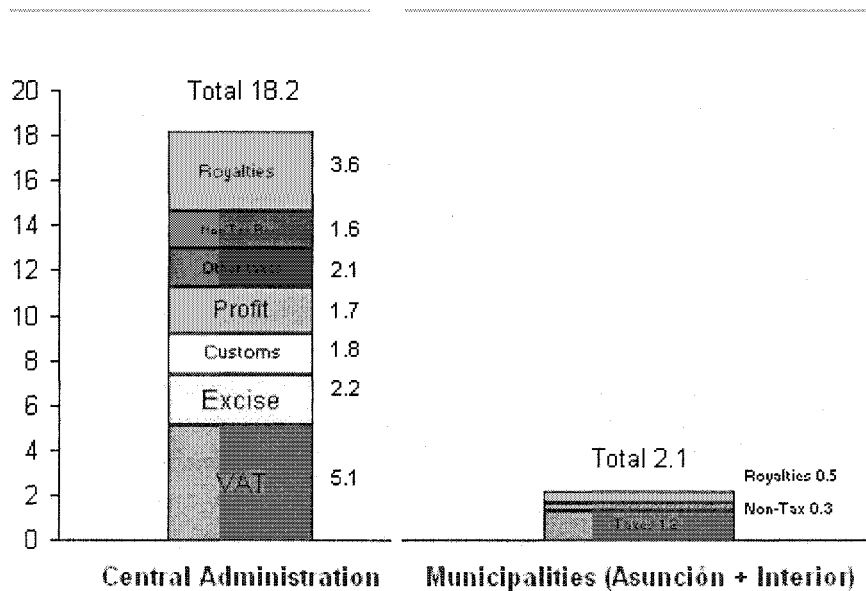
<sup>29</sup> In addition, the formal private sector (about 20 percent of the labor force) pays social security taxes of about 2 percent of GDP to the *Instituto de Previsión Social* which provides health services and pensions to this group. These taxes do not form part of the central administration finances and are hence not included in Table 1.6, but need to be taken into account when assessing Paraguay’s overall tax burden.

**Figure 1.3: Composition of Central Government Revenues - 2005**  
(as percent of GDP)



1.54 In total, the central administration commands about 18 percent of GDP in available resources. In contrast, preliminary indications for 2005 indicate that the municipalities had total resources of about 2 percent of GDP, or about 10 percent of total government revenues (central plus local) – see Figure 1.4 and Appendix Table 2. Municipal revenues appear to have risen from the previously mentioned 1.5 percent of GDP in 2003 due to increased transfers of royalties (plus 0.3 percent of GDP) and higher tax collections in Asunción, while tax collection in the interior declined.

**Figure 1.4: Revenues of the Central Administration and Municipalities, 2005**  
(as percent of GDP)



## **Chapter II: The Market Value of Rural Land – Case Study of the Department of Caaguazú**

2.1 One of the reasons for the weak performance of the property tax in Paraguay has been the extremely low fiscal value (*valor fiscal*) of land upon which the tax is levied. It is common knowledge that this *valor fiscal* is significantly below market value, but the gap between the two has thus far not been empirically documented or quantified.<sup>30</sup> Using data from the department of Caaguazú in eastern Paraguay, this chapter will provide quantitative evidence of the gap between fiscal and market values in rural areas, and estimate the potential impact on revenue generation if market values were used as the basis of the tax.

### **Rationale for choosing Caaguazú**

2.2 The initial intention was to take a large sample in different regions of the country to prepare a nationally representative estimation of the market value of rural land. However, cost constraints made it necessary to significantly limit the scope of the field work. It was therefore decided to focus on one department and take a sample that would provide reliable and representative estimates for that particular department. Based on these results, some rough estimations could then be made for other parts of the country.

### ***Summary of main characteristics***

2.3 The department of Caaguazú was chosen because it is in many ways representative of the eastern region of Paraguay, where the overwhelming majority of the population lives. It is the fifth largest department in terms of geographic area, and the third largest in terms of population. The department comprises 20 districts.

2.4 Like other parts of Paraguay, Caaguazú has experienced rapid urbanization of its population. The share of the rural population has decreased from 85 percent to 68 percent in the last 30 years. Despite this trend, 57 percent of its inhabitants are still employed in the primary sector, and all but 0.5 percent of the department's land surface remains classified as rural (Table 2.1).

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<sup>30</sup> Molinas Vega (2000) provides estimates of market values in 24 districts in three departments (Caaguazú, Concepción and San Pedro), based on a small, non-random sample.

**Table 2. 1 Caaguazú Rural population and land by district (2002)**

	<b>Rural population</b>	<b>Share of district population</b>	<b>Rural land (has)</b>
RI 3 Corrales	7,414	96.7%	32,027
Raúl Arsenio Oviedo	26,782	95.3%	136,574
Yhu	32,460	94.1%	158,474
La Pastora	4,153	92.2%	21,383
Mariscal López	6,706	90.9%	120,627
3 de Febrero	7,912	88.9%	21,066
San Joaquín	13,222	88.4%	48,176
Santa Rosa Mbutuy	9,417	86.4%	32,138
Simón Bolívar	4,208	84.6%	33,391
Carayao	11,902	84.6%	92,105
Repatriación	30,094	84.4%	86,731
Jose Domingo Ocampos	7,740	83.2%	14,222
Nueva Londres	3,475	81.6%	24,497
Juan Manual Frutos	14,751	76.7%	55,110
Vaquería	7,466	72.9%	115,150
Cecilio Báez	4,615	70.4%	14,173
San José de los Arroyos	10,303	67.3%	49,384
José Eulogio Estigarribia	14,823	60.0%	63,607
Caaguazú	52,281	51.0%	90,730
Coronel Oviedo*	37,284	43.8%	85,803
<b>TOTAL Caaguazú</b>	<b>307,008</b>	<b>68%</b>	<b>1,295,370</b>

\* Capital of department

Source: Dirección General de Estadística, Encuestas y Censos and Servicio Nacional de Catastro.

2.5 According to the 1991 agricultural census, small landholders accounted for the largest number of plots (88 percent), while large landholdings represented more than half of all the land (51 percent) (Table 2.2). The distribution was similar in other parts of eastern Paraguay: 85 percent of holdings in the hands of small farmers, and 72 percent of all land under the control of large landholdings (Table 1.1).

**Table 2. 2: Pattern of agricultural landholdings in Caaguazú**

<b>From (ha)</b>	<b>to less than (ha)</b>	<b>Number of plots</b>	<b>Area</b>	<b>% of plots</b>	<b>% of area</b>
0	20	38,159	252,529	88%	28%
20	200	4,953	188,879	11%	21%
200		363	455,636	1%	51%
<b>TOTAL</b>		<b>43,475</b>	<b>897,044</b>	<b>100%</b>	<b>100%</b>

Source: Agricultural Census, 1991.

2.6 Smaller holdings are typically associated with the cultivation of cotton, *mandioca* and corn, while medium- to large holdings are dominated by soy and wheat production, as well as by cattle ranching. It is estimated that in 2003, approximately 40 percent of the land in the department was dedicated to the cultivation of crops, while 42 percent was used for raising cattle. The remaining 18 percent of the Department's surface is occupied by forests and rivers (MAG 2003).

2.7 Anecdotal evidence suggests that since the last agricultural census, the landholding pattern has changed in several ways. On one hand, the past decade has seen an expansion of soy cultivation throughout eastern Paraguay, including in eastern Caaguazú, which has led to a consolidation of farms and thus to an increase in larger holdings. On the other hand, between 1990 and 2001 the rural development and land administration agency (INDERT) distributed an estimated 9,000 parcels of land to small farmers in Caaguazú, counterbalancing to some extent the trend towards consolidation. Overall, it is estimated that there has been a slight increase in the average size of landholdings in Caaguazú from 20 to 23 hectares in 2002 (MAG 2003).

2.8 The changes in the crop patterns are even more pronounced: soy production rose more than five times between 1992 and 2002. According to Molinas Vega (2005), the initial increase in production was due to improvements in productivity, but in the late 1990s it was due mainly to an increase in cultivated area. By 2002, 7 percent of all land in Caaguazú was used for soy cultivation. At the same time, cotton, which used to be one of the main crops grown in Caaguazú, has lost in relative importance. Nevertheless, Caaguazú remains the largest cotton producer in the country and the third largest producer of tobacco and wheat.

2.9 In summary, Caaguazú presents a profile typical of eastern Paraguay: predominantly rural, with a mixture of soy-producing large holdings, smallholders, cattle ranching and forests. Other factors that made Caaguazú attractive as a case study site were its proximity to the capital city and ease of access by road.

### **Description of methodology used to estimate market value**

2.10 The most direct way of determining the market value of land is by analyzing sales prices resulting from recent property transactions. These transactions are generally documented by notaries, lawyers or real estate agents. However, there is a long-established practice in Paraguay of under-declaring the sales price in legal documents in order to reduce the cost of title registration fees, which are set at 2.75 percent of the declared value of the property, and to hide the real value of assets held by people with questionable sources of land acquisition. Relying on such documents would therefore not yield realistic estimates of market values of rural land. In order to determine the “true” sales price and, by extension, market value of land, a team of consultants designed and conducted a field survey of a random sample of properties in the department. These sample values were then used in a geo-statistical model to estimate market values throughout the department.

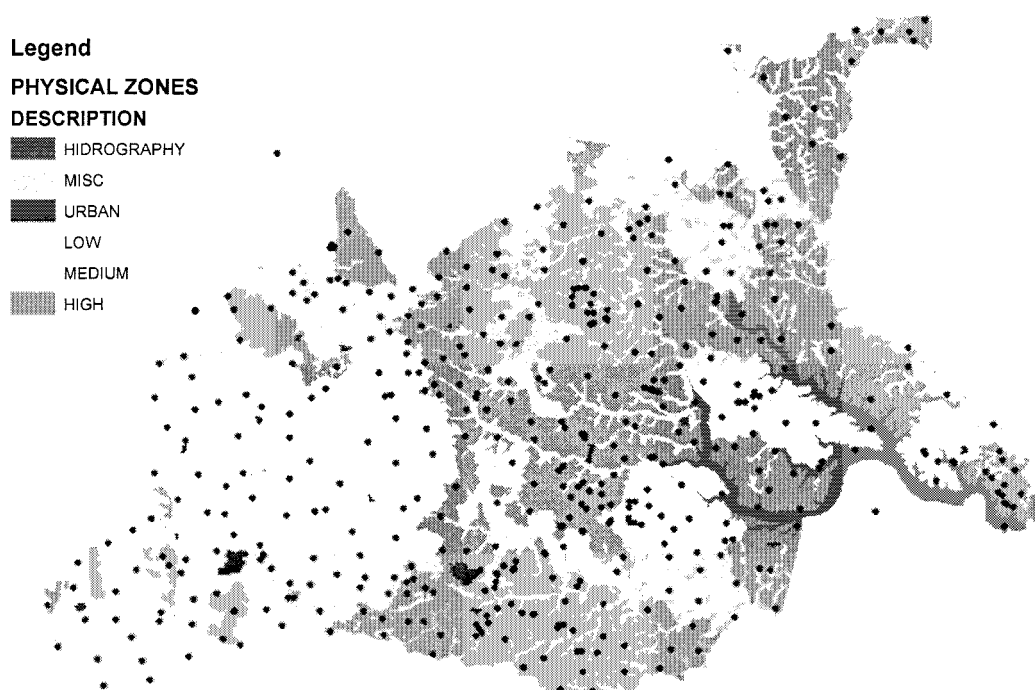
#### ***Determination of the sample***

2.11 Given cost and time constraints, the consultants selected a representative sample of rural properties large enough to allow for reliable estimates at the department level. The team first assembled a comprehensive database comprising soil characteristics, road infrastructure, bodies of water and other land characteristics, which served as the basis for the sample selection and as inputs to the geo-statistical model used for estimation. A

more detailed description of this process is presented in the Addendum to Annex 5 (Volume II), “Technical Note on Methodology for Estimating Land Values in Caaguazú.”

2.12 The land characteristics were used to stratify the department into three physical zones (*zonas físicas*, ZF): those with low, medium and high aptitude for agricultural production. The a priori assumption was that there is a close connection between the level of agricultural utility and the market value of land. The ZF map was then covered with a grid of points, excluding points close to urban areas, bodies of water, flooded lands and other non-relevant areas. From this grid a sample of 455 points was randomly selected, roughly proportional to the total land area of each ZF (Map 2.1).

**Map 2. 1: Physical Zones (ZF) with Sample Points**



### *Collection of information on sample points*

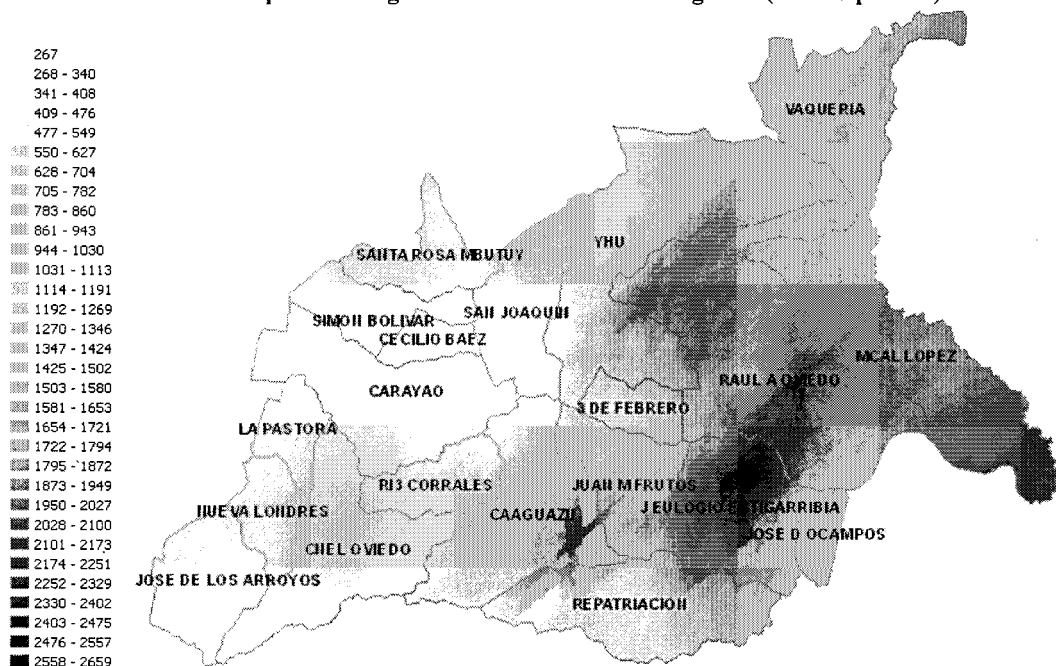
2.13 Given the difficulty in collecting reliable data on property transactions from legal documents in the public registry (*Registro Público*), field teams with expertise in local land markets (surveyors and land sales professionals) located each of the 455 sample sites using GPS technology and interviewed the owners of the parcels to arrive at estimates of fair market value based on recent sales of the parcel or nearby parcels with similar characteristics. In those cases in which the buyer or seller could not be contacted, the team prepared its own estimates based on its knowledge of local real estate conditions. These field visits and estimates of market value were made in May/June of 2006. Values in Guaranies were converted to US\$ at G6,000 per US\$. A list of the 455 sample properties and their estimated market values is presented in the Addendum to Annex 5.

## *Estimating market values*

2.14 To estimate the market value of land for the Department as a whole, a geo-statistical model was used to interpolate the values of areas lying between the known points of the sample. The methodology used was the Kriging spatial interpolation method and is described in more detail in the Addendum to Annex 5. In brief, Kriging is a common tool to estimate values for a continuous space based on a sample of known data points. For each unknown point to be estimated, the model assigns weights to nearby sample data based on their relative distance to the point to be estimated. It then “interpolates” the value for the target area using the weighted values of the nearby sample data. The main advantage of the Kriging method is that it maximizes the use of spatial information, i.e., the prices of nearby properties in the sample. An alternative “hedonic” method was also used, which estimates values based solely on the physical characteristics of land, but the results were viewed to be less robust than the estimates from the Kriging methodology. Again, see the Addendum to Annex 5 for a more detailed discussion of these two methods and their results.

2.15 Based on the sample data, the Kriging model estimated the market value for each quarter (0.25) hectare in the department. It then grouped these estimates into 32 ranges with the average market value of each range serving as the reference point (Map 2.2). Presented in the form of a map with the district limits superimposed, this detailed classification shows the transition of market values from lowest in the western part of the Department to highest in the eastern part of the Department.

**Map 2. 2: Ranges of market values in Caaguazú (in US\$ per ha.)**





2.16 To facilitate analysis at a more aggregate level, the 32 clusters were grouped into three “homogenous economic zones” (*zonas homogéneas económicas*, ZHE), (Map 2.3 and Table 2.3).

Map 2. 3: Homogeneous Economic Zones (ZHE; in US\$ per ha.)

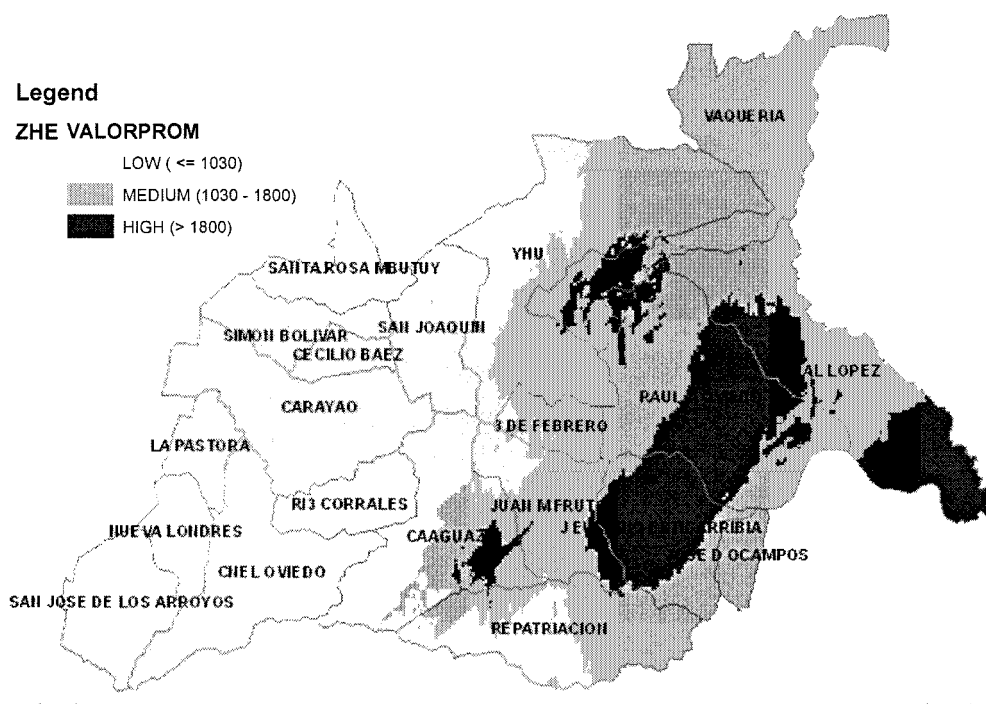


Table 2. 3: Market values by ZHE (in US\$ per ha.)

District	Low	Medium	High	Average
Carayao	360	0	0	360
Cecilio Báez	369	0	0	369
San José de los Arroyos	370	0	0	370
La Pastora	383	0	0	383
Nueva Londres	432	0	0	432
Simón Bolívar	456	0	0	456
San Joaquín	457	0	0	457
Santa Rosea del Mbutuy	472	0	0	472
RI 3 Corrales	519	0	0	519
Coronel Oviedo	651	0	0	651
Caaguazú	731	1,426	2,064	1,061
3 de Febrero	939	1,145	0	1,121
Repatriación	870	1,349	1,907	1,157
Yhu	766	1,398	1,873	1,174
José Domingo Ocampos	0	1,321	0	1,321
Juan Manuel Frutos	861	1,364	2,012	1,327
Vaquería	0	1,523	1,934	1,565
Raúl Arsenio Oviedo	0	1,436	1,822	1,628
Mariscal López	0	1,635	1,651	1,642
José Eulogio Estigarribia	0	1,529	2,155	1,969
<b>Department (weighted average)</b>	<b>550</b>	<b>1,447</b>	<b>1,871</b>	<b>1,100</b>

2.17 Districts with the lowest average market value comprise land with only “low” economic value, while those with higher market values include predominantly land from the medium and high value categories.

