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IMPACT OF AGRICULTURAL LAND REVENUE SYSTEMS ON AGRICULTURAL LAND USAGE

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I. EXECUTIVE SUMMARY

The agricultural sector in many aid-recipient countries is performing below potential. Output growth lags population growth, and many countries import products that they could readily grow. Yet large tracts of land sit idle or are worked under low-productivity technologies.

In economic theory, taxes on agricultural land could encourage increases in the production and productivity of the underutilized resources. The burden of a land tax, based on potential output, would encourage land use (via an income effect), rather than discourage it, as do taxes on actual output or income (via a price effect). Landowners could overcome the drain of the land tax on their budgets by increasing the productivity of the land. Yet the most productive would pay no more taxes than the least productive, for landholdings of equal potential production.

For the present study, agricultural land taxes are defined as those taxes which fall directly and openly on the possession, use or transfer of agricultural land. There are four principal types of agricultural land taxes: taxes on land area; taxes on income generated or potentially generated from land; taxes on land transfers; and taxes on the increase in land value caused by public investment.

The impact of land taxes on land use and productivity became a subject of discussion after the middle of the 19th century. In Italy, Australia and western Canada, before World War I, land tax systems were developed with the objective of promoting increased agricultural productivity.

By the late 1950s, land taxation became an issue in development theory. Some writers attributed Japanese growth in the Meiji era to heavy taxes on agriculture, which financed industry. For them, taxes were a way to extract a surplus from the sector. In the 1960s, some economists explored heavier land taxation as an alternative to land reform, although they did not persuade any governments to implement heavy taxes for that purpose. Then and in the 1970s, attention shifted to the possibility that land taxes could promote better land use and greater productivity. And most recently, land taxes are seen as better ways to obtain revenue than export taxes or marketing board profits. Land taxes are also often seen as good ways to finance local government, and to decentralize the planning, financing and execution of development programs.

There is still only limited, tentative empirical evidence to test the accuracy of the theoretical analysis of the impact of agricultural land taxes on agricultural production. In part, the lack of evidence stems from a lack of systematic field research. However, it also reflects the scarcity of significant land tax reforms.

the extent that these assumptions do not apply, then the tax may be partially shifted to renters, input suppliers and consumers.

A tax based on land may stimulate output, but it is not intended to be an equitable tax in the way the tax relates to actual income. Land taxes are based on potential income. If a given landowner fails to make productive use of land, the tax burden will be high compared to actual income--as it is intended to be. However, since landholdings and personal wealth are correlated in many aid-recipient countries, the land tax could be a progressive component of a tax system.

Export taxes are common in nearly all aid-recipient countries. The more progressive agricultural taxes are probably those on agricultural land (taxes on land area, rental income and income) and, possibly, on some special assessments; regressive taxes include marketing taxes and income taxes. The effects of an export tax on the distribution of income depend upon two elements: the price elasticities of demand and supply for the taxed good, and the mobility of the factors used in its production. These two elements determine the amount of the export tax that is shifted to foreign consumers, if any, and the distribution of the domestic burden among landowners, producers and input suppliers.

The agricultural taxes differ in their revenue potential. A tentative ranking of the agricultural taxes in terms of their revenue potential would be (from most to least productive):

export taxes, agricultural land taxes (income base, rental income base, site value base, and then land area base), income taxes, valorization charges and marketing taxes.

Agricultural land taxes can be created or reformed effectively, given a political will and power to do so, if both technology and consensus-building are applied. Aerial photography simplifies cadastral work enormously, helping provide registers of land and of taxpayers.

Photo interpretation also helps in valuation, by speeding the process of estimating the area of soils of different value in each parcel. However, mass valuation requires the creation of tables of unit values, for soils and for location (i.e., access to markets). And successful implementation requires substantial consensus that the relative values assigned different soils and locations are fair.

Owner declarations, while useful as one input in the assessment process, are seldom an adequate base for an effective tax. Proposals to use the threat of forced sale at the owner's declared price appear from time to time, but have practical and political problems that have prevented their use as the basis for a modern land tax.