2.18 At this point it is useful to look at the correlations between the ZHE, which are based on the estimation model, and the ZF, which are based on factors determining agricultural utility. Overall, both classifications assign higher values to the eastern part of the department than to the western part. But there are some exceptions: the land in the municipality of José Eulogio Estigarribia, for instance, has the highest average estimated market value, but only medium agricultural utility according to the ZF classification due to the predominance of medium- and low-quality soils (alfisol and ultisol). However, access to roads is better than in other parts of the department, which is an important factor for those investing in large-scale soy cultivation and determinant of market value.<sup>31</sup>

2.19 Appendix Table 4 provides the full detail of high, medium and low value land in each district, as well as a breakdown into public (non-taxable) and private (taxable) land. For this purpose, public lands (about 28 percent of Caaguazú) are deemed to comprise those colonized by INDERT (which still holds title on behalf of the beneficiaries pending payment for their lands), those owned by indigenous groups, and national parks. While these lands cannot be freely bought and sold, it is nevertheless useful to assign a market value to these areas. The exact GPS location of INDERT lands within each district was not available, so they were assigned each district’s average market value. The GPS location of indigenous lands, on the other hand, was available and the model calculated an estimated value for these lands, which tend to be located in high-value areas. Private lands (about 72 percent of Caaguazú) tend to have higher than average valuations, except for privately-owned forests which tend to be of a lower value (Table 2.4).

**Table 2. 4: Summary of Estimated Market Values by Type of Land (US\$)**

	<b>Hectares</b>	<b>Average value (US\$) per ha.</b>
<b>Public lands</b>	<b>358,963</b>	<b>886</b>
INDERT	346,614	871
Indigenous	9,977	1,448
National Parks	2,372	617
<b>Private lands</b>	<b>936,407</b>	<b>1,182</b>
(o/w forests)	68,773	420
<b>Total Caaguazú</b>	<b>1,295,370</b>	<b>1,100</b>

See Appendix Table 4 for values by district.

<sup>31</sup> While the correlation between agricultural utility and land prices allows us to speculate about potential determinants of market value, it is beyond the scope of this study to conduct a detailed analysis of this issue aside from the brief “hedonic” exercise reported in the previously mentioned Addendum to Annex 5. Nevertheless, Molinas Vega’s (2005) regression analysis of the determinants of land prices in Paraguari, San Pedro and Itapúa shed some light on the factors determining land values; it shows that soil quality, land titling and distance from roads are significant factors. In addition, variables for geographic location (dummy variables for areas close to the border with Brazil and Argentina, areas dominated by smallholders, or areas primarily characterized by *colonias*), which serve as proxies for the ease with which domestic and foreign markets can be accessed from a certain location, are found to be important.

## Analysis of Results

### *a) The gap between market and fiscal values in rural areas*

2.20 The results confirm the perception that fiscal values of land in Caaguazú are far below market values. But they also show that there is a large amount of variation among districts.

2.21 First, *market* values vary considerably across the department (Map 2.4 and Figure 2.1). The district of José Eulogio Estigarribia has an average market value of rural land (US\$1,969) five times as high as Carayao (US\$360), which is located in the western part of the department. The emergence of high-value zones in the eastern part of the department is clearly linked to the presence of the main silos, cooperatives and large-scale agro-businesses. It is also related to the acquisition of large landholdings by Brazilian investors to cultivate soy, following large price increases in the neighboring department of Alto Paraná due to the same phenomenon.

Map 2. 4: Average market values by district (in US\$ per ha.)

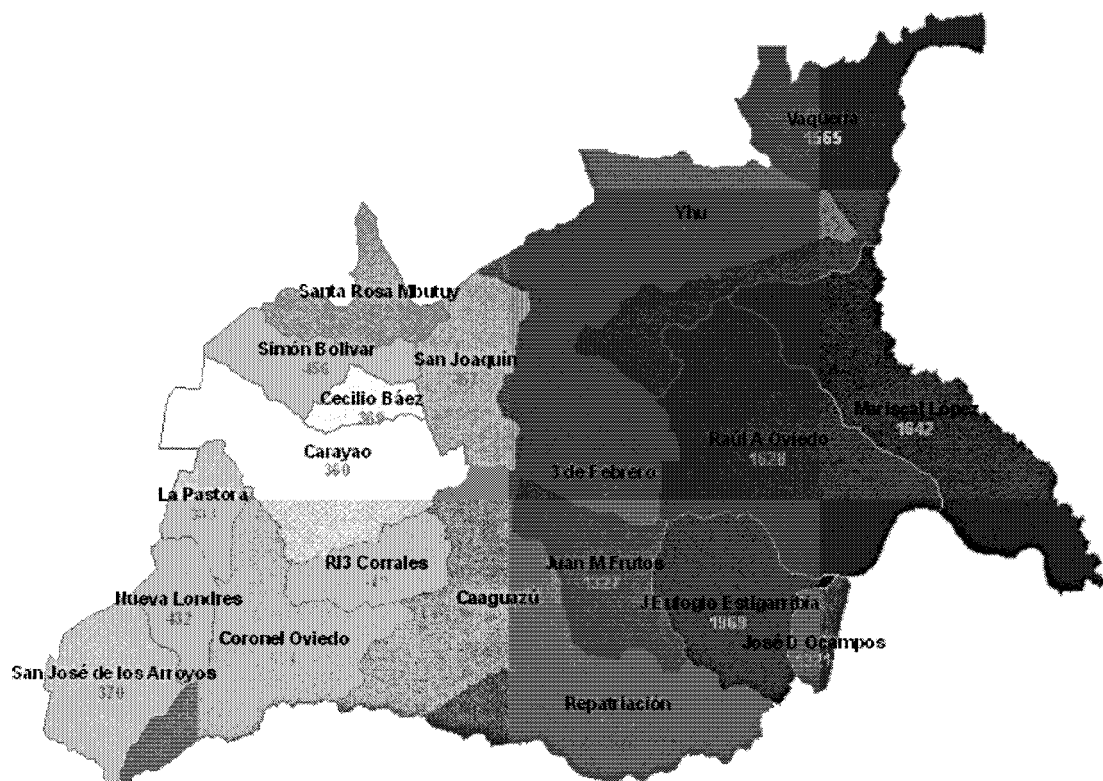
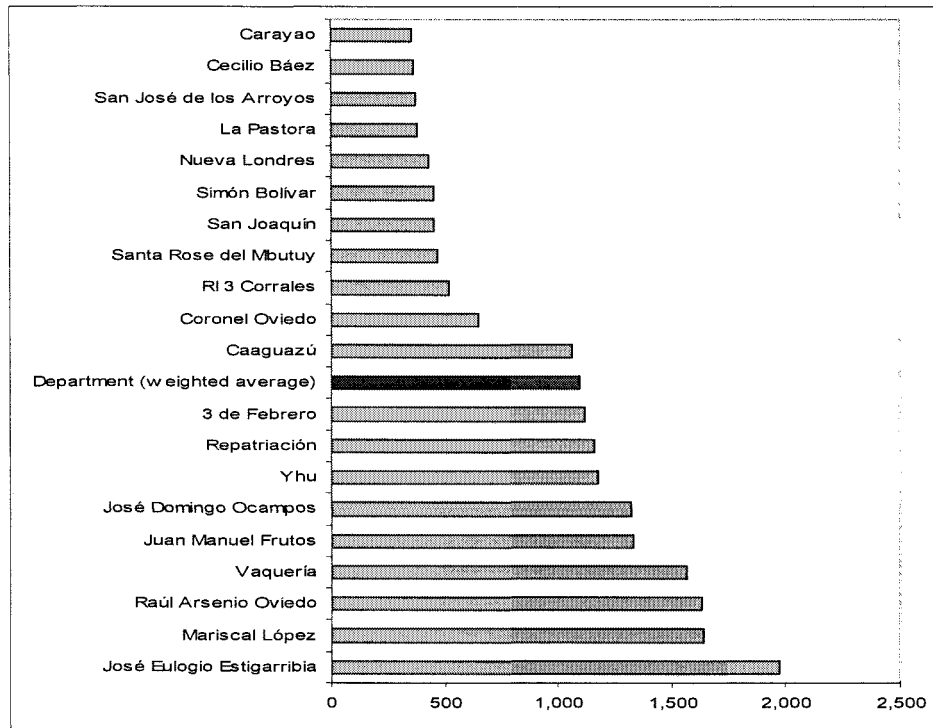


Figure 2. 1: Average market values by district (in US\$ per ha.)



2.22 Second, while there is some variation in *fiscal* values across districts, this variation is not explained by actual market conditions. There are only five different fiscal values in use in Caaguazú, ranging from US\$17 to US\$29, meaning that many districts have the same fiscal value regardless of their widely varying average market values. Given that there has been a uniform increase in these values since 1992,<sup>32</sup> the relative fiscal value for one district compared with another has not changed at all, and has thus failed to account for changes in local land markets.

2.23 As a consequence, the district of Mariscal López, for instance, is among those districts with the lowest fiscal value (US\$17 per hectare), but with the second highest market value (US\$1,642 per hectare). The average market value of rural land in Mariscal Lopez is thus 99 times the fiscal value. In San José de los Arroyos, on the other hand, market values are only 13 times fiscal values (Table 2.5 and Map 2.5).

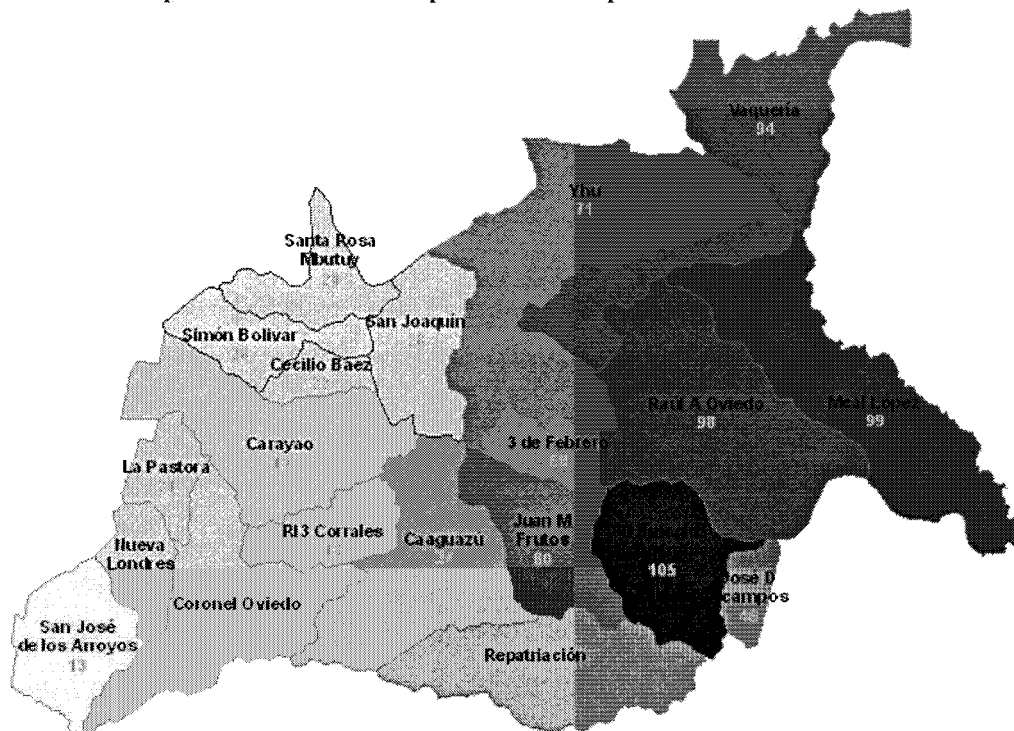
2.24 In fact, it turns out that there is a slightly *negative* correlation between market and fiscal values, i.e. higher market values are associated with lower fiscal values. For the Department as a whole, the estimated average market value is 54 times the average fiscal value.

<sup>32</sup> See Chapter 1 for more details on the evolution of fiscal values in Paraguay.

**Table 2. 5: Fiscal values (2006) vs. estimated market values in Caaguazú  
(in US\$ per ha.)**

District	Fiscal Value (FV)	Average Market Value (MV)	FV as share of MV	MV as multiple of FV
San José de los Arroyos	29	370	7.7%	13
RI 3 Corrales	29	519	5.5%	18
Carayao	19	360	5.2%	19
La Pastora	18	383	4.8%	21
Nueva Londres	20	432	4.7%	21
Cecilio Báez	17	369	4.5%	22
Coronel Oviedo	29	651	4.4%	23
Simón Bolívar	17	456	3.6%	28
San Joaquín	17	457	3.6%	28
Santa Rosa del Mbutuy	17	472	3.5%	28
Caaguazú	29	1,061	2.7%	37
Repatriación	29	1,157	2.5%	41
José Domingo Ocampos	29	1,321	2.2%	46
3 de Febrero	17	1,121	1.5%	68
Yhu	17	1,174	1.4%	71
Juan Manuel Frutos	17	1,327	1.3%	80
Vaquería	17	1,565	1.1%	94
Raúl Arsenio Oviedo	17	1,628	1.0%	98
Mariscal López	17	1,642	1.0%	99
José Eulogio Estigarribia	19	1,969	1.0%	105
<b>Department (weighted average)</b>	<b>20</b>	<b>1,100</b>	<b>1.8%</b>	<b>54</b>

**Map 2. 5: Market values expressed as multiples of fiscal values**



2.25 These results show that fiscal values are even further removed from market values than previously estimated. Based on a small, non-random sample taken in 11 districts in Caaguazú, Molinas Vega (2000) found that in 1996 fiscal values were close to 6 percent of market values. The results of this study suggest that for the department of Caaguazú as a whole, the average fiscal value in 2006 is only 1.8 percent of market values. The difference in the two estimations may be due to the use of significantly different methodologies, or they could simply be a function of increasing disparities due to the spread of soy cultivation in eastern Paraguay. A comparison of the estimates for 1996 and 2006 indeed shows that the greatest increase in estimated values occurred in the districts located in the eastern part of the country: José Eulogio Estigarribia, Raúl Arsenio Oviedo, Repatriación and Yhu (Table 2.6).

**Table 2. 6: Comparison of estimated market values (Guaranies per ha.)**

	1996*	2006^	2006 estimate as multiple of 1996 estimate
3 de Febrero	1,242,857	6,725,630	5
Caaguazú	1,081,250	6,365,569	6
Carayao	700,000	2,162,148	3
Cecilio Báez	800,000	2,215,444	3
Coronel Oviedo	1,950,000	3,905,528	2
José Eulogio Estigarribia	1,200,000	11,815,810	10
José Domingo Ocampos	2,250,000	7,924,552	4
Raúl Arsenio Oviedo	650,000	9,767,004	15
Repatriación	928,125	6,943,508	7
Yhu	693,571	7,046,289	10

Notes:

\*1996 estimates are district averages derived from a non-random sample (Molinas Vega) collected in 104 communities in 24 districts, including 11 of the 20 districts in the department of Caaguazú (with at least 4 respondents per district).

^2006 estimates are district averages derived from a model based on a random sample (Tavamba'e)

Source: Molinas Vega (2000) and Tavamba'e (2006).

2.26 The above results provide clear evidence that fiscal values today bear no relation to actual market values. Not only do they under-value land across the board; they also do not reflect agricultural and economic trends that have led to large discrepancies in land values between districts.

#### ***b) Potential revenue impact of moving the tax base to market values***

2.27 Before estimating the potential revenue impact of moving the tax base from fiscal to market values, it is useful to take a look at the current performance of the rural property tax. Table 2.7 provides a comparison of actual tax collections from rural properties with an estimate of potential tax revenues using the existing fiscal values. Actual tax collections for 2004 were adjusted to a 2006 equivalent by increasing them by the increases in fiscal values that occurred in 2005 and 2006 (10 percent each year). Estimated tax collections for 2006 are then compared with potential tax collections based

on the number of taxable hectares in each district and applying the existing tax rate of 1 percent to the 2006 fiscal values.

**Table 2. 7: Revenue performance of rural property tax (Guaranies)**

District	Estimated revenue from rural property tax (2006)^	Potential revenue from rural property tax @ existing fiscal values*	Estimated actual / potential revenue (%)
Vaquería	7,218,152	114,457,020	6.3
Nueva Londres	1,444,462	20,010,344	7.2
Mariscal López	15,058,837	119,605,046	12.6
3 de Febrero	3,325,765	20,977,591	15.9
Raúl Arsenio Oviedo	23,593,199	132,176,880	17.8
Yhu	20,136,681	110,621,981	18.2
Simón Bolívar	6,167,586	33,219,159	18.6
San José de los Arroyos	10,890,000	49,473,296	22.0
José Domingo Ocampos	5,386,678	24,353,516	22.1
Carayao	22,515,523	100,325,342	22.4
Santa Rosa Mbutuy	7,578,646	32,003,466	23.7
La Pastora	6,885,809	23,574,547	29.2
Cecilio Báez	1,537,191	4,399,711	34.9
Juan Manuel Frutos	13,568,161	32,816,324	41.3
San Joaquín	8,664,208	17,827,869	48.6
Repatriación	18,997,000	32,051,505	59.3
José Eulogio Estigarribia	44,539,132	70,288,567	63.4
Caaguazú	67,059,410	52,944,377	126.7
Coronel Oviedo	90,381,451	57,526,434	157.1
RI 3 Corrales~	0	0	0
<b>TOTAL</b>	<b>374,947,892</b>	<b>1,048,652,975</b>	<b>35.8</b>
<b>Total in US\$ (at G6.000)</b>	<b>62,491</b>	<b>174,776</b>	

Notes:

^ Estimates of collections for 2006 are based on actual collections for 2004, adjusted by the changes in fiscal values (10% per annum) and assuming that 20% of total property tax collections are from rural properties.

\* Calculated as follows: hectares of taxable land x 2006 fiscal values x 1% tax rate.

~ No taxable rural land in RI Corrales.

Source: Staff calculations based on data obtained from municipalities.

See Appendix Table 6 for the detailed calculations on which these simulations are based.

2.28 For the department as a whole, actual collections of rural property tax are estimated to be only one-third (35.8 percent) of potential collections. While two districts (Caaguazú and Coronel Oviedo) appear to be over-performing,<sup>33</sup> all other districts appear to collect significantly less than they should: collection ratios (here defined as actual collections as shares of potential collections) range from 6 percent in Vaquería to 63 percent in José Eulogio Estigarribia. This indicates that much rural land remains untaxed, and that aggregate revenues from the rural property tax could be increased three-fold

<sup>33</sup> The “over-performance” of Caaguazú and Coronel Oviedo may be due to the practice in these two districts of charging a minimum amount for smallholders; i.e. an owner of a property of 4 hectares in the district of Caaguazú is taxed the minimum amount of G 13,500 instead of the G 6,848 corresponding to 4 hectares. Other potential reasons include: (i) the two districts have large urban areas where revenue collection is easier; (ii) they have better revenue administration than other districts in the department; and (iii) they benefited from the USAID Municipal Finance Project.

(from G375 million to G 1.049 million) just by ensuring full collection of the actual tax on all properties (i.e., attaining full coverage).

2.29 A key assumption for the above calculations is that revenues from rural properties account for only 20 percent of total property tax revenues. This assumption is based on an analysis of data provided by the tax collection office of the district of Caaguazú. This ratio is not known for the other 19 districts as they do not have administrative systems that distinguish between urban and rural collections. The ratio may nevertheless be lower in the more rural districts, in which case current collections would be overestimated in the preceding table, and the revenue impact of improving tax collection would be greater than in this illustration.

2.30 One reason why coverage is so low is that actual collections may not be high enough to induce municipalities to increase their collection efforts. Most of the tax revenue from rural areas is not generated through active collection efforts, rather through compliance with legal requirements in specific situations, such as at the time of sale of a property, or when the owner applies for a mortgage.

2.31 Table 2.8 extends the above analysis and estimates potential revenue collections if rural properties were assessed at their current market values instead of the existing fiscal values. Assuming full coverage of all rural properties, and no change in the existing tax rate of one percent, moving the tax base to market values would increase potential tax collections by 63 times their potential based on current fiscal values and 177 times the estimated actual revenues for 2006, namely, from G375 million actual to G11,066 million based on market values.



**Table 2. 8: Caaguazú - potential revenues from rural property tax at market values (Guaranies)**

District	Estimated actual revenue from rural property tax (2006)^	Potential revenue @ 2006 fiscal values*	Potential revenue @ market values	Potential revenue @ market values as multiple of estimated actual revenues (3) / (1)	Potential revenue @ market values as multiple of potential revenues @ fiscal values (3) / (2)
	(1)	(2)	(3)		
Coronel Oviedo	90,381,451	57,526,434	1,312,017,061	15	23
Caaguazú	67,059,410	52,944,377	1,970,310,447	29	37
San Joaquín	8,664,208	17,827,869	490,468,048	57	28
San José de los Arroyos	10,890,000	49,473,296	642,182,704	59	13
Cecilio Báez	1,537,191	4,399,711	97,884,239	64	22
Repatriación	18,997,000	32,051,505	1,243,098,947	65	39
La Pastora	6,885,809	23,574,547	491,265,593	71	21
Carayao	22,515,523	100,325,342	1,925,338,374	86	19
Santa Rosa Mbutuy	7,578,646	32,003,466	910,300,009	120	28
Simón Bolívar	6,167,586	33,219,159	913,549,599	148	28
José Eulogio Estigarribia	44,539,132	70,288,567	7,349,594,887	165	105
Juan Manuel Frutos	13,568,161	32,816,324	2,625,485,790	194	80
José Domingo Ocampos	5,386,678	24,353,516	1,127,012,194	209	46
Nueva Londres	1,444,462	20,010,344	429,053,388	297	21
Yhu	20,136,681	110,621,981	7,884,788,574	392	71
3 de Febrero	3,325,765	20,977,591	1,416,825,849	426	68
Raúl Arsenio Oviedo	23,593,199	132,176,880	12,946,172,284	549	98
Mariscal López	15,058,837	119,605,046	11,833,382,870	786	99
Vaquería	7,218,152	114,457,020	10,787,614,501	1,495	94
RI 3 Corrales~	0	0	0		
<b>TOTAL</b>	<b>374,947,892</b>	<b>1,048,652,975</b>	<b>66,396,345,356</b>	<b>177</b>	<b>63</b>
<b>Total in US\$ (at G6000)</b>	<b>62,491</b>	<b>174,776</b>	<b>11,066,057</b>		

Notes:

^ Estimates for 2006 based on 2004 data. See note to previous table.

\* Calculated as follows: hectares of taxable land x 2006 fiscal values x 1% tax rate (see Appendix Table 6).

~ No taxable land in RI Corrales.

2.32 Revenues could be further increased by taxing land that has been transferred by INDERT to smallholders, a factor which is not included in the above calculations. Currently, lands transferred by INDERT are exempt from the property tax until five years after the title is transferred to the individual owner, and then at one-half the standard rate (i.e. at 0.5 percent) on holdings of less than 5 hectares. If subject to the full tax rate at market values, these lands could contribute an additional G 18 billion in tax revenues (Table 2.9). Note, however, that one of the reasons why so few smallholdings pay the tax is that there are long delays in title transfers, and this problem would have to be tackled if tax revenue from smallholdings were to be increased.

**Table 2. 9: Potential additional revenue from INDERT transferred lands**

Current area (ha.)	346,614
Average estimated fiscal value (guaraníes per ha.)	147,115
Average estimated market value (guaraníes per ha.)	5,228,080
Estimated additional annual tax revenue (using fiscal values)	509,922,922
Estimated additional annual tax revenue (using market values)	18,121,262,316

2.33 On the other hand, a tax exemption of natural forests under certain conditions<sup>34</sup> could encourage good environmental practices, while leading only to a modest reduction in actual revenues. At current fiscal values, the exemption would represent 9 percent of total potential revenues; at market values, it would represent only 3 percent of potential revenues (Table 2.10). The actual revenue loss may be minimal, however, since existing forest land may not be paying much tax, if any, at present.

**Table 2. 10: Potential impact of possible exemption of natural forests from property tax**

Current area (ha.)	68,773
Average estimated fiscal value (G per ha.)	134,444
Average estimated market value (G per ha.)	2,519,555
Estimated potential revenue if taxed at fiscal values (assuming full coverage)	92,460,710
Cost of possible exemption as % of total potential revenues (using fiscal values)	8.8%
Estimated potential revenue if taxed at market values (assuming full coverage)	1,732,767,236
Cost of possible exemption as % of total potential revenues (using market values)	2.6%

### ***Significance of findings for other departments***

2.34 Given Caaguazú's typical profile, and the past uniform adjustment of fiscal values for Paraguay as a whole, it is reasonable to assume that other departments face similar discrepancies between market and fiscal values of rural land. The largest differences are most likely to be found in those departments that have been affected by an increase in soy cultivation: Alto Paraná, Itapúa and Canindeyú in eastern Paraguay, for instance. Other departments in which soy production does not play as big a role have nevertheless also seen increases in land prices due to the expansion and intensification of cattle ranching. Molinas Vega (2000), for instance, estimates that fiscal values represented only 8 percent of market values in Concepción, and 4 percent in San Pedro.

2.35 Comprehensive data on market values for rural land is not available for all departments. Nevertheless, some estimates are available. The *Banco Nacional de Fomento* (BNF) maintains minimum and maximum prices for land to be used as guarantee for loans, and the *Servicio Nacional de Catastro* maintains a similar list of market valuations – see Appendix Table 7. Using the averages of these estimates, it is possible to approximate potential revenues from the rural property tax for Paraguay as a whole based on market values instead of fiscal values.

2.36 Table 2.11 presents these estimates. For eastern Paraguay, where the highest increases in market values have taken place, potential property tax collections on rural

<sup>34</sup> Such as fiscal incentives for maintaining certified natural forests on a sustainable basis.

land are estimated at US\$89 million per annum. This amount would be 33 times higher than potential revenues based on fiscal values (assuming full coverage). BNF and SNC estimates are not available for western Paraguay (Chaco), but using illustrative estimates of market value, potential revenues are estimated at US\$14 million per annum, about 9 times higher than potential fiscal based revenues. For Paraguay as a whole, potential market-based revenues would thus be about US\$103 million per annum, equivalent to about 1.1 percent of GDP for 2006.<sup>35</sup>

**Table 2. 11: Paraguay - potential revenues from rural property tax at market values (US\$)**

Department	Land area (has.)	Taxable rural land (has.) <sup>1</sup>	Average fiscal value (US\$) per ha.	Potential collections from rural property tax @ fiscal values	Estimated market value (US\$) per ha. <sup>2</sup>	Potential collections from rural property tax @ market values	Potential collections @ market values as multiple of potential collections @ fiscal values
<b>Eastern Region</b>							
Alto Paraná	1,489,500	1,117,125	37	414,476	1,583	17,687,813	43
Amambay	1,293,300	969,975	25	240,230	365	3,536,367	15
Caaguazú	1,302,398	936,407	19	174,776	863	8,076,509	46
Caazapá	949,600	712,200	21	146,397	700	4,985,400	34
Canindeyú	1,466,700	1,100,025	20	219,749	1,113	12,237,778	56
Central ~	246,500	184,875	47	86,253	2,250	4,159,688	48
Concepción	1,805,100	1,353,825	20	272,454	267	3,610,200	13
Cordillera	494,800	371,100	29	107,493	917	3,401,750	32
Guairá	384,600	288,450	24	69,354	500	1,442,250	21
Itapúa	1,652,500	1,239,375	26	324,647	1,104	13,684,766	42
Misiones	955,600	716,700	22	154,393	421	3,016,113	20
Ñeembucu	1,214,700	911,025	11	100,234	300	2,733,075	27
Paraguarí ~	870,500	652,875	29	190,839	807	5,270,605	28
San Pedro	2,000,200	1,500,150	16	241,906	363	5,438,044	22
<b>Sub-total</b>	<b>16,125,998</b>	<b>12,054,107</b>	<b>23</b>	<b>2,743,202</b>	<b>741</b>	<b>89,280,356</b>	<b>33</b>
<b>Chaco</b>							
Alto Paraguay^	8,234,900	6,587,920	8	498,470	50	3,293,960	7
Boquerón^	9,166,900	7,333,520	8	554,885	50	3,666,760	7
Pdte. Hayes^	7,290,700	5,832,560	8	441,316	100	5,832,560	13
<b>Sub-total</b>	<b>24,692,500</b>	<b>19,754,000</b>	<b>8</b>	<b>1,494,672</b>	<b>72</b>	<b>14,185,424</b>	<b>9</b>
<b>TOTAL</b>	<b>40,818,498</b>	<b>31,808,107</b>	<b>13</b>	<b>4,237,874</b>	<b>321</b>	<b>103,465,780</b>	<b>24</b>

(1) Taxable rural land is defined as private land, estimated to be 75% of total land area in each department. This share is for illustrative purposes only and is based on actual conditions in Caaguazú where private land is 72% of total.

(2) Estimates based on data from Banco Nacional de Fomento and SNC (Ministry of Hacienda) for Eastern Paraguay. See Appendix Table 7.

^ Estimated market values for the Chaco region are purely indicative and for illustrative purposes only.

~ BNF and SNC estimates for Central and Paraguarí were arbitrarily cut by half as they appeared unrealistically high.

2.37 The above estimates are purely illustrative based on limited official data. Nevertheless, they may be conservative, since the field work conducted in Caaguazú

<sup>35</sup> Based on preliminary GDP for 2006 of G51,340 billion, equivalent to US\$9,168 million at an average exchange rate of G5600 per US\$.

estimates that the average market value of private land (US\$1,182) is 37 percent higher than the average BNF/SNC estimates for that department (US\$863). Overall potential revenue may thus be considerable higher than that shown in Table 2.11.

2.38 Using market values for the purpose of rural property tax assessments would have a significant impact on municipal revenue: it could generate more than US\$100 million in revenues for municipalities, eight times more than municipal revenues from royalties, and almost double total current revenues of all municipalities excluding Asunción.

## **Conclusion**

2.39 The preceding analysis of rural land prices in Caaguazú shows that the use of fiscal values for purposes of the *impuesto inmobiliario* severely limits the usefulness of the tax as a revenue instrument.

2.40 First, fiscal values do not reflect the large variations in land prices across municipalities, which range from US\$360 to US\$1,969. This is due to the fact the annual increases in fiscal values are (i) limited to annual inflation and (ii) standardized across the department, failing to reflect economic developments that have led to higher prices in certain municipalities. As a consequence, the gap between fiscal and market values has widened more in some municipalities than in others.

2.41 Second, current collections are far below what could be expected at the prevailing fiscal values, pointing to weaknesses in tax administration. If the existing property tax was actually collected on all taxable rural land, collections would be about three times as high as they currently are. It is clear that any reform in the property tax system needs to address these weaknesses.

2.42 Third, the continued use of fiscal values instead of market values means that municipalities in the Department of Caaguazú forego G66 billion (US\$11 million) in annual revenues; in other words, assuming full coverage, revenues from the property tax could be 176 times more than what they currently are. At the national level, market-based assessments for rural land could generate potential revenues of over US\$100 million per annum (about 1.1 percent of GDP), about 24 times higher as those based on existing fiscal values, assuming full collection.

2.43 Finally, the inclusion of lands transferred by INDERT, which are currently not taxed even though they become taxable 5 years after the transfer of the title, would generate significant additional revenue (G18 billion, or US\$3 million, equivalent to about one-quarter of potential revenues from all private land in Caaguazú). The losses incurred by leaving INDERT land untaxed are thus considerable. Providing a tax exemption for sustainable managed native forests, on the other hand, would not lead to significant losses (about 3 percent of potential tax revenue).

### **Chapter III: Evaluating the Relationship of Land Taxation to Non-revenue Policy Goals in Rural Paraguay**

3.1 The previous chapters focused on the revenue implications of improving rural property taxation in Paraguay. This section addresses two key questions about the potential non-revenue impacts of improving agricultural land taxation in Paraguay: (i) Would more effective land taxation improve the efficiency of land use?; and (ii) Would more effective land taxation improve the distribution of land by promoting market transfers between larger and smaller farm sizes?

3.2 In short, the answer to the first question is that improved agricultural land taxation almost certainly would increase land use efficiency. The answer to the second question is that improved land taxation would likely induce a certain amount of redistributive land market activity based on the transfer of land from less efficient to more efficient uses, which in practice would likely imply transfers from very large operations to medium size operations. An improved rural land tax by itself would likely have little direct redistributive effect toward improving land access for small farms or landless workers. In association with other policies, however, an improved land tax could play an important role in stimulating the land market to become more amenable to redistribution to small-size operations.

3.3 The main arguments in favor of land taxation are based on economic, social justice, and land use justifications. The principal economic argument is that a pure land tax is non-distortionary, because it has no negative effects on investment or production. Because the land tax is a fixed cost that must be paid whether or not the land is used for production, it does not penalize production and creates an incentive to develop land to its most profitable use. In this regard, land taxation discourages underutilization of land and land speculation. Administratively it is a preferred type of taxation because of its transparency; land is immobile and cannot be hidden or disguised as a bookkeeping transaction. From a social justice perspective, it captures the economic rent that arises from a scarce natural resource due to population presence and public infrastructure investment which increase the market value of land. As such, it is inherently equitable to tax such “unearned increments” that arise from public actions. From an institutional perspective, the tax can be viewed as a payment to society for the benefits conferred to the landowner for the guarantee of private property.

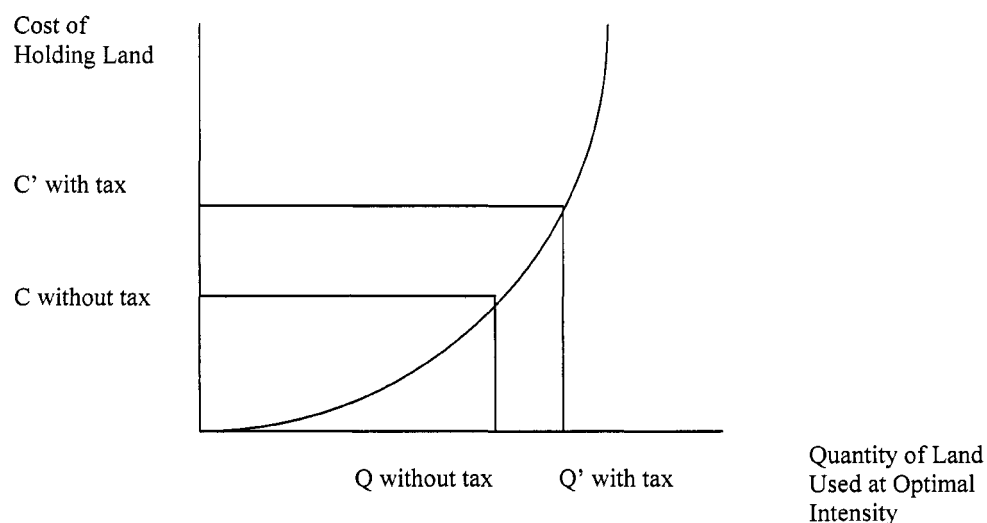
3.4 Experience from around the world reflected in the land taxation literature supports the view that when the tax is significant and well-administered, the effect of land taxation on intensifying land use is strong. Nevertheless, it is also apparent that achievement of these effects in the developing world has been elusive due mainly to low tax rates, low assessed values and limited administrative capacity. The idea that the intensification of land use as a result of more effective taxation will also lead to some redistribution from less efficient to more efficient farms through markets is supported by international experience, but not necessarily in a way which will benefit the smallest farmers. Nevertheless, these arguments suggest that by intensifying land use and activating land markets, improved land taxation may be an important element of a package of land policies geared towards achieving greater rural employment and eventually less concentrated land distribution.

3.5 This chapter reviews these arguments in the context of rural Paraguay based on examination of data on land distribution, land markets and land use in Paraguay.

**What the literature has to say about non-revenue impacts of land taxation.**

3.6 The economic intuition about the land utilization effect of land taxation is that any factor which raises the cost of holding underutilized land creates an incentive to increase utilization. If land is not used at its optimal intensity, then raising the cost of holding land through a tax should induce greater effort for land utilization (see Figure 1). As will be examined below, there is good reason to believe that a significant quantity of agricultural land in Paraguay is not used at its optimal intensity for a variety of historical and institutional reasons, and that more effective land taxation would thus lead to more intensive land use.

**Figure 3. 1: Increase in land use intensity as a result of land tax**



3.7 The figure illustrates a situation in which the supply of land used at optimal intensity is elastic over some range. This curve could apply to either an individual landholder or an economy. As the tax is imposed (the move from C to C') the landholder increases the quantity of land used at optimal intensity (the move from Q to Q').

3.8 The above observation is born out empirically. Wunderlich (1993), in a survey of agricultural land taxation in the US concludes from an exhaustive review of time-series data that there is "a positive relationship between higher property tax rates and more intensive use of farmland, which in turn is associated with more equal distribution of farmland." Yamamura (1986) makes the same case for Japan, linking the imposition of a land tax to increased agricultural productivity. Strasma (2000) points out how the structure of Chile's agricultural land taxation system successfully encourages full utilization of the land by basing assessments on the potential profitability of each land parcel, which are updated regularly based on a table of actual market transactions.

3.9 The impact of agricultural land taxation as a mechanism for inducing redistributive market transfers, on the other hand, is not as clear. Considering Brazil, Assuncao and Moreira (2005) note that the land tax (Rural Property Tax) in Brazil is intended to support public policies for land redistribution, but has had little success. They note that there is a high level of evasion and default that hinders its efficiency as an instrument of landholding policy, but still conclude that “appropriate land taxes might correct land prices in economies where they are above the discounted present value of agricultural inflows, inducing land redistribution from large landowners to more productive small peasants.” Similar tax policies, it is worth noting have been applied in the Caribbean in places such as St. Lucia and Jamaica, also with mixed results. Strasma et al. (1987) concludes that the use of agricultural land taxes for stimulating redistribution has not yet succeeded because land taxes are imposed at too low a rate to affect the decisions of property owners. Shearer, et al. (1991) are guardedly optimistic about land taxation as a policy tool to encourage redistribution in the Latin American context, but call for more research.

3.10 Other economists have expressed skepticism about both the land intensification and redistributive effects of agricultural land taxation, but the skepticism turns out to hinge on the specific circumstances under which the tax is applied. Skinner (1991a and 1991b), for example, believes that it is not clear at a theoretical level why a land tax should encourage more productive use of land, unless it is tied to a reduction in export taxation (which would increase domestic output prices) because, “by definition an efficient tax should not affect land use decisions.” But he goes on to say, however, that, “it is possible that a sufficiently large land tax could spur landowners to work harder (an income effect) or to break away from reliance on traditional methods of production and seek new and more efficient methods.” So in effect, Skinner answers his own critique by again pointing out the incentive that an agricultural land tax creates to intensify effort, especially in places where there is reliance on traditional methods, or even more pointedly where land is being held for non-productive reasons which have to do with imperfections in other markets (e.g., as a store of value due to low confidence in the financial system).