With any assessment system, values change over time and, unless the tax includes an automatic updating mechanism, even the best assessment will soon be inadequate. An automatic

indexation, complemented with an appeals system for those who feel the index overstates the value of their holdings, is probably better than the use of recorded transfer prices, because these are usually underdeclared.

There are also obstacles and constraints to the successful implementation of agricultural land systems to influence land use. The most intractable obstacles are at the political level. The problem is that agricultural land revenue systems generally charge all landowners but do not directly benefit anyone. Agricultural land revenue systems do not generate a political constituency. In contrast, land reform has an identifiable group of potential short-term beneficiaries who, therefore, give it political support. Thus, land reform is sometimes a politically more feasible way to intensify agricultural production and productivity than is the creation or modernization of an agricultural land revenue system.

The administrative constraints to an agricultural land revenue system implemented with agricultural production objectives are intertwined with the political constraints. Levies high enough to have an impact on the landowner's pocketbook are often politically unattainable. Carrying out the cadastral survey on which the assessment system is based may be resisted, thus creating political tensions.

The more tractable administrative problems fall under the general rubric of institution-building. With adequate time,

money and technical assistance, people can be trained. They can acquire new skills. The general level of administrative performance of a bureaucracy can be raised.

Of all of the institutional factors that would support implementation of an agricultural land revenue system, the single most important is access to markets for agricultural output. This is one reason why exports are often taxed more easily than is land. Availability of credit to underwrite investments in increasing production is probably the second most important element of institutional support. It may be possible to create a constituency, or at least to reduce opposition, if land tax revenues are used to provide better credit and better market access.

The presence of other institutional support mechanisms, such as labor or supplies of inputs, would increase the probabilities of successful implementation of an agricultural land revenue system. The probabilities for successful implementation are highest in an institutional environment with maximum support to agricultural production and innovation.

In conclusion, the overall experience with agricultural land revenue systems seeking to influence land use in aid-recipient countries has been inconclusive. In each case studied to date, the basic conditions for testing the theory have been absent. Nonetheless, there has been a significant advance in the technology of land mapping, registration and titling, and in the

mechanization of tax collection. It may well be time to address seriously the design of a new study of the feasibility and cost-effectiveness of these programs, making full use of both the new technology and the wisdom acquired over 30-odd years of efforts in this area by USAID and other donor agencies.

II. INTRODUCTION

A. Why Land Taxation Should Be Studied

1. Poor Performance of the Agricultural Sector

The performance of the agricultural sector in many developing countries has been unsatisfactory for years. Sporadic or chronic shortages of food and of agricultural products used as inputs for industry plague many countries. Many developing countries import foodstuffs that could readily be produced at competitive costs in their own rural sectors, but are not. Exports and hence foreign exchange earnings seem to fall short of potential quantity and quality. In sum, the rural productive sector often falls far short of what appears to be its potential.

The rural sector of many developing countries is also plagued with apparent underutilization of human and land resources. Large areas of land are uncultivated, though soils studies indicate that they are suitable for cultivation. Significant numbers of rural people are unemployed or under-employed, unwillingly. Many of them move to the sprawling cities, usually faster than the cities can accommodate them, and faster than industrial and commercial jobs become available. Among those who remain, many are employed productively only at seasonal peaks, as in harvesting coffee or sugar cane. For the rest of the year, they appear to be just as much a wasted resource as is the land that goes uncultivated or ungrazed for no obvious reason.

2. Theoretical Advantages of Agricultural Land Taxation

In economic theory, taxes on agricultural land could help force the underutilized land and labor into production, thus increasing the production and productivity of the sector and of the economy. The case is clearest if one compares the effect of two tax systems, each generating the same amount of revenue from the agricultural sector, and assuming no difference in the use of tax revenues by the government.

In the first case, fairly typical of developing countries, the taxes falling on the agricultural sector are raised from exports, domestic market sales, the profits of government marketing agencies, and taxes on personal and company income. In the second case, the same amount of revenue is assumed to be raised through a tax on agricultural land, while actual production and sale of agricultural products is untaxed, as is income generated by agricultural production.

In the first case, the net return to farmers for each ton of product is reduced by the tax; the marginal return to greater effort or effectiveness in the organization of production and marketing is lower. In the second case, although the tax revenue raised from the sector is the same, the price received for each unit of product marketed is higher. The marginal returns to effort and productivity are higher. If farmers respond at all to higher prices and profits, then converting taxes operating to depress returns at the margin into taxes that are fixed--

regardless of actual output and marketing--should lead to substantial increases in inputs, investments, effort, production and exports.

In addition, anyone who controls potentially productive land that is not actually being used for production will have to pay, under a land tax, whereas he or she will not have to pay when taxes are based on output, sales, or income. If the revenue raised from the sector is the same, conversion of income and marketing taxes into land taxes should redistribute part of the tax burden from the productive to those who are holding land without making it produce. That would improve the net after-tax income of the productive, but cut the net after-tax income of the unproductive--a good public policy. And to the extent that owners hold land idle out of inertia or lack of interest, a tax system falling on income and sales does not impose any out-of-pocket costs on those owners. A land tax, on the other hand, if based on potential output, converts an opportunity cost into an out-of-pocket cost, much more noticeable and hence more likely to lead the owner to use the land, or to sell or rent it to someone else who will.

Rather elementary microeconomic analysis thus leads economists and policymakers to consider a tax on agricultural land as a better way to raise a given amount of revenue from the agricultural sector than the more common taxes on products

marketed or exported, or on income and profits from production and marketing.

It must be noted that this interest, in the 1980s, is rather different from the interest shown by many writers in the 1950s and early 1960s. At that time, the interest was in increasing taxes on agriculture as a way of extracting a surplus from that sector to finance development investment in other sectors. (See, for instance, Bird 1974.) As Bird wrote, that model is of doubtful validity historically, and few economists today would urge any country to pursue development by imposing heavy taxes on the agricultural sector.

Nonetheless, economists look at many of the present tax and quasi-tax regimes in developing countries, and naturally ask whether those same revenues could not be raised in less counter-productive ways, such as a tax on agricultural land. The present study addresses this specific issue.

Economists also ask whether taxes on agricultural land could achieve non-revenue goals as well, such as increased investment and output, or division of overly large holdings into more efficient small and medium-sized farms. This issue is addressed in the present study as well.

B. Types of Taxes on Agricultural Land

Agricultural land taxes may be classified in four major categories, according to the tax base:

- taxes based upon the area of land perhaps with a crude classification for slope, soil quality or location;
- taxes based upon the potential income (or rental value) of the land, or on market value, which is the capitalized value of the annual potential income rent;
- taxes based upon actual income of the land and of other factors of production used on the land; and
- taxes based on other concepts related to the possession of land, such as transfer taxes, capital gains taxes, and valorization or betterment taxes.

Taxes on agriculture are not limited to these types of taxes. Some governments tax the rural population through other forms of income taxes, such as the African personal taxes, labor taxes and poll taxes. Many governments tax agricultural product sales through export taxes and marketing (or sales and excise) taxes. In effect, these taxes lower prices received by producers.

Agriculture in developing countries is often burdened in more subtle ways, even without explicit taxes. Government marketing boards may collect taxes on agriculture by monopolizing product marketing and then buying agricultural products at less than a free market price, while selling the products at a higher price. The difference, to the extent that it exceeds normal marketing costs in a competitive marketplace, amounts to a disguised sales tax.

Similar burdens on agriculture may arise if government imposes price ceilings on agricultural products. In this case

consumers may benefit by prices lower than they would otherwise have to pay--but the government does not get fiscal revenues from such measures. Output is likely to be less than it would be at market prices, and consumers may suffer from shortages, or the economy may lose export earnings as a result.

Developing-country agricultural sectors may also be burdened by exchange rate policies that overvalue domestic currencies, since exporters of agricultural products then receive less than the world market price for their goods. General export taxes, taxes on imported agricultural inputs, and protection of the domestic industrial sector may have a similar effect on the agricultural sector. All of these measures lower the prices received by producers, making agricultural production less profitable than it would be under more neutral public policies.

This question is not unimportant. When quasi-taxes such as price controls or import protection are included, the agricultural sector in a developing country may be overtaxed, not undertaxed. These implicit taxes bear heavily on poor farmers raising export crops in Malaysia, for example (Narayanan 1986).