3.11 Skinner also expressed doubts that land taxes reduce speculation in land because the tax only results in a one-time land price reduction. This critique is valid in the circumstance in which land is the only asset the investor holds. But when an investor has the opportunity to invest in a variety of assets and the rate of return of one of them (e.g., land) is lowered, the investor will shift investment away from that asset. Especially in a progressive land taxation scheme, such shifting of incentives could induce market transfers of land. Skinner also objects to land taxation as an instrument for land reform. He says that:

“efforts to encourage land reform though this channel in Colombia and other countries have generally been unsuccessful for two reasons: First commonly administered land tax rates have been neither large enough nor progressive enough to affect land use. In one study of Colombia, L. Harland Davis concluded that: ‘Because of low rates the tax burden is a relatively small percentage of income and this fact means that there is little opportunity for the non fiscal effects to operate ... particularly...among the larger farmers, where the tax burden is lightest.’”

3.12 Low rates are the problem noted here, not the economic incentives created by the land tax. But in fact rates, while typically somewhat lower in Latin America than in OECD

countries, are much less critical than below-market-value assessments in the failure of Latin American rural land taxes to have significant impacts on land use decisions. The issue for Latin American land use intensification is thus what level of assessment and what tax rates could together change behavior and the willingness to intensify land use through technical change or by renting out or selling the land. Most of the observed rates in Latin America's agricultural land are somewhat lower than OECD countries, but combined with very low assessments they generate amounts of tax which are scarcely worth collecting and have little presumed economic relevance to landholders.

3.13 Two important questions which need to be answered to assess the non-revenue impact of improved land taxation in Paraguay are therefore: 1) Does there exist a significant quantity of land which is economically underutilized, and 2) Is the existing agricultural land tax sufficient to induce changes in the behavior of landholders and lead to intensification of use? Chapter II presented a range of evidence which casts major doubts on the efficacy of the existing tax to create land use incentives because of severe, chronic under-assessment of land values, so this section focuses on the first question. An increase in the land tax is likely to induce a significant intensification of land use only if there is a significant quantity of underutilized land in the first place and the factors for intensification can be cheaply mobilized into agricultural production. As we shall see below there are good reasons to believe that there is significant underutilization of land (i.e., departures from socially optimal factor productivity) in Paraguay. It is also clear that excess labor supply is readily available. Access to additional capital, however, is probably a constraint for many producers, particularly small farmers.

### **Land Utilization and Markets in Paraguay**

3.14 Paraguay's land distribution and structure of production have characteristics which suggest that a significant amount of land is underutilized. These characteristics are: a highly unequal land distribution based on a historically determined, non-market initial allocation, strong evidence of an inverse relationship between farm size and productivity, significant areas in extensive cattle ranching, and high rural underemployment. Also, there are a number of non-productive reasons for holding land in Paraguay: land is held as a hedge against inflation, as a hedge against banking or financial crises, and as a symbol of social prestige.

3.15 Land concentration does not by itself mean land is underutilized. But if the structure of production also shows a strong inverse size productivity relationship (i.e., that small farms are more productive than large ones), then land concentration is an indirect indicator of socially inefficient land utilization. Data show that land concentration is severe in Paraguay, although the trend has ceased to worsen over the last fifteen years and has improved slightly since 1991, primarily due to transfers from very large to medium size operations. According to data processed by FAO, the Gini coefficient for agricultural land increased from 0.89 in 1981 to 0.93 in 1991 (Molinas 1997). Other calculations based on MAG data for 1991 and 2002 indicate that the Gini coefficient for the eastern part of the country declined from 0.87 in 1991 to 0.85 in 2002, which is still a very concentrated land tenure pattern. The FAO's table on land concentration (below) describes this distribution.



**Table 3. 1: Quantity and Area of Agricultural Landholdings in Eastern Paraguay by Farm Size**

Tamaño de la Explotación	2002		1991		Variación (%)	
	Cantidad	Superficie	Cantidad	Superficie	Cantidad	Superficie
	GINI	0,85	GINI	0,87		
<b>REGION ORIENTAL</b>	<b>318.793</b>	<b>12.168.720</b>	<b>300.523</b>	<b>11.428.750</b>	<b>6,1</b>	<b>6,5</b>
Menos de 5 has.	109.109	241.415	121.874	230.280	-10,5	4,8
De 5 a menos de 10 has.	79.114	507.558	66.364	429.114	19,2	18,3
De 10 a menos de 20 has.	80.111	955.632	65.932	803.182	21,5	19
De 20 a menos de 50 has.	31.536	856.818	31.095	845.102	1,4	1,4
De 50 a menos de 100 has.	7.858	536.279	7.007	464.073	12,1	15,6
De 100 a menos de 200 has.	4.889	655.756	3.383	449.376	44,5	45,9
De 200 a menos de 500 has.	2.949	870.068	2.227	663.454	32,4	31,1
De 500 a menos de 1.000 has.	1.300	861.636	927	614.600	40,2	40,2
De 1.000 a menos de 5.000 has.	1.605	3.289.237	1.360	2.838.459	18	15,9
De 5.000 a menos de 10.000 has.	225	1.538.186	240	1.657.600	-6,3	-7,2
De 10.000 y más has.	97	1.856.135	114	2.433.510	-14,9	-23,7

Source: FAO, 2005 based on MAG, Estadísticas Agropecuarias, 2004.<sup>36</sup>

3.16 Table 3.1 shows that farms with less than 20 hectares represent 84 percent of landholdings but only account for 14 percent of the agricultural area during 2002. At the other extreme, the farms of greater than 10,000 hectares, which represent only 0.03 percent of holdings account for 15 percent of agricultural land area in the same year. This comparison underlines the high concentration of land ownership in Paraguay, in which a few large farms account for more area used in agriculture than 84 percent of farms. This concentrated ownership pattern raises questions about overall intensity of land use, as the abundant labor of Paraguay's rural economy is concentrated in a small amount of land on the numerous small farms.

3.17 The concentration nevertheless appears to be declining to some extent in the largest size classes. From 1991 to 2002, there was an overall increase of 740,000 has. in area under cultivation, all of which occurred in farms of less than 5,000 has. In addition, farms over 5,000 hectares reduced their area under cultivation by about 700,000. Some redistribution is thus occurring in response to market forces, although the overall pattern remains concentrated.

3.18 Table 3.2 shows that pasture and cattle ranching dominate land use in the largest size categories in the Eastern part of the country where the agriculturally active population is concentrated. Only 19.4 percent of the land is used for annual or permanent crops according to the 2002 MAG data, while 55 percent is in pasture and ranching. This distribution of use is even more pronounced when analyzed by size category. While smaller farms under 100 hectares use 40 percent of their land for crops, farms above 100 hectares utilize only 12.3 percent of their area for crops and 65 percent for pasture. The aggregate data thus suggest a much less intensive pattern of land use in the larger farms than in the smaller ones. These aggregate land use statistics demonstrate the prevalence of conditions in which changes in land use or land market transfers from larger to smaller farm classes could intensify overall production.

<sup>36</sup> Data from 1991 are census data. Data from 2002 are from a census of large holdings and a representative sample of small and medium holdings carried out by MAG.

**Table 3. 2: Land Use in Eastern Paraguay, by Farm Size (2003)**

Superficie: has.	Superficie total de la Explotación	Cultivos temporales y permanentes	Pastura natural y cultivada	Montes nat. y forestales cultivados	En barbecho y en descanso	Otras tierras
REGION ORIENTAL 2002	12.168.720	2.360.962	6.727.976	1.847.034	541.228	691.520
Total de Explotación (%)	100	19,4	55,3	15,2	4,4	5,7
<b>Tamaño de la Explotación</b>						
Menos de 5 has.	241.415	157.941	21.049	6.111	19.453	36.861
De 5 a menos de 10 has.	507.558	257.208	77.409	51.633	73.374	47.934
De 10 a menos de 20 has.	955.632	355.668	219.830	160.515	147.645	71.974
De 20 a menos de 50 has.	856.818	235.050	327.742	131.268	111.495	51.263
De 50 a menos de 100 has.	536.279	235.031	201.807	56.943	24.003	18.495
De 100 a menos de 200 has.	655.756	309.398	231.204	70.894	21.943	22.317
De 200 a menos de 500 has.	870.068	296.598	435.732	90.835	16.039	30.864
De 500 a menos de 1.000 has.	861.636	165.742	528.356	115.074	14.548	37.916
De 1.000 a menos de 5.000 has.	3.289.237	237.819	2.279.230	497.893	61.744	212.551
De 5.000 a menos de 10.000 has.	1.538.186	65.076	1.022.934	339.871	23.125	87.180
De 10.000 y más has.	1.856.135	45.431	1.382.683	325.997	27.859	74.165

3.19 The evidence also confirms that the smaller farm sizes are more intensive users of agricultural land in Paraguay than larger farms. This is not surprising given the large amount of evidence worldwide that small farms are typically more productive than larger ones. This relationship, often referred to as the inverse relationship between farm size and productivity can be the result of diverse factors: (i) greater intensity of land use at small sizes; (ii) higher land values of smaller farms which creates incentives for greater intensity of use; (iii) greater utilization of family labor, which is more efficient than hired labor due to lower supervision costs; (iv) distinct diversification strategies on smaller farms; and (v) population pressure on areas of best soils.

3.20 Molinas-Vega (2005) asks whether the relationship holds for Paraguay. If it in fact does, then there are potentially efficiency-enhancing land transfers across size-classes which could benefit the entire economy, and therefore also, implicitly reduce underutilization of land in the larger farm-size categories. Drawing on Masterson and Rao (1999), and Molinas-Vega and Masterson (2000), Molinas-Vega tests the relationship for Paraguayan agriculture.<sup>37</sup> The results are robust across a variety of estimation techniques, confirming the relationship after controlling for land quality, number of parcels, tenure security, producer characteristics, family labor percentage, access to credit and technical assistance, utilization of conservation techniques and membership in cooperatives.<sup>38</sup>

3.21 The inverse relation between farm size and land productivity implies that the reallocation of a hectare of land from a productive unit of 1000 hectares to a unit under 10 hectares would increase agricultural production by approximately 48,500G/ha. according to the estimations cited. In this situation the underlying production economics of agriculture in Paraguay could support more intensive land utilization assuming that land could effectively be transferred to producers with sufficient technology and capital to intensify land use.

<sup>37</sup> "El Papel de la Agricultura en Paraguay: Desafíos actuales y perspectivas futuras" 2005. (processed).

<sup>38</sup> The econometric results about the inverse relationship in Paraguay, reported in Molinas and Masterson (20002) is shown in five alternative specifications which vary slightly in the assumptions about the linearity of the effects measured. In each alternative specification, the relationship between size of farm and the index of land productivity is negative and statistically significant to the at least the 95% level of confidence.

3.22 Such market induced land transfers have been limited in Paraguay, however, given the capital constraints of small and medium farms. Carter and Salgado (2000) characterize the operation of the land purchase market in Paraguay in the early 1990s, taking into account whether or not households are rationed in their access to capital. Their econometric results offer an interesting portrayal of how the land market actually works in the absence of a significant land tax. In what they call the Minifundia and Colonization regions of Eastern Paraguay, there appear to be large incentives for sale of land from larger to smaller farms based on the observed “shadow” values of land of the smaller farms in their income functions. However, the purchase market does not operate as a mechanism of land access for labor abundant, capital-constrained households, specifically because the lack of access to financing makes purchases impossible, even when the household’s reservation price to acquire land is sufficiently high. They further find that only when agents are capital-unconstrained does their relative technical efficiency actually appear able to express itself as effective demand for more land. That is, the “poor but efficient” do not do well in the land purchase market due to the lack of long-term and operating capital to finance purchases. In the Frontier soy-producing areas, however, the class competitiveness regime signals incentives for structural change in precisely the opposite direction as capital-abundant larger farms can easily buy out smaller operations.

3.23 The question is thus would a stronger land tax actually help to induce these types of transfers from larger farm sizes to smaller size farms, and thus help to improve the pattern of the land distribution? The *prima facie* case based on the land market trends noted above is that it would accomplish this for medium and some small producers at realistic levels of taxation, holding all other variables constant, but it would have little impact for the landless or very small landholders. Nevertheless, because the land tax reduces the price of land and raises the annual costs of holding it as a speculative asset, it is a policy that would complement the existing agrarian reform program by lowering the cost of purchasing land.

3.24 The level of taxation at which point this incentive to sell land would become significant depends on the alternative investments to landholding which are available to landholders. If the taxation of land reduces returns on it by enough that alternative investments have higher returns, then we could expect greater supply of land to the market. The question is whether the existing land tax has enough “bite” to make this process work?

### **Effect of Land Tax on the Market Value of Land**

3.25 Table 3.3 presents a numerical example of how the land tax reduces the market value of land under different assumptions about discount rates and income flows. The first set of calculations show how the market value of land can be seen to be equivalent to the present value of a flow of net annual income to the landowner over a 20 year period, discounted at a given discount rate. Using a discount rate of 9 percent (the actual rate for Paraguayan Treasury bonds in US\$), land which yields a net “economic rent” of 100 (i.e., after all production costs) would be valued at 913. Scenarios with discount rates of 7 and 11 percent are also presented to illustrate that the higher the discount rate, the lower the market value of land, and visa-versa. These illustrations do not include any speculative value that the market may attach to land which, if present, would increase the value above its pure “economic rent” value.

**Table 3. 3: Effect of Land Tax on the Market Value of Land**

Market value = present value of future net income flows			
Discount rate	7%	9%	11%
time horizon (years)	20	20	20
Expected net annual income flow	100	100	100
<b>Market value of land without tax</b>	<b>1,059</b>	<b>913</b>	<b>796</b>
land tax = 1% market value	10.59	9.13	7.96
Annual flow after tax	89.41	90.87	92.04
<b>market value of land after tax</b>	<b>947</b>	<b>830</b>	<b>733</b>
reduction in market value (%)	10.6%	9.1%	8.0%
Annual net flow from <b>beef</b> (US\$) / ha.	70	70	70
present value of land without tax	742	639	557
land tax = 1% market value	7.42	6.39	5.57
Annual flow after tax	62.58	63.61	64.43
Market value of land after tax	663	581	513
reduction in market value (%)	10.6%	9.1%	8.0%
Annual net flow from <b>soybean</b> (US\$) / ha.	239	239	239
present value of land without tax	2,532	2,182	1,903
land tax = 1% market value	25.32	21.82	19.03
Annual flow after tax	213.68	217.18	219.97
Market value of land after tax	2,264	1,983	1,752
reduction in market value (%)	10.6%	9.1%	8.0%

3.26 The second set of calculations show how a land tax of 1 percent per annum on the market value of land reduces the annual net income flows and in turn the after-tax market value of land. At a discount rate of 9 percent, a 1 percent tax on the market value of land would lower the net annual income to 90.87 and, as a result, lower the after-tax market value of land by 9.1 percent. While the tax lowers the net income for each year, its impact on the market value of land is a one-time effect.

3.27 The third and fourth sets of calculations introduce examples of how the market might value land for beef and soy production. The beef example is based on a low-intensity, natural pasture scenario for the Eastern Region at the current market price of about US\$0.90/kg.<sup>39</sup> Net returns using improved pasture and fencing for herd rotation might be twice as high. The soy scenario is based on an average yield of 2,500kg/ha at the average 2005-06 price for soybean for delivery in Paraguay.<sup>40</sup>

3.28 The table shows that a rancher who, with a given state of technology and capital could expect to obtain a net annual yield of US\$70 per annum in beef production per ha. on a given piece of land, would value such land at US\$639 per ha. before tax (under the 9 percent discount rate scenario). A soy farmer, however, might view the same piece of land as

<sup>39</sup> Assumes one head per hectare gaining about 150 kg. per annum, net of maintenance costs, transport to Asuncion market and interest on the capital costs of buying the cow for fattening.

<sup>40</sup> Average price (Chicago) for 2005-06 was US\$270 per MT, less about US\$60 for transport from Paraguay to world market.

capable of producing US\$239 per annum in net returns, in which case he would value the land at US\$2,182. If the land were valued for tax assessment purposes at its full market value, namely US\$2,182, with a resulting tax of US\$21.82, the tax burden on soy production would be 9.1 percent of net income (US\$21.80 / US\$239). If the land were left in cattle production, however, the tax burden would be much higher, about 31 percent (or US\$21.82 / US\$70 of beef income). The cattle rancher would thus have a strong incentive to increase the intensity of his beef production, or to shift production into more profitable crops.

3.29 These are, of course, illustrative examples, but the principle is that by taxing land at its full market value, an incentive is created to increase land utilization and productivity on land which is being used at less than optimal intensity. While a landowner always has an incentive to exploit his land efficiently, these incentives are weaker when the land tax is zero or insignificant, as is the case at present in Paraguay.

## **Conclusions**

3.30 In this section, we reviewed the arguments for land taxation which suggest that a significant non-revenue benefit of higher land taxation is the intensification of agricultural land use and that a higher tax could have some impact on reducing land concentration in Paraguay. So far Latin American experiences have not demonstrated significant land use changes or land market effects from agricultural land taxation, but this appears to be due to the region's weak property tax administration, below-market-value assessments, low tax rates, and low collection rates.

3.31 The specific consideration of land use in Paraguay suggests that there is a widespread underutilization of land. This conclusion is reached indirectly, through observation of high land concentration in an economy in which smaller farm sizes have been shown to be more productive, from data on the extent and returns to cattle ranching versus high-yield soy production, and from the abundance of agricultural labor. In this context of widespread underutilization of land, an improved agricultural land tax would likely intensify land use and reduce speculative landholding.

3.32 Finally, the section asks whether a land tax would induce market transfers in a redistributive fashion from larger to smaller farms. Our examples suggest that especially in extensive cattle-ranching systems (although probably not in soy systems), a realistically designed agricultural land tax could induce landholders to increase the intensity of land use for cattle ranching in order to increase returns per hectare, or to reduce their investment in land holdings. This could induce an increased supply of land to the market, probably resulting in further redistribution from very large holdings to medium sized farms, a trend already apparent in the Paraguayan land market since the beginning of the soy boom. Redistribution to small capital constrained farmers would not readily occur, but because a higher land tax would lower the market price of land, it would facilitate programs that finance the purchase of land for small farmers and could thus be part of a more comprehensive land redistribution policy if accompanied by technology transfers and marketing support to the small farm sector.

## Chapter IV: International and Regional Experience with Property Taxation

4.1 Taxes on property (land, buildings, and other improvements) have been in existence for a long time all over the world. National tax systems have been in place for some time without major changes in nearly all OECD countries: in Europe, for twenty years or more; in Japan, North America, Australia, and New Zealand for even longer. The property tax has also been introduced in a large majority of Latin American countries, but is structured and administered in a great variety of ways in different jurisdictions.

4.2 Property taxes in OECD countries represent about 1.9 percent of GDP, on average, and more than 3 percent of GDP in Australia, Canada, the United Kingdom and the United States. This relationship to GDP has remained relatively constant over the past 30 years, while their importance in terms of total tax revenues declined somewhat since the 1970s to about 5.6 percent, on average, in 2003 (although property taxes still account for more than ten percent of total tax revenues in Canada, Japan and the United States).

4.3 Taxes on property are a less significant source of revenue in most Latin American countries, even though most countries have long established property tax systems. In the 1990s, property taxes accounted for less than 0.5 percent of GDP, on average, in Latin American countries and about 2.5 percent of total government revenues. However, the period 2000-2003 shows an upward trend, with property taxes rising to about 4.5 percent of total tax revenues (in Argentina and Uruguay they exceed the OECD average and account for 11.2 percent and 9.2 percent of total revenues, respectively), but still on average less than 1 percent of GDP.

**Table 4. 1: Taxes on property, 1970-2003, in percent of GDP, regional averages**

	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003
<b>OECD</b>	1.9	1.8	1.6	1.7	1.9	1.8	1.9	1.9	1.9	1.9
<b>Latin America</b>	--	--	--	--	0.4	0.2	0.4	0.5	0.6	0.7

**Table 4. 2: Taxes on property, 1970-2003  
in percent of total tax revenues<sup>41</sup>**

	1970	1975	1980	1985	1990	1995	2000	2001	2002	2003
<b>OECD</b>	7.1	6.3	5.3	5.2	5.7	5.5	5.5	5.5	5.5	5.6
<b>Latin America</b>	--	--	--	--	2.3	2	2.7	3.5	4.3	4.5

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<sup>41</sup> All levels of government.

**Table 4. 3: Relative Importance of Property Taxes, 2003**

Country	% of GDP	% of total tax revenues	% of local tax revenues
<b>OECD average</b>	<b>1.9</b>	<b>5.6</b>	<b>46</b>
Canada	3.4	10.0	93.8
Australia	3.0	9.5	100
US	3.1	12.1	73.0
Germany	0.8	2.4	18.6
Japan	2.6	10.3	32.2
Spain	2.6	7.5	26.0
<b>Latin America average</b>	<b>0.8</b>	<b>4.5</b>	<b>42<sup>42</sup></b>
Argentina	1.4	11.2	35
Colombia	0.7	5.4	35
Chile	0.6	--	35
Uruguay	1.6	9.2	--
Paraguay	0.4	3.2	48

Source: Revenue Statistics 1965-2004, (OECD) 2005; Government Finance Statistics (IMF); International Financial Statistics (IMF); and World Economic Outlook (IMF) 2005. Bird and Slack 2004, "International Handbook of Land and Property Taxation". Staff est. for Paraguay.

4.4 However, the importance of the property tax is not in relation to the national tax base, but rather to the tax base of local governments. The property tax is usually, but not always, a local tax (the rural property tax is administered at the provincial level in Argentina and at the central level in Chile). It is traditionally considered an important revenue source to local governments, given that property is immovable and is located within the jurisdiction of a specific local government. The related tax is thus difficult to avoid. It is a significant source of local revenues especially in rural areas where land is usually the only tax base.

4.5 On average, the property tax accounts for about 46 percent of total local tax revenues in OECD countries and for about 42 percent in Latin American countries. It is usually a benefit-based tax and is set to capture, as closely as possible, the cost of services provided. In fact, making the connection between delivery of local public services and revenue collected from the property tax more evident to taxpayers has showed to contribute to a better collection rate (e.g., in Colombia). A direct link is established between property tax and benefits to the community when revenues raised locally are spent locally for the benefit of the local tax payers. Property taxes assigned to and managed by municipalities have proven to be on average more efficient.

4.6 Variations in the performance of property taxes depend on political will, which differs enormously among countries and municipalities. International experience shows that property taxes are overall politically unpopular and that, often, reforms have proven to be difficult or impossible to implement (as in the case of Germany), given the unwillingness of politicians to deal with the complexities of the land taxation system. In other cases, efforts to reform property and land taxation systems – when well designed and political opposition handled – have been successful in creating a relatively effective mechanism to raise (local) revenues (e.g., in Colombia).

<sup>42</sup> Due to limited data, average for property tax as percentage of local revenues is based only on countries shown in table plus Mexico.

4.7 Property taxes vary greatly not only among countries but often also within the same country, depending on: (i) how the tax base is determined and the tax rates are calculated, and (ii) the degree of local government autonomy in establishing the base and setting the rates. Similarly, the responsibility for assessing and collecting the tax may fall on different levels of government with different levels of capacity, depending on the national and/or local conditions and circumstances. The main features of the property tax systems in selected OECD and Latin American countries are summarized in the following matrix (Table 4.4.) and are described in greater detail in Annex 6 of Volume II.

4.8 Despite the complexity and the diversity of land taxation systems worldwide, some approaches to property taxation are emerging as good practices in the international experience. We analyze these in the following sections.

### *Tax base*

4.9 The tax base may be the land only (e.g., in Australia in some cases), the buildings only, the land and buildings and other improvements, or various combinations of these factors. The tax base for agricultural land usually includes only land, although in some cases it also includes improvements (e.g., in Argentina; in Germany, where the tax base includes all that serves to maintain the agricultural or forestry business – land, buildings, machinery and livestock; and in Chile, where it includes the value of land and improvements above a fixed amount).

4.10 In principle, a tax on the land only (site value taxation) would be preferable in that it gives the owner the incentive to develop the land to its most efficient and productive use. However, most countries tax both land and buildings/improvements, either applying a single tax or two separate taxes. Taxing land only (excluding improvements) leads to difficulties in the valuation of urban property, where the values of land and improvements are not easily separable in an objective, accurate and efficient manner. Valuing land separately may be less of a problem in rural areas, given that in these areas land and improvements are often assessed separately in any case, and that land often constitutes a significant tax base in itself.



**Table 4. 4: Comparison of Property Taxes among Sample OECD and Latin American Countries**

Country	Tax Base	Tax Assessment	Tax Rates	Rural/ Agric. Land	Responsibility for	
					Assessment	Collection
OECD						
Canada	Land and improvements.	Close to market value: average of the current value of the tax year and the value of previous tax year. Frequency of reassessment varies among provinces.	Rates range from 1.4% to 4% for different classes of property; local discretion.	Assessed at values in current use (vs. potential); rates limited to 25% of residential tax rate; other tax-related incentives.	Province	Municipality
Australia	State land tax levied on land; municipal rates levied on land only or land and improvements.	Market value at the date of valuation, rental value or combination of those; valuations determined at the state level and periodically reassessed (from 1 to 7 years depending on the state).	Rates range from 0.7% to 3% for different land uses; local discretion although limits on annual increase.	Lower tax rates; land used in primary production exempt in almost all states.	State (not Federal)	Municipality
United States	Land and improvements.	Market value; annual reassessment.	Rates range from 0.5% to 3%. Agricultural land taxed on average at 0.7-0.85%.	Lower assessed values especially at urban fringes.	State (not Federal); County	County; Municipality
Germany	Land and improvements; farm property includes also machinery and livestock.	Market value (although based on estimated economic values from 1964); price adjustment mechanism does not exist; area-based assessment used for buildings.	Base rates range from 0.26 (one-family houses) to 0.6 % (agriculture and forest lands); leverage factors established at the local level.	Tax rates higher but applied to estimated economic values of 1964; low rateable value and exempt from business tax.	Municipality	Municipality
Japan	Land, buildings, and fixed business assets.	Market value with uniform assessment formula established at national level; reassessments every 3 years.	Rates determined at the national level: standard rate is 1.4%, up to a maximum of 2.1% at the discretion of the municipality.	Assessed at 55% of market value, except for agriculture land in urbanization areas which is assessed at full market value; tax concessions to dispose of farmland.	Municipality, based on uniform national formula.	Municipality
Spain	Land and buildings	Cadastral value readjusted every 8 years through market analyses, but never exceeds 50% of market value).	Ordinary rate: 0.40% in urban areas and 0.30% in rural areas. Municipalities can increase these rates: the range is roughly 0.5% to 1%.	Lower tax rate	Central Government (not federal).	Municipality

**Table 4.4: Comparison of Property Taxes among Sample OECD and Latin American Countries (cont.)**

Country	Tax Base	Tax Assessment	Tax Rates	Rural/ Agric. Land	Responsibility for	
					Assessment	Collection
Latin America						
Argentina	Land and buildings. (In a few cases, urban land is subject to both provincial and municipal property taxation).	Fiscal value which is generally 40%-60% below market value, is adjusted annually with tax coefficients to meet revenue requirements. Periodic assessments are carried out to keep up with market value.	Vary among provinces and municipalities: in urban areas range is from 1%-1.5% for provincial tax and 0.7%-1% for municipal tax; higher rates for vacant lots. In rural areas: uniform tax rate up to a maximum 1.2%.	Value based on land productivity, area, location. Rural tax is payable in three to four installments.	Province and municipality	Province and municipality
Colombia	Land and buildings	Cadastral values are 70%-85% of market values; they are adjusted on an annual basis using index set by national government, while the cadastre is updated every 7 years; or self-assessment in certain jurisdictions (e.g. Bogotá).	Range established by Congress, 0.1%-1.6%, within which municipalities can choose; rates also vary by use (industrial, commercial, agricultural); for land that can be urbanized rate is up to 3.3%.	Small rural property is taxed at the minimum rate established by municipal council.	Central Government (not federal) or municipality (self-assessment).	Municipality
Chile	Land, buildings and improvements; for farm lands, land and improvements (e.g. irrigation).	Cadastral value approximately 70% of market value; reassessment should occur between 3 and 5 years; cadastral value adjusted for inflation every 6 months.	Rates centrally set: agricultural land 1%; non-agricultural land: 1.2%; (for residences a 3-bracket system is applied that goes from exemption to a 1.2% rate).	Value as low as 25% of market value and based on current use; exemptions for low value properties and forest lands with approved management plans.	Central Government	Central Government. (Revenues returned to municipalities under revenue sharing formula).
Uruguay	Land and buildings, public improvements.	Cadastral value, set as closely as possible to market value, is set annually by National Directorate of Cadastre; for rural land, cadastral value is calculated taking into account productivity index set by CONEAT.	Rates vary from department to department: e.g., in Montevideo rates in urban areas range from 0.84% to 1.63%; rate of 1.25% for rural areas.	Exemption for forest land; <i>ad hoc</i> reductions in difficult years ("Urgency Laws").	Department	Department
Paraguay	Urban areas: land and improvements; rural areas: land only.	Fiscal values are less than 10% of market value. Fiscal values set by the National Cadastre Service. Law requires values to increase to market prices, but increases limited to increase in cost of living index with maximum of 15% per year.	1% of fiscal value per year.	Rate reduction of 50% for rural properties less than 5 has. Additional tax ranging from 0.5% to 1% on properties larger than 10,000 has.	Central Government	Municipality

## *Tax assessment*

4.11 The property tax is most commonly a market value-based tax, especially in all OECD countries but also in some Latin America countries (e.g., Argentina), although area-based assessment or self-assessment methods are also used. Under the market value assessment approach – where the value of a land parcel is that determined in a market transaction – the need for an adequate cadastre, as complete as possible in terms of coverage and containing basic information needed for assessing different types of properties, is an important element, as is the availability of valuation knowledge and property management skills for periodic reassessments to maintain the tax base accurate and up to date. Additionally, the existence of an appeal process independent from the valuation function is also a key component of a market-based property taxation system, as it allows for a formal process to address taxpayers' concerns regarding the valuation process.

4.12 Most of Latin American countries rely on cadastral values, as determined by national cadastral agencies taking as a reference the market value. These values are generally below market values, reaching about 70-80 percent of market values in urban areas and as low as 2 percent of market values in rural areas (e.g., in Paraguay). In some cases (e.g. in Chile) the area-based assessment approach is used, whereby the tax is calculated per square meter of land area or building, so that the tax is directly a function of the size of the land or buildings. Taxes based on area-assessment have shown to be regressive (the same tax would be charged to two equal-sized properties in very different land quality locations). Area-based assessments are, however, easy to administer where real estate markets are not well developed (e.g., in Eastern European countries). Area-based assessment adjusted for location, soil fertility, and other factors, is often used to assess the value of agriculture land. In the case of Chile, the value of agricultural land is calculated taking into consideration the actual land use (e.g., whether there is irrigation or not), and its location. In some cases, the rental value assessment approach is used, whereby property is assessed according to estimated rental value (e.g., in some instances in Australia).

4.13 Self-assessment is an appealing procedure in countries with little administrative capacity.<sup>43</sup> Positive experiences have been reported with self-assessment in several countries. In Hungary, for example, using the principle of self-identification, taxpayers are obliged to register and report their tax obligations to the local tax administration. In Thailand, self-declarations are made to local assessors who assess the self-declared value in terms of how well it matches their data. Self-declaration by landowners is also required in the Philippines once every three years. In Bogotá, Colombia, self-assessment has been relatively successful in revising property values closer to their market values and in raising local revenues (see Box 4.1). A recent report recommended extending self-assessment to rural areas in Colombia.

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<sup>43</sup> Bird, Richard M. and Enid Slack (2006). "Taxing Land and Property in Emerging Economies: Raising Revenue...and More?" discussion paper (unpublished), International Tax Program, University of Toronto.

4.14 The main risk of self-assessment is a tendency towards underestimation of property values, especially for larger properties. This can result in a regressive tax burden, since lower-values properties generally have a lower rate of underestimation than higher-valued properties. The best way to guard against underestimation is public disclosure of declared values combined with an appeals procedure for citizens to challenge values that appear significantly underestimated.

**Box 4. 1: Self-assessment**

Self-assessment is an interesting valuation approach that was adopted in Colombia with the passage of Law 44 of December 18, 1990, which gives municipalities the option to use self-assessment. This system was introduced as a solution to increase the tax base, given the strong pressure against updating assessed values, as well as administrative difficulties in undertaking valuations. Self-assessment was in fact proposed as a substitute or supplement to administrative assessment systems and as a transitional mechanism until an effective property tax administration is established.

In those Colombian municipalities that have adopted the self-assessment system (for example Bogotá), the property value and the amount of tax due are determined directly by the owner. When the system was first introduced, municipalities had the option of establishing a minimum presumptive tax base, to be determined taking into account the property location and area. The self-assessed value could not be lower than the minimum base times the property area. In the absence of a minimum base, the cadastral value could not be lower than the value declared the previous year plus the inflation rate, or the cadastral value plus the inflation rate. This system was changed following a recession of the land market and the drop in real value of property at the end of the 1990s. Currently, the self-assessed values cannot be lower than the cadastral value. To reduce underassessment, the assessed value would be used as the basis for expropriation; however, this has not yet happened. The introduction of self-assessment as a property valuation approach (particularly in Bogotá) has been relatively successful in terms of raising local revenues. Revenue from the property tax rose from 300 million dollars in 1992 to 900 million the following year after the introduction of the self-assessment system. Revenues are currently around US\$1.2 billion annually. Self-assessment has further contributed to the updating of the cadastre registry and the revision of property values closer to their commercial value. However, a risk of underestimation exists when using a self-assessment approach. Verification processes including expert assessments of individual properties, which can be costly, are needed to ensure that properties are not undervalued.

A variety of other jurisdictions also use self-assessment, particularly in India. In the Indian state of Karnataka, property owners are required to make a self-assessment based on published tables of construction costs in each neighborhood. The system in Karnataka was designed to reduce the corruption and arbitrariness that has accompanied professional assessments. Bangalore uses a similar scheme that has evolved from the mass appraisal system of properties. The city of Bangalore has been classified into six zones based on the property valuation done by its Department of Revenue. Each property is classified based on cost of construction value at current market rate. The tax for a particular property is based on the annual value of the property arrived at by multiplying a unit area value assigned to the colony/locality by the covered area of the property and the multiplicative factors for occupancy, age, structure and use. These are self-assessed by the property holder and entered onto a declaration form. The unit area based system is thus simple to understand, easy to calculate and transparent. While all of these examples are urban, they demonstrate the feasibility of self-assessment as a tool to rapidly expand the number of tax-paying properties and the valuation of those properties.

***Tax rates***

4.15 Responsibility for setting the tax rates, and related local government discretion, vary widely among countries, depending on local conditions and circumstances such as the degree of decentralization, financing of local public services, and the availability of

other sources of revenues. Rates can be set by the central government<sup>44</sup> taking into account the local governments needs (e.g., Japan, Chile, Paraguay), or directly by the local government often within limits set by the central government (e.g., Australia, Canada, Spain, Argentina, Colombia and Uruguay). Sometimes there is complete local discretion (in the United States municipalities are free to set their own rates). When rates are determined locally, the rate is sometimes calculated taking into account the local government expenditure requirements and subtracting revenues from non-property taxes. In other cases, and especially where the property tax is the main local tax, the rate is determined by dividing the municipal budget by the assessment roll of that municipality (United States). This approach gives greatest autonomy to decentralized local governments, but requires significant levels of transparency and accountability on their part. It also allows for a closer link between taxes paid and services received at the local level. However, in those cases where capacity and transparency at the local level is lacking, there is an argument in favor of having the tax rates centrally set, so as to avoid distortions in the land market or tax competition among neighboring municipalities.

4.16 Rates usually vary for different classes of properties or land uses (e.g., residential, commercial, industrial, farms), with lower rates generally applied to agricultural lands. For example, in Canada, the tax rate on farms and managed forests is set by law to be 25 percent of the residential tax rate. In some cases, progressive tax rates are used with higher rates applied as the values of the property increases (Argentina, Australia), or when land is left idle. In other cases, reduced rates are applied in case of harsh conditions (e.g., in Australia). Multiple tax rates, however, have shown to be not transparent, as they encourage an artificial division of properties to avoid the higher tax rates.

4.17 In Latin American countries tax rates appear to be generally low – especially for agricultural land – compared to OECD countries: they range from 0.3 percent to 4 percent in OECD countries, and from 0.1 percent to 2 percent in Latin American countries.

### ***Agricultural/rural land***

4.18 The use of agricultural/rural land property taxes is not unique or new. Many countries around the world tax agricultural land and other rural properties. However, when agricultural and forest land is taxed, it is typically done at lower rates or at lower assessed values than urban land (e.g., in Japan the value of farmland is fixed at 55 percent of normal market value; in Canada, the tax rate applied to farms and managed forests is 25 percent of the residential tax rate). In addition, farmland is often assessed at its value in current use, that is considering that it were to continue to be used as a farm, rather than at its highest and best use. However, agricultural lands in the urbanization areas tend to be assessed as if the lands were residential lands.

4.19 Other tax-related incentives given to agricultural lands include exemptions of some properties such as farm buildings and residences, rebates by provincial governments, tax deferrals, and concessions to dispose of farmland in order to encourage

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<sup>44</sup> In federal states, generally rates are set at the “State” level (Province not Federal level).

agricultural land transfers, especially in the case of intergenerational ones within the same family (Japan). In some cases, farmland (especially of very low value) is exempt from property taxation.

4.20 Despite the widespread practice of giving preferential treatment to agricultural lands, tax exemptions or relief are not always justified from an economic and social point of view. They tend to create distortions in the taxation system, and are often difficult to administer. They further cause the agricultural land price to increase, thereby making land access more difficult for new farmers, and favor speculation at the urban fringe.

4.21 However, tax exemptions or relief can be justified for environmental protection and management purposes. Some countries have introduced incentives including a waiver of land taxes to establish private protected areas (e.g., Brazil and Paraguay),<sup>45</sup> while other have exempted forest land from taxation (Uruguay). Similarly, tax relief appears sensible in the case of small/poor landholders. For example, in Chile a minimum threshold has been established, whereby properties less than 2 hectares are permitted to pay an alternative small lump sum amount annually.

4.22 Taxation of agriculture land based on objective measures such as land productivity is used in Latin America and has been fairly successful at collecting revenues. For example, in Uruguay the rural land tax is set as a presumptive net income tax, where the land cadastral value (which is the basis of assessment) is calculated taking into account the land productivity index set by the National Commission for Land Agro-economic Studies (CONEAT), as well as proximity to main transportation networks and urban centers. However, this system requires a fairly sophisticated set of records, including inputs costs.

4.23 Each uniform piece of land is assigned a "pure" Coneat index, according to its soil quality. A land parcel may be formed by several smaller pieces with different Coneat indexes each. The overall Average Coneat Index will be the result of calculating the weighted average of all the pieces within the whole land. This average index is an indicator of the land productivity taken as a whole.