For the present study, however, agricultural land taxes are defined as those taxes which fall directly and openly on the possession, use or transfer of agricultural land. This means that we will analyze principally the four types of agricultural land taxes outlined above: taxes on land area, on the income generated or potentially generated from land, and taxes on land

transfers, or on the increase in land value caused by public investment.

C. The Poor Performance of Existing Agricultural Land Taxes

In spite of the apparent theoretical attractiveness of taxes on agricultural land, the empirical literature, though mostly 10 to 20 years old, is highly critical. The criticism boils down to four main points:

- land taxes produce relatively little revenue;
- land taxes seldom achieve their non-fiscal goals;
- land taxes sometimes are counterproductive, discouraging production; and
- land taxes are unpopular, costly to administer, and plagued with corruption.

In short, taxes on agricultural land have often been described as being neither fair to farm people nor useful to governments.

D. Revenues from Taxation of Agriculture

It is sobering to begin by examining the actual results of agricultural taxation in developing countries. For over 30 years, there has been widespread agreement that there is substantial potential for taxation of agriculture in developing countries.[1] In many developing countries agriculture is a large sector of the economy, and in some it is the dominant sector. In these cases, revenues cannot be adequate unless government taxes

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[1]See, for example, Wald (1954), Wald (1959), Lewis (1967), and Bird (1974). Bird, however, is less optimistic than the earlier writers--and so are the authors of the present study.

this sector. In addition, agricultural taxation can be used to pursue various allocative and distributional goals, and even to accelerate the transformation from an agricultural to an industrial, developed nation. Even those who argue that development policies should encourage an expansion in the size of the agricultural sector--and this view is becoming the dominant perspective in development thought--acknowledge that some taxation of agriculture is necessary.[2]

It is perhaps surprising, therefore, that there are few countries in which this advice has been followed. Statistics on the magnitude of taxation, agricultural and otherwise, in developing countries are notoriously incomplete and inaccurate. Still, the available evidence from international agencies and country studies almost all indicates that agriculture is lightly taxed, and that the trend is, if anything, to lower taxes further.[3]

Very few countries collect as much as 10 percent of total government tax receipts from direct taxes on agricultural land. As Table 2.1 shows, there are no countries in which land taxes account for more than 20 percent of revenues. In most, all kinds

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[2]See, for example, Johnston (1977) and Mellor and Johnston (1984).

[3]See Bird (1974, Ch. 3) and the references cited there for a discussion of the quantitative importance of the taxation of agriculture. For some earlier--though limited--evidence, see Heller (1954c).

Table 2.1

PATTERNS OF AGRICULTURAL TAXATION: YIELD BY TYPE OF TAX AS A PERCENTAGE OF TOTAL TAX RECEIPTS

Country	Year	Percentage of Revenues[1]			
		Personal	Export	Land	Products
AFRICA					
Benin	1979	---[2]	1.5	0.0	---
Botswana	1984	---	---	0.1	---
Burkina Faso	1984	---	1.9	0.2	0.2
Burundi	1981	---	---	1.7	0.2
Cameroon	1985	0.5	---	2.5	---
Central African Republic	1981	---	1.9	---	---
Chad	1976	---	10.0	0.2	---
Congo	1980	---	0.3	0.0	---
Ivory Coast	1980	---	11.2	0.8	---
Djibouti	1980	---	0.0	0.2	---
Egypt	1985	---	0.0	0.6	---
Ethiopia	1980	---	24.8	3.6	---
Gabon	1976	---	2.8	0.0	---
The Gambia	1982	---	4.8	---	---
Ghana	1985	---	28.7	0.1	---
Kenya	1984	---	---	2.8	---
Liberia	1986	---	---	0.7	---
Madagascar	1982	---	4.0	0.1	0.1
Malawi	1984	---	---	0.1	---
Mali	1983	2.2	---	1.2	1.5
Mauritania	1979	---	1.3	1.0	---
Morocco	1984	---	0.3	0.1	---
Niger	1980	---	3.3	0.0	---
Nigeria	1978	---	0.0	---	---
Rwanda	1980	0.7	22.2	0.5	---
Senegal	1983	---	0.6	0.9	---
Sierra Leone	1985	---	1.4	---	---
Somalia	1978	---	1.5	3.9	---
The Sudan	1982	---	---	0.3	---
Tanzania	1984	---	0.1	0.1	---
Togo	1985	---	1.2	0.1	---
Tunisia	1984	---	0.8	0.0	---
Uganda	1985	---	59.3	---	---
Zaire	1984	---	---	0.0	---
Zambia	1984	---	9.3	0.2	---
Zimbabwe	1984	---	---	0.5	---

NOTES:

[1] Each type of tax as a percentage of total Central Government Tax Revenues. Does not include local taxes on land or the other categories.