### ***Tax administration***

4.24 Responsibility for assessment does not seem to follow a specific trend and falls either on the central or local level government. Differences in the degree of managerial and administrative capacity at the central/regional and municipal level affect the efficiency of the periodic adjustments of the assessments. Responsibility for collection, however, is usually a local government function, given the incentives at the local level for effective collection to finance local services. If the local government lacks the capacity,

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<sup>45</sup> Paraguay's existing legislation provides property tax relief for several categories of ecological areas. The basic property tax legislation (*Ley 125/91*) exonerates protected wild areas (*áreas silvestres protegidas*) that are declared as such by law. The law on protected wild areas (*Ley 352/94*) provides that private wild areas established by Executive Decree can also receive exemption from the property tax, if so mentioned in the Decree. The law on reforestation (*Ley 536/95*) provides a 50 percent reduction in property tax for reforested areas that have been certified as such by the National Forest Service. The main lacuna in the above legislation appears to be for natural forests that have not been designated as protected wild areas.

tax collection services are then provided by the central government (e.g., in many Latin American countries the service appears to be carried out at the regional or central level).

### *Some good practices*

4.25 A number of lessons and best practices useful for the development of a property taxation system in Paraguay can be drawn from the international experience:

- Market value assessment, based on a developed cadastral system, periodic reassessments, and an appeal process with transparent procedures, is the recommended assessment method. It is a fair and transparent way to apportion taxes among properties, and adequately reflects all factors determining the value of the property (land quality/productivity, public infrastructure, etc.).
- However, where a complete cadastral system is not yet available, it is preferable to build up the listing of properties and expand the tax base in alternative ways, rather than wait to have a full, official cadastral system, which can be completed at a later stage.
- The international experience suggests the use of alternative, less rigorous methods for completing the tax base. Self-assessment can be an effective substitute or supplement to administrative assessment systems and serve as a transitional mechanism until an effective property tax administration is established. In Latin American countries, the property tax has a fair revenue-raising potential, but to reach the potential, the transfer of technologies and the strengthening of capacity to identify properties and assess their value is a key element. Self-assessment is a low cost approach compared to cadastral parcel by parcel valuation and it involves lower risk of appeal. It is an effective solution to increase the tax base when there is strong pressure against updating assessed values, as well as administrative difficulties in undertaking valuations. Self-assessment may be combined with area-based assessment, whereby a minimum tax base is established according to the property size and then adjusted by the self-assessed value.
- Good practice suggests giving local governments discretion on setting the tax base and the tax rates, thereby creating a transparent link between the tax and delivery of local public services. In countries with weak administrative systems like Paraguay, however, setting a uniform tax rate at the central level appears justified in order to avoid distortions in land markets and/or to avoid tax competition between neighboring municipalities. In this regard, the existing legislation in Paraguay that sets a uniform 1 percent tax rate appears appropriate.
- Tax exemptions and relief are not generally justified in the case of agricultural lands. However, some form of temporary relief may be appropriate for beneficiaries of agrarian reform programs. Similarly, tax exemptions can provide an effective tool for protecting and managing environment and natural resources.

## Chapter V: Conclusions and Policy Options

5.1 The preceding chapters analyzed the concentration of land holdings in Paraguay, the strengths and weaknesses of the existing property tax legislation, the state of municipal finances, the gap between fiscal and market values of rural land in Caaguazú, the potential revenue gains from switching the property tax base from fiscal to market values, the stimulative effects on production and land markets of a meaningful tax on rural land, and international best practices concerning how to structure such a tax.

5.2 This chapter summarizes the main findings of the preceding analysis and proposes various policy options for improving the property tax system in Paraguay.

### Core Findings of the Report

5.3 The principal findings of the report can be summarized as follows:

- a) There is a very high concentration of land ownership in Paraguay, due to historical conditions in the 19<sup>th</sup> century and to the previous program of agrarian “reform,” which aimed more at opening up and settling the interior with generous land allocations than at providing a small but viable land plot to all landless. The era of extensive public lands available for distribution (*tierras fiscales*) has ended, however, and the new program of agrarian reform (post-2000) has to purchase land at market prices for distribution, which limits its coverage and effectiveness.
- b) A considerable array of evidence points to significant underutilization of land. This evidence includes the high percentage of land devoted to extensive cattle ranching, evidence that the productivity of small farms is higher than large farms (when controlled for access to capital), and the absence of significant tax revenues from rural land, which permits underutilized land to be held without cost.
- c) The existing property tax law is basically sound and incorporates many desirable features when compared with international experience, including allocation of property tax revenues to the municipalities, a basic tax rate of 1 percent, the non-taxation of improvements on rural land, and reasonable exclusions including exemptions / reductions for designated ecological areas and reforestation. Some adjustments would nevertheless be desirable, including elimination of “progressive” rates on large holdings and creation of an additional exemption for sustainably-managed natural forests.
- d) The major feature of the property tax law that impedes it from being a meaningful instrument of tax policy is the basing of the tax assessment on fiscal values that are an abnormally low percentage of market values (on average, 1.8 percent for rural land in Caaguazú). Although these fiscal values have been adjusted annually during the past decade, they do not reflect the actual and constantly changing market values of rural land that have resulted from the soy boom and rapidly growing cattle ranching, among other factors. Moreover, the property tax law effectively locks-in the undervaluation of land by prohibiting increases in fiscal values in excess of inflation.



An amendment to this provision of the property tax law would be required in order to make it a meaningful tax policy instrument.

- e) Given the limited capacity in Paraguay for updating fiscal values to reflect the actual and constantly changing market values of land, as well as the high cost and long timeframe required to establish a nation-wide cadastre,<sup>46</sup> international experience indicates that a self-assessment system could be a viable alternative, especially if supplemented with full public disclosure of the self-assessed values and an appropriate challenge mechanism. The introduction of publicly disclosed, self-assessed market values as the base for property taxation would incorporate the innovative features of the previously proposed but un-enacted legislation for creation of a tax on rural wealth.
- f) The revenue potential of a meaningful property tax on rural land is considerable. An illustrative calculation based on official (BNF/SNC) estimates of market values and the existing tax rate of 1 percent indicates that for Paraguay as a whole, the property tax from rural land could generate about US\$100 million per annum, or 1.1 percent of GDP. This estimate is illustrative yet conservative, in view of a much higher estimate that this report derived for the average value of rural land in Caaguazú than the official estimate (US\$1182 versus US\$863 per hectare).
- g) The generation of property tax revenues from rural land of the above magnitude would double the resources currently available to municipalities of the interior and represent an important step towards greater fiscal decentralization. International experience indicates that locally generated revenues, such as the property tax, lead to greater identification between the taxpayer and the provision of services financed with these revenues, leading to a virtuous circle of better expenditure allocation and greater citizen control.
- h) The financial administration capacity of the municipalities of the interior appears to be weak and needs to be upgraded substantially if the municipalities are to become effective agents of fiscal decentralization. Management and collection of the property tax is especially weak, but all areas of financial administration appear to need improvement, including planning, budgeting, expenditure control and preparation of investment projects. Even without increases in property tax revenues, it would make sense to upgrade the financial administration capacity of the municipalities in order to make effective use of the growing stream of royalties.
- i) International experience indicates that the positive non-revenue effects of a more effective rural land tax are likely to improve other long-term development issues in Paraguay, namely, the underutilization of agricultural land, excessive land concentration and the cost of financing the existing agrarian reform program. This is because higher land taxes act as an incentive to allocate land to its most productive use and/or to sell or rent land for which the owner does not have the technical or capital resources needed to improve the utilization of his property.

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<sup>46</sup> A World Bank project, Land Use Rationalization (Loan 3445-PA), financed the surveying of 2 million hectares in Itapúa and Alto Paraná in 2000 at a cost of US\$11 million.

5.4 The following sections propose various policy options for improving the property tax system in Paraguay with a view to:

- Making the existing property tax an effective policy instrument for achieving better land use and generating higher local tax revenues to finance a greater degree of fiscal decentralization;
- Strengthening financial administration in the municipalities, which needs to be done in any case to make effective use of increasing royalties; and
- Identifying the linkages between a more effective land tax and existing program of agrarian reform.

### **Options for Making the Property Tax an Effective Revenue Instrument**

5.5 As discussed in Chapter 1, the major shortcoming of the existing property tax is the low fiscal values that are used for tax assessment. International best practice indicates that fiscal values in Paraguay should be adjusted to market values. One option for doing so would be to expand the SNC's capacity to assess the market value of all properties in Paraguay. This would require, however, the creation of a full national cadastre, which would be a long and expensive exercise. It would also require a significant expansion in the capacity and annual budget of the SNC to maintain updated market values for the country as a whole.

5.6 A second option would be to delegate the SNC's authority to set fiscal values to the individual municipalities, the larger of which might be able to develop a full cadastre for their respective municipality more quickly than waiting for the SNC to do so. This option would perhaps be less time-consuming in some municipalities, but would likely be equally or more costly in terms of creating modern cadastres and assessment capacity in each municipality. Under either option, the existing property tax law would have to be amended to change the tax base from fiscal to market values and to eliminate the provision for capping annual increases in assessed values to the rate of inflation.

5.7 A third option would be to amend the existing property tax law to require an annual self-assessment of market value – one of the innovative features proposed in the draft legislation for creation of a new tax on rural wealth (Box 1.2). A self-assessment system would have the major advantage of developing a market value tax base quickly without the delay and expense of creating a full national cadastre. Each municipality currently has a “fiscal” cadastre, which is a simple list of properties by square and lot number (*padron y finca*) and could serve as the base for recording self-assessed declarations of market value. Such self-assessments should more easily capture changing land market conditions than a formal cadastre system. Self-assessment should also avoid the political resistance created each time the government adjusts the tax base, because the owner himself would propose the property value rather than having it imposed from above by government decree.

5.8 The major features of a self-assessment process could include:

- An annual sworn declaration (*declaración jurada*) of the market value of each rural property. A similar legal instrument already exists in Paraguay as part of the new personal income tax in which individuals must declare their income and assets.
- A phase-in of the self-assessment requirement, starting with the largest properties, in order to accompany an orderly growth in the administrative capacity of the municipalities. For example, in the first year, properties larger than 300 hectares in the Eastern Region and larger than 1000 hectares in the Chaco could be required to file a self assessment, thus limiting the initial number of filings to about 7,000 (see Appendix Table 1). A five or six year phase-in period would probably be required to allow sufficient time for municipalities with many small properties to increase their capacity to process and administer the self-assessment system and attain 100 percent coverage (about 325,000 properties for Paraguay as a whole). During the phase-in period, properties not yet required to file a self-assessment could continue to be governed by the existing fiscal values system.
- Public disclosure of the self-assessed values, in order to provide the basis for public control and comparison of property values. Each municipality could disclose the self-assessments received, at first via hardcopy publication and eventually on the internet.<sup>47</sup>
- Establishment of a mechanism for public contest and appeal of missing and under-assessed properties. A committee at the departmental level could be established to receive complaints with the power to adjust self-assessments that are determined to be significantly undervalued. Such a committee could be similar to the proposed Valuation Review Committee (*Junta de Avalúo*) in the proposed rural wealth tax (see Box 1.2). In this regard, the SNC could provide valuable assistance in the form of estimates of minimum and average market values for each district, which would serve as a reference point for evaluating disputes over the self-assessment of a particular property.
- Incentives to encourage assessments as close as possible to market values, e.g., amendment to the law limiting the value of a mortgage on a property to the self-assessed value in the previous tax year.
- Penalties for non-compliance with making a self-assessment, e.g., automatic assessment by the *Junta de Avalúo* at a value equal to the district's average self-declared value plus 50 percent.
- Self-assessment of rural properties should be based only on the site value of the land, as currently stipulated in *Ley 125/91*, and not on farm improvements in order not to discourage investment in production. The principle of not taxing improvements in the urban areas could be studied separately.

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<sup>47</sup> Public disclosure of assessment values is best practice and common in OECD countries. For example, property assessment values in Washington DC can be accessed via internet at the following address: [https://www.taxpayerservicecenter.com/RP\\_Search.jsp?search\\_type=Assessment](https://www.taxpayerservicecenter.com/RP_Search.jsp?search_type=Assessment)

5.9 Regarding the property tax rate, the existing rate of one percent appears reasonable (about average for Latin America, although low compared with OECD countries). However, given that movement to full market values could imply a significant increase in actual tax liabilities (e.g., a 54 times increase in the case of Caaguazú), a tax rate adjustment period could be considered to phase-in the increased tax burden on properties subject to self-assessment. For example, the tax rate applicable to self-assessed properties could be lowered to 0.1 percent for the first year and rise by 0.1 percent each year to the full one percent by year 10. Properties not yet subject to self assessment could continue to pay the full one percent rate on the current fiscal value.

5.10 With a market oriented self-assessment system, multiple tax rates could be eliminated, in order to avoid creating strong incentives for the artificial division of properties as the new assessment system takes effect and the tax burden begins to bite. The multiple tax rates that could be eliminated are (i) the additional tax on large properties and latifundios (*adicional a inmuebles de gran extensión y latifundios*), which does not produce any significant additional tax revenue at present (para.1.35), and (ii) the 0.5 percent rate for properties less than 5 hectares, since many small agricultural properties near urban centers are among the most efficient producers and do not need a tax subsidy.

5.11 Regarding tax exemptions, elimination of the exemption for properties owned by political parties and private sports clubs could be considered, as these benefit specific groups rather than the population at large. The current five-year exemption for beneficiaries of the agrarian reform (once they receive title to their land) could be maintained, but the law could be changed to provide immediate titling without cost to the beneficiary to encourage investment in the property from the beginning and to bring the beneficiary onto the property tax roll as soon as possible. The cost of providing free title would likely be more than recovered earlier payment of property taxes.

5.12 In view of the widespread deforestation that has occurred over the past fifty years, a new exemption for natural forests that are managed in a sustainable manner could be considered. An appropriate criterion for the exemption would be that the owner obtain and maintain in good standing a certificate of sustainable forest management from a private certification service (of which there are several working in Paraguay). A three year grace period could be provided to allow owners to obtain such certificates. With or without such an exemption, owners of natural forests should nevertheless be required to file an annual self-assessment of their property's market value, in order to keep the fiscal cadastres complete.

5.13 . Finally, an amended property tax law should empower municipalities to seize and auction properties for which the property tax has not been paid for two years. Such powers are common features of property tax systems in other countries and are a necessary mechanism to ensure full compliance.

## Options for Strengthening Municipal Finance Administration and Property Tax Collection

5.14 While the municipalities are constitutionally autonomous and responsible for their own financial administration, the central government and the nation have a vested interest in the sound administration of the municipalities and, in particular, in the efficient implementation of the property tax which remains governed by national legislation. For the property tax to exert its desirable impacts on agricultural production and land distribution, tax policy needs to be implemented uniformly across the country. Also, the transfer of royalty payments is increasing quickly and the municipalities need to improve their financial administration urgently to manage these resources more effectively.

5.15 For these reasons, this report suggests creating a national program of technical assistance with the aim of upgrading the financial administration of all municipalities to minimum national standards by 2010. The administration of such a program of technical assistance by the Ministry of Hacienda would be consistent with its mandate in the Law on Municipalities<sup>48</sup> to establish the technical norms for budgeting, accounting and treasury management (financial administration in general) to be used by the municipalities.

5.16 In broad terms, a program to strengthen municipal finances could include the setting of uniform standards, the upgrading of accounting and information systems, and the training of human resources in the municipalities. More detailed elements could include:

- Establishing a standardized chart of accounts consistent with those used by the central government. There is currently great variation in the charts of accounts used among municipalities, and between those at the local and central levels, in particular, the definition of financing items and the overall surplus/deficit.
- Developing standardized and appropriate software for financial administration that would facilitate the flow of information, improve expenditure control and increase processing speed and accuracy. Many municipalities currently have no integrated software and make do by using simple spreadsheets for each separate part of the financial management cycle. These then need to be reconciled and consolidated. In particular, there is a need to link taxpayer information with tax collection data, e.g., collection of property taxes (*caja*) with tax assessments (*cadastre fiscal*).
- Over time, further steps could be taken to incorporate the key steps of the financial management cycle (budget preparation, execution, monitoring) into a standard database using software that would facilitate the flow of information within the municipality and ensure adequate and timely reporting to Hacienda and the Comptroller General.

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<sup>48</sup> *Ley Organica Municipal* 1294/87.

- Training of financial management staff: lack of human resources is currently one of the key constraints in increasing tax collections. Core training programs could be developed and contracted to local universities.
- Establishing capacity for managing the fiscal cadastre, in particular, the steps needed to accompany the introduction of a self-assessment system for property values. In this regard, consideration could be given to establishing property tax assessment capacity at the department level, since valuation assessment and the monitoring of market values of land is a higher level technical specialty than the billing and collection of property taxes, which each municipality would most likely wish to keep within its own control. A departmental level valuation capacity would also be consistent with the idea of the departmental appeal procedure (*Junta de Avalúo*) mentioned in the preceding section.
- Strengthening compliance with reporting requirements: sanctions could be used to enforce regular and accurate reporting to the Auditor General and the Ministry of Finance.<sup>49</sup> Public disclosure of municipal budgets and budget execution should be promoted via the government gazette, newspapers or on the internet.
- Mobilizing public support for stronger financial accountability: a public relations campaign to help citizens understand municipal finances and the services to expect from their taxes, and to create demand for improved disclosure and accountability. In this regard, civil society organizations that specialize in budget transparency could play an important supporting role.

5.17 At the same time, reforms of the intergovernmental fiscal system could improve the incentives for local governments to increase tax collection efforts. Currently, the reliance on royalties for a large share of municipal income discourages the mobilization of own source revenues, which are politically less popular. However, in order to strengthen accountability and reap the benefits of decentralization, a significant share of expenditures (especially those for locally consumed services) should be financed by locally raised taxes. In order to avoid the “moral hazard” problem of dependence on royalties, **the transfer of royalties could be made conditional upon the municipalities meeting certain financial management standards and specified targets for property tax collections.**

5.18 Finally, it would be useful to develop a more comprehensive and pro-business / growth-oriented vision of municipal tax policy. At present, the municipalities tax dozens of activities, such as plans for construction, division of properties, publicity, entertainment, games of chance, public transport, slaughter of animals, cemeteries, etc., all of which raise minor amounts of revenue. With the advent of a more significant property tax, it would make sense to eliminate many of these “nuisance” taxes and concentrate tax collection efforts on a few major items, such as property, vehicles and perhaps commercial / professional licenses.

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<sup>49</sup> At present, the Ministry of Finance issues “certificates of compliance” to municipalities that have submitted adequate reports on their finances, but the possibility of imposing actual sanctions could promote fuller compliance especially if new uniform accounting standards and financial administration systems are adopted.

## Reflections on Land Tax Policy and Land Distribution to the Poor

5.19 To conclude, a few reflections on the linkages between a more effective land tax policy and the existing program of agrarian reform. As discussed in Chapter 3, the stimulative effects of a land tax act mainly on production, which in turn should lead to higher demand for rural labor and employment for the rural poor. A significant land tax should also lead to some redistribution of land from large and medium size farms to more efficient and well capitalized medium and smaller farms. Such redistribution should occur naturally through the market reflecting the pressures of the tax on the owners of underutilized land to invest and produce more in order to afford the tax, or to sell their properties to farmers who can. In either case, there would be greater demand for rural labor and employment for the rural poor.

5.20 This natural redistribution will not directly put more land into the hands of the landless and rural poor, but it will make more land available to the market and, as such, should lead to lower land prices (see Table 3.3 for an example of how the land tax acts on the market price of land). Lower land prices would facilitate the existing program of agrarian reform which, given the scarcity of fiscal lands, relies on the purchase of land from private owners. The land tax would thus lower the cost of agrarian reform and increase the number of landless that the government could settle in new colonies for the same amount of budget.

5.21 A significant land tax, such as the one suggested in this report of one percent on the full market value of land, would also act to address some of the past injustices of the former program of agrarian reform which distributed large amounts of land to relatively few people (see Box 1.1). Trying to recover these *tierras malhabidas* would be a long, costly and contentious legal process. Instead, society could recover some of the economic rent from these lands via an effective land tax and use the proceeds to finance social services and infrastructure in the rural areas. An effective land tax would thus provide some “social justice” to the excesses of the past.

5.22 Finally, it is noteworthy that some countries have faced similar land distribution problems as does Paraguay today and are addressing these problems via a land tax. An example is Namibia, whose program aims to finance land distribution with the proceeds of a temporary land tax. This is a different vision than that set forth in this report which views the property tax in Paraguay as a permanent source of revenue for local expenditures in general. Also, in Paraguay, one-half of the revenues from the new agricultural income tax (IMAGRO, described in Box 1.3) are destined to finance the agrarian reform program.

5.23 Nevertheless, Namibia’s land tax incorporates many of the same principles and features as suggested in this report, for example, the use of self-assessments, market values and a similar tax rate. It is also based on the same economic principles, namely, the stimulative effect of the tax on production and the moderating effect of the tax on land prices. Most of all, it is noteworthy that Namibia mobilized a national political consensus to create a new land tax, which suggests that such changes in land tax policies are administratively feasible and can be implemented in a developing country context.

**Appendix Table 1: Number and Area of Farms in Paraguay, by Farm Size, 1991**

Farm Size	Eastern Region		Western Region (Chaco)		Paraguay Total	
	Number of Farms	Size Hectares	Number of Farms	Size Hectares	Number of Farms	Size Hectares
<b>Total</b>	<b>300,523</b>	<b>11,428,750</b>	<b>6,698</b>	<b>12,388,991</b>	<b>307,221</b>	<b>23,817,741</b>
Without area	7,610	0	352	0	7,962	352
Less than 1 ha.	21,872	8,461	105	37	21,977	8,498
From 1 to 5 has.	92,392	221,814	419	988	92,811	222,802
From 5 to 10 has.	66,364	429,115	241	1,544	66,605	430,659
From 10 to 20 has.	65,932	803,183	291	3,620	66,223	806,803
From 20 to 50 has.	31,095	845,103	424	12,807	31,519	857,910
From 50 to 100 has.	7,007	464,073	570	38,576	7,577	502,649
From 100 to 200 has.	3,383	449,376	896	119,793	4,279	569,169
From 200 to 500 has.	2,227	663,455	1,276	386,580	3,503	1,050,035
From 500 to 1.000 has.	927	614,599	598	396,354	1,525	1,010,953
From 1.000 to 5.000 has.	1,360	2,838,461	996	2,143,979	2,356	4,982,440
From 5.000 to 10.000 has.	240	1,657,600	293	1,987,273	533	3,644,873
10.000 and more has.	114	2,433,510	237	7,297,440	351	9,730,950
<b>By Group 1/</b>						
Small	254,170	1,462,573	2,402	57,572	256,572	1,520,145
Medium	41,485	1,758,552	2,770	902,727	44,255	2,661,279
Large	4,868	8,207,625	1,526	11,428,692	6,394	19,636,317
<b>in percent (%)</b>						
Small	85	13	36	0.5	84	6
Medium	14	15	41	7	14	11
Large	2	72	23	92	2	82
<b>Average</b>						
<b>Definition of Groups</b>	<b>Has.</b>	<b>Size</b>	<b>Has.</b>	<b>Size</b>		<b>Average Size</b>
Small	< 20	6	< 100	24	Combined	6
Medium	20-300	42	100-1500	326	Combined	60
Large	>300	1686	>1500	7489	Combined	3071

*Fuente: MAG, Censo Agropecuario Nacional, 1991 and staff estimates.*

1/ Definitions of farm size per the new Agricultural Income Tax (*Imagro*), 2004. The category "medium" doesn't coincide exactly with the categories of the 1991 Census.



**Appendix Table 2: Key Municipal Tax and Expenditure Ratios, 1999-2005**  
(in percent of GDP)

	1999	2000	2001	2002	2003	2004	2005*
<b>Total Revenues</b>	<b>1.45</b>	<b>1.55</b>	<b>1.63</b>	<b>1.60</b>	<b>1.49</b>	..	<b>2.08</b>
Asunción	0.65	0.68	0.68	0.58	0.51	0.49	0.95
Interior	0.81	0.87	0.94	1.02	0.98	..	1.13
<b>Tax Revenues</b>	<b>0.87</b>	<b>0.90</b>	<b>0.87</b>	<b>0.84</b>	<b>0.82</b>	..	<b>1.24</b>
Asunción	0.36	0.38	0.39	0.35	0.34	0.29	0.88
Interior	0.51	0.51	0.49	0.49	0.48	..	0.36
<b>Property Taxes</b>	<b>0.36</b>	<b>0.39</b>	<b>0.40</b>	<b>0.39</b>	<b>0.39</b>	..	..
Asunción	0.18	0.19	0.19	0.18	0.17	0.15	..
Interior	0.19	0.20	0.21	0.21	0.22	..	..
<b>Non-Tax Revenues</b>	<b>0.53</b>	<b>0.52</b>	<b>0.50</b>	<b>0.44</b>	<b>0.39</b>	..	<b>0.32</b>
Asunción	0.28	0.29	0.28	0.21	0.16	0.18	0.04
Interior	0.25	0.24	0.22	0.22	0.23	..	0.28
<b>Royalties</b>	<b>0.00</b>	<b>0.05</b>	<b>0.18</b>	<b>0.25</b>	<b>0.23</b>	..	<b>0.52</b>
Asunción	0.00	0.00	0.00	0.00	0.01	0.01	0.03
Interior	0.00	0.05	0.18	0.25	0.22	..	0.49
<b>Capital Revenues</b>	<b>0.05</b>	<b>0.08</b>	<b>0.07</b>	<b>0.08</b>	<b>0.05</b>	..	..
Asunción	0.01	0.01	0.01	0.01	0.00	0.00	..
Interior	0.05	0.06	0.06	0.06	0.05	..	..
<b>Total Expenditures</b>	<b>1.34</b>	<b>1.44</b>	<b>1.57</b>	<b>1.53</b>	<b>1.36</b>	..	<b>1.87</b>
Asunción	0.58	0.65	0.68	0.61	0.50	0.51	0.85
Interior	0.76	0.80	0.90	0.92	0.86	..	1.02
<b>Capital Expenditures</b>	<b>0.17</b>	<b>0.23</b>	<b>0.30</b>	<b>0.30</b>	<b>0.24</b>	..	..
Asunción	0.04	0.08	0.06	0.06	0.03	0.03	..
Interior	0.13	0.15	0.24	0.24	0.21	..	..
----- as percent of revenues -----							-----
<b>Surplus/Deficit</b>	<b>16</b>	<b>14</b>	<b>6</b>	<b>4</b>	<b>15</b>	..	<b>10</b>
Asunción	11	6	1	-6	3	-5	10
Interior	5	8	5	10	11	..	10

Interior = 222 Municipalities of the Interior

Note: In this table, royalties include both current royalties, which are accounted under non-tax revenues, and capital royalties, which are accounted under capital revenues.

See Annex tables A3.3, A3.4 and A3.5 for underlying data in Guaranies.

**2005\*** - Note: Data for 2005 is drawn from Ministry of Hacienda, Informe Financiero 2005, which is a different source than data for all other years and may not be consistent with data for previous years. See Chapter 1, Overview of Municipal Finances for more detailed comment on 2005 data.

**Appendix Table 3: Paraguay - Structure of Central Government Revenues (in billions of guaraníes)**

	2000	2001	2002	2003	2004	2005
<b><u>Tax Revenues</u></b>						
Profit tax	478	459	585	624	880	967
VAT	1150	1204	1253	1570	1939	2372
Excise taxes	435	574	531	704	1004	1007
Customs taxes	488	499	488	665	904	843
Gov't pension fund 1/	300	313	340	369	440	541
Other taxes	126	115	64	113	202	282
<b>Total Tax Revenue 2/</b>	<b>2977</b>	<b>3164</b>	<b>3261</b>	<b>4045</b>	<b>5369</b>	<b>6012</b>
<b><u>Non Tax Revenues</u></b>						
Royalties (Itaipú - Yacyretá)	781	1284	1259	1492	1643	1651
Other 3/	490	527	560	530	638	756
<b>Total Non Tax Revenue</b>	<b>1271</b>	<b>1811</b>	<b>1819</b>	<b>2022</b>	<b>2281</b>	<b>2407</b>
<b>TOTAL REVENUES 2/</b>	<b>4248</b>	<b>4975</b>	<b>5080</b>	<b>6067</b>	<b>7650</b>	<b>8419</b>
----- as Percent of GDP -----						
<b><u>Tax Revenues</u></b>						
Profit tax	1.9	1.7	2.0	1.7	2.1	2.1
VAT	4.6	4.5	4.3	4.4	4.7	5.1
Excise taxes	1.8	2.2	1.8	2.0	2.4	2.2
Customs taxes	2.0	1.9	1.7	1.9	2.2	1.8
Gov't pension fund 1/	1.2	1.2	1.2	1.0	1.1	1.2
Other taxes	0.5	0.4	0.2	0.3	0.5	0.6
<b>Total Tax Revenue 2/</b>	<b>12.0</b>	<b>12.0</b>	<b>11.2</b>	<b>11.3</b>	<b>12.9</b>	<b>13.0</b>
<b><u>Non Tax Revenues</u></b>						
Royalties (Itaipú - Yacyretá)	3.2	4.9	4.3	4.2	4.0	3.6
Other 3/	2.0	2.0	1.9	1.5	1.5	1.6
<b>Total Non Tax Revenue</b>	<b>5.1</b>	<b>6.8</b>	<b>6.2</b>	<b>5.7</b>	<b>5.5</b>	<b>5.2</b>
<b>TOTAL REVENUES 2/</b>	<b>17.2</b>	<b>18.8</b>	<b>17.5</b>	<b>17.0</b>	<b>18.4</b>	<b>18.2</b>
<b>Gross Domestic Product</b>	<b>24737</b>	<b>26466</b>	<b>29105</b>	<b>35666</b>	<b>41522</b>	<b>46135</b>

1/ Classified under Non Tax Revenues by Ministry of Hacienda.

2/ Excludes private sector contributions to national pension and health insurance scheme (IPS), equivalent to 2.2% in 2000 and 2.1% in 2002.

3/ Includes fees, interest received, transfers from public entities and external grants.

Source: Ministry of Hacienda Informe Situación Financiera de la Administración Central (2000/2005).

Appendix Table 4: Caagazú – Fiscal and Market Values for Rural Land by District and Type of Land (in Guaranies)

Departamento de Caagazuu	URBANO (1)	Tierras Rurales										PRIVADAS (4 = 2+3)		Superficie Total (5 = 1+2)	
		ZONAS HOMOGÉNEAS ECONÓMICAS (2)					de las cuales, PÚBLICAS (3)					de las cuales, BOSQUES			
		BAJO	MEDIANO	ALTO	TOTAL	INDERT	INDIGENA	PARQUES NACIONALES	TOTAL	TOTAL	TOTAL				
Distrito / Municipalidad															
	3 DE FEBRERO														
	No. de Has.	372													
	Valor fiscal p/ Ha.	0	18,596	0	21,066	0	0					21,066	0	21,438	
	Valor promedio de mercado p/ Ha.	0	99,580	0	99,580	0	0					99,580	0	0	
	Valor Total Fiscal	0	5,631,921	0	6,725,630	0	0					6,725,630	0	0	
	Valor Total Mercado	0	245,985,949	0	2,097,759,141	0	0					2,097,759,141	0	0	
	Valor Total Mercado	0	13,911,034,855	0	141,682,584,884	0	0					141,682,584,884	0	0	
	CAAGUAZÚ														
	No. de Has.	1,608	53,776	30,265	6,689	90,730	59,662	150				59,812	30,918	2,069	92,336
Valor fiscal p/ Ha.	0	171,241	171,241	171,241	171,241	171,241	171,241				171,241	171,241	171,241	0	
Valor promedio de mercado p/ Ha.	0	4,364,507	8,555,225	12,385,348	6,365,569	6,365,569	4,898,214				6,361,889	6,372,687	3,004,217	0	
Valor Total Fiscal	0	9,208,722,196	5,182,640,797	1,145,364,692	15,536,727,685	10,216,606,622	25,683,365				10,242,289,987	5,294,437,698	354,231,341	0	
Valor Total Mercado	0	235,782,943,228	258,925,485,508	82,840,793,441	577,549,222,176	379,783,525,048	734,652,458				380,518,177,505	197,031,044,671	6,214,582,702	0	
CARAYAO															
No. de Has.	162	92,105	0	0	92,105	3,058	0				3,058	89,047	27,368	92,268	
Valor fiscal p/ Ha.	0	112,665	0	0	112,665	112,665	0				112,665	112,665	112,665	0	
Valor promedio de mercado p/ Ha.	0	2,162,148	0	0	2,162,148	2,162,148	0				2,162,148	2,351,338	2,351,338	0	
Valor Total Fiscal	0	10,377,063,740	0	0	10,377,063,740	344,529,570	0				10,032,534,170	3,083,459,014	3,083,459,014	0	
Valor Total Mercado	0	199,145,686,292	0	0	199,145,686,292	6,611,848,918	0				6,611,848,918	192,533,837,373	64,352,326,766	0	
DECELIO BAEZ															
No. de Has.	248	14,173	0	0	14,173	9,755	0				9,755	4,418	0	14,421	
Valor fiscal p/ Ha.	0	99,580	0	0	99,580	99,580	0				99,580	99,580	0	0	
Valor promedio de mercado p/ Ha.	0	2,215,444	0	0	2,215,444	2,215,444	0				2,215,444	2,215,444	0	0	
Valor Total Fiscal	0	1,411,350,485	0	0	1,411,350,485	971,379,389	0				971,379,389	439,971,695	0	0	
Valor Total Mercado	0	31,399,555,395	0	0	31,399,555,395	21,611,131,517	0				21,611,131,517	9,788,423,879	0	0	
CORONEL OVIEDO															
No. de Has.	1,826	85,803	0	0	85,803	52,210	0				52,210	33,594	21,958	87,628	
Valor fiscal p/ Ha.	0	171,241	0	0	171,241	171,241	0				171,241	171,241	171,241	0	
Valor promedio de mercado p/ Ha.	0	3,905,528	0	0	3,905,528	3,905,528	0				3,905,528	3,905,528	2,968,809	0	
Valor Total Fiscal	0	14,683,071,073	0	0	14,683,071,073	8,940,427,710	0				8,940,427,710	5,752,643,363	3,760,150,247	0	
Valor Total Mercado	0	335,107,857,461	0	0	335,107,857,461	203,906,151,391	0				203,906,151,391	131,201,706,070	65,189,801,306	0	
JOSE DOMINGO OCAMPOS															
No. de Has.	202	0	14,222	0	14,222	0	0				0	14,222	0	14,423	
Valor fiscal p/ Ha.	0	0	171,241	0	171,241	171,241	0				171,241	171,241	0	0	
Valor promedio de mercado p/ Ha.	0	0	7,924,552	0	7,924,552	7,924,552	0				7,924,552	7,924,552	0	0	
Valor Total Fiscal	0	0	2,435,351,606	0	2,435,351,606	0	0				0	2,435,351,606	0	0	
Valor Total Mercado	0	0	112,701,219,427	0	112,701,219,427	0	0				0	112,701,219,427	0	0	
JOSE EULOGIO ESTIGARRIBIA															
No. de Has.	348	0	18,844	44,763	63,607	77	1,143				1,220	62,387	0	63,953	
Valor fiscal p/ Ha.	0	0	112,665	112,665	112,665	112,665	112,665				112,665	112,665	0	0	
Valor promedio de mercado p/ Ha.	0	0	9,171,392	12,929,030	11,815,810	11,815,810	13,737,791				13,615,751	11,780,609	0	0	
Valor Total Fiscal	0	0	2,123,059,951	5,043,261,337	7,166,321,288	8,728,574	128,735,971				137,464,546	7,028,856,742	0	0	
Valor Total Mercado	0	0	172,825,770,729	578,746,534,674	751,572,305,403	915,414,552	15,697,402,197				16,612,816,749	734,959,488,654	0	0	
JUAN MANUEL FRUTOS															
No. de Has.	238	11,734	37,391	5,985	55,110	22,108	47				22,155	32,965	0	55,357	
Valor fiscal p/ Ha.	0	99,580	99,580	99,580	99,580	99,580	99,580				99,580	99,580	0	0	
Valor promedio de mercado p/ Ha.	0	5,168,024	8,163,010	12,074,608	7,963,679	7,963,679	5,656,080				7,958,819	7,963,946	0	0	
Valor Total Fiscal	0	1,168,463,270	3,723,415,809	595,962,711	5,487,841,790	438,877,375,971	263,891,104				2,206,203,377	3,281,632,413	0	0	
Valor Total Mercado	0	60,641,149,419	305,972,560,188	72,263,666,364	438,877,375,971	176,064,905,835	263,891,104				176,328,796,939	262,548,579,033	0	0	