[2] Dashes indicate the absence of any tax of this type. 0.0 means that there is such a tax, but total reported revenues from it are less than half of 1/10 of 1% of total central government tax revenues.

Country	Year	Percentage of Revenues			
		Personal	Export	Land	Products
ASIA					
Bangladesh	1983	---	0.5	1.0	---
India	1984	0.4	0.4	---	---
Indonesia	1984	---	0.6	0.1	---
Iran	1984	---	---	0.7	---
Jordan	1984	---	---	0.1	---
Korea, Rep. of	1985	---	---	0.7	---
Malaysia	1984	---	12.0	0.5	---
Nepal	1985	---	1.8	2.8	---
Pakistan	1984	0.3	0.8	0.3	---
The Philippines	1985	---	1.6	0.2	---
Sri Lanka	1984	0.1	11.3	0.3	---
Thailand	1985	---	1.8	1.5	---
Turkey	1985	---	---	0.8	---
LATIN AMERICA					
Argentina	1984	2.2	8.6	---	1.5
Barbados	1984	---	0.1	3.8	---
Belize	1984	---	2.3	0.6	---
Bolivia	1984	---	0.0	0.1	---
Brazil	1984	---	3.9	1.5	0.9
Chile	1985		n.a.		
Colombia	1983	---	1.3	0.3	---
Costa Rica	1983	---	15.5	0.1	0.0
Dominica	1979	17.3	1.1	---	---
Dominican Republic	1984	---	---	0.0	---
Ecuador	1984	---	1.7	---	---
El Salvador	1985	3.5	21.4	0.3	---
Guatemala	1982	---	6.5	0.6	---
Guyana	1985	---	0.8	1.3	---
Haiti	1985	---	5.7	0.0	---
Honduras	1981	---	16.3	1.0	---
Jamaica	1981	0.2	---	1.8	---
Mexico	1984	---	0.0	0.0	---
Nicaragua	1983	---	0.1	0.5	---
Panama	1982	---	1.7	2.1	---
Paraguay	1985	---	0.0	4.5	---
Peru	1982	3.2	6.8	6.6	---
Trinidad & Tobago	1981	---	---	0.1	---
Uruguay	1985	---	0.8	0.0	1.1
Venezuela	1984	---	---	0.8	---

Source: Government Financial Statistics. Washington, DC: The International Monetary Fund, 1986.

of taxes on property bring less than five percent of central government revenues (Table 2.2).

For the most part the major tool by which agriculture is taxed in developing countries is the taxation of food exports. According to Goode, Lent and Ojha (1966), export taxes accounted for over 20 percent of government revenues in four countries and over 10 percent in 12 countries. (There were 43 countries for which data were available at the time.)

Bird (1974) indicated that export taxes then generated over 10 percent of government revenues in 18 of 58 countries. Our own tabulation (Table 2.1) finds that export taxes are still quite significant as revenue sources. Countries in which there are significant amounts of cash crops tend to rely more heavily upon export taxes. Note, however, that export tax revenues tend to come from both agricultural and mineral exports. Thus, these figures may overstate the revenue from agricultural exports in some countries, though we have already eliminated those such as Chile, Zaire or Zambia, with major mineral and metal exports.

Table 2.2 gives another perspective, showing all types of taxes on property. While largely real estate, these taxes often include stamp taxes on financial transactions, or other taxes not truly part of taxes on land as such. However, they give some idea of the extent to which the respective society has decided to obtain needed tax revenues from the property-owning part of its citizenry.