Departamento de Caaguazú	URBANO (1)	ZONAS HOMOGÉNEAS ECONÓMICAS (2)						de las cuales, PÚBLICAS (3)				PRIVADAS (4 = 2-3)		Superficie Total (5 = 1+2)		
								de las cuales, BOSQUES								
		BAJO	MEDIANO	ALTO	TOTAL	INDERT	INDÍGENA	PARQUES NACIONALES	TOTAL	TOTAL	TOTAL					
Distrito / Municipalidad																
LA PASTORA																
No. de Has.	132	21,383	0	0	21,383	0	0	0	0	0	0	21,383	2,322	21,514	0	
Valor fiscal p/ Ha.	0	110,250	0	0	110,250	0	0	0	0	0	0	110,250	110,250	0	0	
Valor promedio de mercado p/ Ha.	0	2,297,479	0	0	2,297,479	0	0	0	0	0	0	2,297,479	2,195,598	0	0	
Valor Total Fiscal	0	2,357,454,651	0	0	2,357,454,651	0	0	0	0	0	0	2,357,454,651	256,004,670	0	0	
Valor Total Mercado	0	49,126,559,317	0	0	49,126,559,317	0	0	0	0	0	0	49,126,559,317	5,098,261,345	0	0	
MCAL LOPEZ																
No. de Has.	176	0	64,581	56,046	120,627	0	518	0	518	0	518	120,110	0	120,803	0	
Valor fiscal p/ Ha.	0	0	99,580	99,580	99,580	0	99,580	0	99,580	0	99,580	99,580	0	0	0	
Valor promedio de mercado p/ Ha.	0	0	9,811,602	9,904,535	9,854,780	0	10,462,128	0	10,462,128	0	10,462,128	9,852,162	0	0	0	
Valor Total Fiscal	0	0	6,431,017,717	5,581,051,271	12,012,068,988	0	51,564,401	0	51,564,401	0	51,564,401	11,960,504,587	0	0	0	
Valor Total Mercado	0	0	633,647,163,405	555,108,610,895	1,188,755,774,300	0	5,417,487,256	0	5,417,487,256	0	5,417,487,256	1,183,338,287,045	0	0	0	
NUEVA LONDRES																
No. de Has.	97	24,497	0	0	24,497	7,962	0	0	7,962	0	7,962	16,535	1,489	24,596	0	
Valor fiscal p/ Ha.	0	121,015	0	0	121,015	121,015	0	0	121,015	0	121,015	121,015	121,015	0	0	
Valor promedio de mercado p/ Ha.	0	2,594,753	0	0	2,594,753	2,594,753	0	0	2,594,753	0	2,594,753	2,802,857	2,802,857	0	0	
Valor Total Fiscal	0	2,964,514,956	0	0	2,964,514,956	963,480,600	0	0	963,480,600	0	963,480,600	2,001,034,356	180,190,747	0	0	
Valor Total Mercado	0	63,563,885,407	0	0	63,563,885,407	20,658,546,621	0	0	20,658,546,621	0	20,658,546,621	42,905,338,787	4,173,439,796	0	0	
R.L. 3 CORRALES																
No. de Has.	120	32,027	0	0	32,027	29,528	128	2,372	32,027	0	32,027	0	0	32,147	0	
Valor fiscal p/ Ha.	0	171,141	0	0	171,141	171,141	171,141	171,141	171,141	0	171,141	0	0	0	0	
Valor promedio de mercado p/ Ha.	0	3,112,103	0	0	3,112,103	3,070,112	1,895,520	3,700,319	3,112,103	0	3,112,103	0	0	0	0	
Valor Total Fiscal	0	5,481,208,625	0	0	5,481,208,625	5,063,452,353	21,835,989	405,920,282	5,481,208,625	0	5,481,208,625	0	0	0	0	
Valor Total Mercado	0	99,672,716,016	0	0	99,672,716,016	90,654,274,589	241,850,585	8,776,590,841	99,672,716,016	0	99,672,716,016	0	0	0	0	
RAUL ARSENIÓ OVIEDO																
No. de Has.	221	0	68,739	67,834	136,574	1,711	2,129	0	3,839	0	3,839	132,734	0	136,797	0	
Valor fiscal p/ Ha.	0	0	99,580	99,580	99,580	99,580	99,580	0	99,580	0	99,580	99,580	0	0	0	
Valor promedio de mercado p/ Ha.	0	0	8,616,261	10,933,100	9,767,004	9,767,004	10,612,585	0	10,235,813	0	9,753,444	0	0	0	0	
Valor Total Fiscal	0	0	6,845,061,387	6,754,940,892	13,600,002,279	170,350,640	211,963,628	0	382,314,267	0	382,314,267	13,217,688,012	0	0	0	
Valor Total Mercado	0	0	592,275,905,359	741,639,348,779	1,333,915,254,138	16,708,329,317	22,589,698,450	0	39,298,025,767	0	1,294,617,228,371	0	0	0	0	
REPATRIACION																
No. de Has.	246	35,232	51,067	432	86,731	65,117	2,897	0	68,013	0	68,013	18,717	0	86,975	0	
Valor fiscal p/ Ha.	0	171,241	171,241	171,241	171,241	171,241	171,241	171,241	171,241	0	171,241	0	0	0	0	
Valor promedio de mercado p/ Ha.	0	5,218,013	8,095,906	11,443,579	6,943,508	6,943,508	8,894,969	0	7,026,625	0	6,641,482	0	0	0	0	
Valor Total Fiscal	0	6,033,153,710	8,744,750,677	73,941,066	14,851,845,453	11,150,844,475	496,050,507	0	11,646,694,982	0	3,205,150,471	0	0	0	0	
Valor Total Mercado	0	183,840,767,381	413,433,017,231	4,941,284,007	602,215,068,620	452,138,163,492	25,767,010,473	0	477,905,173,965	0	124,309,894,656	0	0	0	0	
SAN JOAQUIN																
No. de Has.	70	48,176	0	0	48,176	30,263	10	0	30,273	0	30,273	17,903	6,117	48,246	0	
Valor fiscal p/ Ha.	0	99,580	0	0	99,580	99,580	99,580	0	99,580	0	99,580	99,580	99,580	0	0	
Valor promedio de mercado p/ Ha.	0	2,739,194	0	0	2,739,194	2,739,194	2,038,140	0	2,738,967	0	2,739,576	1,841,382	0	0	0	
Valor Total Fiscal	0	4,797,366,942	0	0	4,797,366,942	3,013,607,086	972,944	0	3,014,580,030	0	1,782,786,913	609,161,375	0	0	0	
Valor Total Mercado	0	131,963,420,928	0	0	131,963,420,928	82,896,702,541	19,913,591	0	82,916,616,132	0	49,046,804,796	11,264,352,886	0	0	0	
SAN JOSE DE LOS ARROYOS																
No. de Has.	280	49,384	0	0	49,384	20,493	0	0	20,493	0	20,493	28,891	3,643	49,662	0	
Valor fiscal p/ Ha.	0	171,241	0	0	171,241	171,241	0	0	171,241	0	171,241	171,241	171,241	0	0	
Valor promedio de mercado p/ Ha.	0	2,222,775	0	0	2,222,775	2,222,775	0	0	2,222,775	0	2,222,775	2,131,723	0	0	0	
Valor Total Fiscal	0	8,456,571,937	0	0	8,456,571,937	3,509,242,292	0	0	3,509,242,292	0	4,947,329,644	623,890,139	0	0	0	
Valor Total Mercado	0	109,769,605,407	0	0	109,769,605,407	45,551,335,056	0	0	45,551,335,056	0	64,218,270,350	7,766,603,064	0	0	0	

Departamento de Caagazuu	URBANO (1)	ZONAS HOMÓGENEAS ECONÓMICAS (2)					de las cuales, PÚBLICAS (3)			PRIVADAS (4 = 2-3)		Superficie Total (5 = 1+2)
		BAJO	MEDIANO	ALTO	TOTAL	INDERT	INDÍGENA	PARQUES NACIONALES	TOTAL	TOTAL	de las cuales, BOSQUES	
Tierras Rurales												
<b>SANTA ROSA MBUTUY</b>												
No. de Has.	160	32,138	0	0	32,138	0	0	0	0	32,138	234	32,296
Valor fiscal p/ Ha.	0	99,580	0	0	99,580	0	0	0	0	99,580	99,580	0
Valor promedio de mercado p/ Ha.	0	2,832,433	0	0	2,832,433	0	0	0	0	2,832,433	2,633,615	0
Valor Total Fiscal	0	3,200,346,648	0	0	3,200,346,648	0	0	0	0	3,200,346,648	23,258,287	0
Valor Total Mercado	0	91,030,000,905	0	0	91,030,000,905	0	0	0	0	91,030,000,905	615,384,366	0
<b>SIMÓN BOLÍVAR</b>												
No. de Has.	127	33,391	0	0	33,391	31	0	0	31	33,359	3,496	33,518
Valor fiscal p/ Ha.	0	99,580	0	0	99,580	99,580	0	0	99,580	99,580	99,580	0
Valor promedio de mercado p/ Ha.	0	2,738,518	0	0	2,738,518	2,738,518	0	0	2,738,518	2,738,518	2,360,807	0
Valor Total Fiscal	0	3,325,030,366	0	0	3,325,030,366	3,114,464	0	0	3,114,464	3,321,915,902	348,123,703	0
Valor Total Mercado	0	91,440,609,779	0	0	91,440,609,779	85,649,893	0	0	85,649,893	91,354,959,886	8,253,191,068	0
<b>VAQUERÍA</b>												
No. de Has.	253	0	103,377	11,774	115,150	0	210	0	210	114,940	0	115,401
Valor fiscal p/ Ha.	0	0	99,580	99,580	99,580	0	99,580	0	99,580	99,580	0	0
Valor promedio de mercado p/ Ha.	0	0	9,136,056	11,602,119	9,388,202	0	10,891,308	0	10,891,308	9,385,450	0	0
Valor Total Fiscal	0	0	10,294,234,927	1,172,422,844	11,466,657,771	0	20,955,785	0	20,955,785	11,445,701,986	0	0
Valor Total Mercado	0	0	944,453,820,634	136,599,614,846	1,081,053,435,480	0	2,291,985,415	0	2,291,985,415	1,078,761,450,066	0	0
<b>YHU</b>												
No. de Has.	145	57,594	98,971	1,909	158,474	44,639	2,747	0	47,386	111,089	76	158,619
Valor fiscal p/ Ha.	0	99,580	99,580	99,580	99,580	99,580	99,580	0	99,580	99,580	99,580	0
Valor promedio de mercado p/ Ha.	0	4,598,539	8,389,764	11,240,837	7,046,289	7,046,289	4,964,879	0	6,925,645	7,097,751	4,568,494	0
Valor Total Fiscal	0	5,735,166,111	9,855,562,271	190,140,965	15,780,869,346	4,445,165,093	273,506,128	0	4,718,671,221	11,062,198,125	7,598,482	0
Valor Total Mercado	0	264,846,219,097	830,345,830,159	21,463,582,275	1,116,655,631,531	314,540,252,851	13,636,521,271	0	328,176,774,122	788,478,857,409	348,600,321	0
<b>TOTAL GENERAL</b>												
No. de Has.	7,029	593,884	506,054	195,432	1,295,370	346,614	9,977	2,372	358,963	936,407	68,773	1,302,398
Valor fiscal p/ Ha.	0	133,789	113,588	105,188	121,586	147,115	123,878	171,141	146,628	111,987	134,444	0
Valor promedio de mercado p/ Ha.	0	3,302,398	8,679,617	11,224,392	6,598,269	5,228,080	8,686,127	3,700,319	5,314,097	7,090,545	2,519,555	0
Valor Total Fiscal	0	79,465,450,657	57,486,888,334	20,557,085,779	157,499,424,770	50,992,292,223	1,235,914,741	405,920,282	52,634,127,247	104,865,297,523	9,246,071,005	0
Valor Total Mercado	0	1,961,242,010,887	4,392,352,322,670	2,193,603,435,282	8,547,197,768,839	1,812,726,231,620	86,660,410,798	8,776,590,841	1,907,563,233,259	6,639,634,535,580	173,276,723,620	0
<b>Valor Total Fiscal - US\$ a/</b>												
<b>Valor Total Mercado - US\$ a/</b>												
<b>Valor Promedio Fiscal - US\$</b>												
<b>Valor Promedio de Mercado - US\$</b>												
<b>Valor Fiscal / Valor de Mercado</b>												
<b>Valor de Mercado / Valor Fiscal</b>												
a/ a Guaraníes 6000 por US\$.												

## NOTAS

- Los valores de mercado para tierras de INDERT son iguales al promedio de cada Distrito, por falta de datos georeferenciales sobre la ubicación exacta de los mismos dentro del Distrito. Excepción R13 Corrales donde el promedio fue calculado como residuo tomando en cuenta tierras indígenas y los parques nacionales.
- Las tierras de INDERT son tierras de asentamientos actuales, en manos de campesinos pero sin títulos. Una vez que se transfieren los títulos, esas tierras estarán sujetas al impuesto inmobiliario.
- Los valores de mercado para tierras indígenas y para bosques son estimados por el modelo en función de su ubicación geodésica exacta.
- El valor total de las tierras privadas es la diferencia entre el total de las ZHE y las tierras Públicas.
- El valor promedio de las tierras privadas es el producto del valor total de mercado de dichas tierras en cada distrito, por la cantidad de hectáreas existentes.

Junio de 2006

**Appendix Table 5: Caaguazú - Market value of INDERT lands, indigenous lands and forests, by district**

District	Hectares	Total value (Guaranies)	Value (US\$ per hectare)
<b>INDERT lands</b>			
Caaguazú	59,662	63,297,254	1,061
Carayao	3,058	1,101,975	360
Cecilio Báez	9,755	3,601,855	369
Coronel Oviedo	52,210	33,984,359	651
José Eulogio Estigarribia	77	152,569	1,969
Juan Manuel Frutos	22,108	29,344,151	1,327
Nueva Londres	7,962	3,443,091	432
RI 3 Corrales	29,528	15,109,046	512
Raúl Arsenio Oviedo	1,711	2,784,722	1,628
Repatriación	65,117	75,356,361	1,157
San Joaquín	30,263	13,816,117	457
San José de los Arroyos	20,493	7,591,889	370
Simón Bolívar	31	14,275	456
Yhu	44,639	52,423,375	1,174
Total/average	346,614	302,021,039	871
<b>Indigenous communities</b>			
Caaguazú	150	122,442	816
José Eulogio Estigarribia	1,143	2,616,234	2,290
Juan Manuel Frutos	47	43,982	943
Mariscal López	518	902,915	1,744
Raúl Arsenio Oviedo	2,129	3,764,949	1,769
Repatriación	2,897	4,294,502	1,482
RI 3 Corrales	128	40,308	316
San Joaquín	10	3,319	340
Vaquería	210	381,998	1,815
Yhu	2,747	2,272,754	827
Total/average	9,977	14,443,402	1,448
<b>Forests</b>			
Caaguazú	2,069	1,035,760	501
Carayao	27,368	10,725,388	392
Coronel Oviedo	21,958	10,864,967	495
La Pastora	2,322	849,710	366
Nueva Londres	1,489	695,573	467
RI 3 Corrales	2,372	1,462,765	617
San Joaquín	6,117	1,877,392	307
San José de los Arroyos	3,643	1,294,434	355
Santa Rosa del Mbutuy	234	102,597	439
Simón Bolívar	3,496	1,375,532	393
Yhu	76	58,100	761
Total/average	71,145	30,342,219	426

Appendix Table 6: Actual and potential collections from the rural property tax in Caaguazú (in Guaranies)

Distrito	Impuesto Inmobiliario recaudado total (2004) (1)	Impuesto Inmobiliario recaudado total (2004) descontado por ingresos correspondientes a años anteriores <sup>a</sup> (2)	Impuesto Inmobiliario recaudado - rural <sup>b</sup> (2004) (3)	Impuesto Inmobiliario estimado - rural <sup>c</sup> (2006) (4)	Base imponible rural @ valor fiscal privadas incl. bosques (5)	Potencial de cobro inmobiliario rural @ valor fiscal (6)=(5) x 1%	Recaudación rural / potencial @ valor fiscal % (7)=(4)/(6)	Base imponible rural @ valor mercado (tierras privadas incl. bosques) (8)	Potencial de cobro inmobiliario rural @ valor mercado (9)=(8) x 1%	Recaudación rural / potencial @ valor mercado % (10)=(9)/(9)
3 de Febrero	13,742,830	13,742,830	2,748,566	3,325,765	2,097,759,141	20,977,591	15.9	141,682,584,884	1,416,825,849	0.2
Caaguazú	720,081,413	273,630,937	55,421,000	67,059,410	5,294,437,698	52,944,377	126.7	197,031,044,671	1,970,310,447	3.4
Carayao	93,039,353	93,039,353	18,607,871	22,515,523	10,032,534,170	100,325,342	22.4	192,533,837,373	1,925,338,374	1.2
Cecilio Báez	6,352,027	6,352,027	1,270,405	1,537,191	439,971,095	4,399,711	34.9	9,788,423,879	97,884,239	1.6
Coronel Oviedo	982,834,400	373,477,072	74,695,414	90,381,451	5,752,643,363	57,526,434	157.1	131,201,706,070	1,312,017,061	6.9
José Domingo Ocampos	22,259,000	22,259,000	4,451,800	5,386,678	2,435,351,606	24,353,516	22.1	112,701,219,427	1,127,012,194	0.5
José Eulogio Estigarribia	184,046,000	184,046,000	36,809,200	44,539,132	7,028,856,742	70,288,567	63.4	734,959,488,654	7,349,594,887	0.6
Juan Manuel Frutos	56,066,781	56,066,781	11,213,356	13,568,161	3,281,632,413	32,816,324	41.3	262,548,579,033	2,625,485,790	0.5
La Pastora	28,453,757	28,453,757	5,690,751	6,885,809	2,357,454,651	23,574,547	29.2	49,126,559,317	491,265,593	1.4
Mariscal López	62,226,600	62,226,600	12,445,320	15,058,837	11,960,504,587	119,605,046	12.6	1,183,338,287,045	11,833,382,870	0.1
Nueva Londres	5,968,850	5,968,850	1,193,770	1,444,462	2,001,034,356	20,010,344	7.2	42,905,338,787	429,053,388	0.3
RI 3 Corrales	28,182,255	28,182,255	0	0	0	0	0.0	0	0	0.0
Raúl Arsenio Oviedo	97,492,559	97,492,559	19,498,512	23,593,199	13,217,688,012	132,176,880	17.8	1,294,617,228,371	12,946,172,284	0.2
Repatriación	78,500,000	78,500,000	15,700,000	18,997,000	3,205,150,471	32,051,505	59.3	124,309,894,656	1,243,098,947	1.5
San Joaquín	35,802,514	35,802,514	7,160,503	8,664,208	1,782,786,913	17,827,869	48.6	49,046,804,796	490,468,048	1.8
San José de los Arroyos	45,000,000	45,000,000	9,000,000	10,890,000	4,947,329,644	49,473,296	22.0	64,218,270,350	642,182,704	1.7
Santa Rosa Mbutuy	31,316,718	31,316,718	6,263,344	7,578,646	3,200,346,648	32,003,466	23.7	91,030,000,905	910,300,009	0.8
Simón Bolívar	25,485,892	25,485,892	5,097,178	6,167,586	3,321,915,902	33,219,159	18.6	91,354,959,886	913,549,599	0.7
Vaquería	29,827,075	29,827,075	5,965,415	7,218,152	11,445,701,986	114,457,020	6.3	1,078,761,450,066	10,787,614,501	0.1
Yhu	83,209,427	83,209,427	16,641,885	20,136,681	11,062,198,125	110,621,981	18.2	788,478,857,409	7,884,788,574	0.3
<b>TOTALES</b>	<b>2,629,887,451</b>	<b>1,574,079,647</b>	<b>309,874,291</b>	<b>374,947,892</b>	<b>104,865,297,522</b>	<b>1,048,652,975</b>	<b>35.8</b>	<b>6,639,634,535,580</b>	<b>66,396,345,356</b>	<b>0.6</b>

Recaudaciones correspondientes a tierras rurales (estimadas) 20%

Notas: (a) En los municipios que beneficiaron del proyecto de USAID (Caaguazú y Coronel Oviedo) se ajustan las recaudaciones totales porque solo 38% de las recaudaciones totales corresponden al año 2004; el resto (62%) corresponde a años anteriores. Las recaudaciones de los otros municipios no están afectadas.

(b) Basado en la investigación detallada de las recaudaciones del municipio de Caaguazú, sólo 20% de las recaudaciones corresponden a tierras rurales.

(c) Se aplica la tasa de incremento actual de 10% p.a. de los valores fiscales (equivalente a 21% acumulado entre 2004 y 2006).

**Appendix Table 7: Official estimates of land market values for 2005 for Eastern Paraguay**  
(Guaraníes per ha.)

Department	BNF			SNC (Ministry of Hacienda)			Average of BNF + SNC Market Values (G)	Average Market Value US\$ (US\$1 = G 6,000)
	Minimum (G)	Maximum (G)	Average (G)	Minimum (G)	Maximum (G)	Average (G)		
ALTO PARANA	2,000,000	10,000,000	6,000,000	8,000,000	18,000,000	13,000,000	9,500,000	1,583
AMAMBAY	500,000	3,000,000	1,750,000	750,000	4,500,000	2,625,000	2,187,500	365
CAAGUAZU	500,000	10,000,000	5,250,000	1,000,000	9,200,000	5,100,000	5,175,000	863
CAAZAPA	500,000	7,000,000	3,750,000	1,300,000	8,000,000	4,650,000	4,200,000	700
CANINDEYU	300,000	12,000,000	6,150,000	2,400,000	12,000,000	7,200,000	6,675,000	1,113
CENTRAL	4,000,000	50,000,000	27,000,000	n.a.	n.a.	0	27,000,000	4,500
CONCEPCION	300,000	2,500,000	1,400,000	1,500,000	2,100,000	1,800,000	1,600,000	267
CORDILLERA	800,000	8,000,000	4,400,000	1,200,000	12,000,000	6,600,000	5,500,000	917
GUAIRA	500,000	6,500,000	3,500,000	1,500,000	3,500,000	2,500,000	3,000,000	500
ITAPUA	500,000	15,000,000	7,750,000	2,000,000	9,000,000	5,500,000	6,625,000	1,104
MISIONES	300,000	5,000,000	2,650,000	800,000	4,000,000	2,400,000	2,525,000	421
NEEMBUCU	380,000	2,500,000	1,440,000	570,000	3,750,000	2,160,000	1,800,000	300
PARAGUARI	500,000	15,000,000	7,750,000	750,000	22,500,000	11,625,000	9,687,500	1,615
SAN PEDRO	400,000	4,500,000	2,450,000	700,000	3,100,000	1,900,000	2,175,000	363

Source: Staff estimates of averages based on minimum and maximum land values from Banco Nacional de Fomento (BNF) and Servicio Nacional de Catastro, Depto. de Valuaciones (Ministry of Hacienda).



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## MAP SECTION