Table 2.2

DEVELOPING COUNTRY TAXES ON PROPERTY AS PERCENT OF TOTAL CENTRAL GOVERNMENT REVENUES

Countries	Year	Taxes on Property
AFRICA		
Benin	1979	0.19%
Botswana	1984	0.10
Burkina Faso	1984	1.16
Burundi	1981	8.95
Cameroon	1985	1.66
Central African Republic	1981A	0.44
Chad	1976	0.91
Congo	1980D	0.06
Djibouti	1979	2.93
Ethiopia	1980A	3.04
Gabon	1976	0.01
The Gambia	1982A	-
Ghana	1985	0.06
Guinea	1983	0.04
Ivory Coast	1980	2.05
Kenya	1984A	0.07
Lesotho	1984A	0.04
Liberia	1986A	0.61
Madagascar	1982A	2.04
Malawi	1984A	0.05
Mali	1983	3.74
Mauritania	1979	0.77
Mauritius	1985A	3.87
Morocco	1984B	2.35
Niger	1980	3.00
Nigeria	1978	-
Rwanda	1980	1.06
Senegal	1983	2.69
Seychelles	1977A	0.82
Sierra Leone	1984	-
Somalia	1978B	3.32
South Africa	1983B	2.06
The Sudan	1982A	0.21
Swaziland	1986A	0.14
Tanzania	1981	0.51
Togo	1985	0.54
Tunisia	1984A	1.90
Uganda	1985	-
Zaire	1982A	0.05
Zambia	1982	0.05
Zimbabwe	1984	0.41

Countries	Year	Taxes on Property
ASIA		
Bangladesh	1983	1.66
Burma	1984A	-
Fiji	1984	0.74
India	1984E	0.49
Indonesia	1984	0.96
Korea, Rep. of	1985C	0.58
Malaysia	1981	0.51
Maldives	1985A	-
Nepal	1985	5.98
Pakistan	1984D	0.25
Papua New Guinea	1984	-
The Philippines	1985B	0.80
Singapore	1984A	11.10
Solomon Islands	1983	-
Sri Lanka	1984A	0.26
Thailand	1985B	1.32
Western Somoa	1984A	0.30
EUROPE		
Cyprus	1985A	2.86
Greece	1981A	2.34
Hungary	1985C	3.64
Malta	1984A	1.97
Portugal	1976	1.63
Romania	1984C	-
Turkey	1985	5.68
Yugoslavia	1985G	-
MIDDLE EAST		
Bahrain	1985	0.69
Egypt	1985A	0.88
Iran, I.R. of	1984	1.67
Israel	1984A	0.37
Jordan	1984B	5.67
Kuwait	1985A	0.05
Oman	1985A	-
Syrian Arab Republic	1981	1.34
United Arab Emirates	1981	-
Yemen Arab Republic	1985A	1.43

Countries	Year	Taxes on Property
WESTERN HEMISPHERE		
Argentina	1984	2.69
Bahamas	1979A	2.83
Barbados	1984A	4.27
Belize	1980	0.69
Bolivia	1984E	0.82
Brazil	1984D	0.05
Chile	1985A	0.04
Colombia	1983C	0.23
Costa Rica	1983A	0.52
Dominica	1979	17.13
Dominican Republic	1984A	0.91
Ecuador	-	-
El Salvador	1985	5.30
Grenada	1977A	1.87
Guatemala	1983B	-
Guyana	1983	1.59
Haiti	1982	1.31
Honduras	1976A	0.72
Jamaica	1977	3.41
Mexico	1984C	-
Netherlands Antilles	1982G	2.80
Nicaragua	1983B	4.65
Panama	1982A	1.64
Paraguay	1984A	9.36
Peru	1981	5.84
St. Lucia	1983A	0.66
St. Vincent	1985	1.10
Suriname	1985A	3.07
Trinidad & Tobago	1981A	0.21
Uruguay	1985	4.04
Venezuela	1984	0.71

NOTES

Letters A-G following the year name indicate the percent of general government tax revenue accounted for by central government, where data are available, as follows: A - 95 and over; B - 90-94.9; C - 80-89.9; D - 70-79.9; E - 60-69.9; F - 50-59.9; and G - 20-49.9.

Property taxes are frequently a local or provincial revenue source, so the relative importance of property taxes in government revenues is likely to be understated in this table, especially where the central government share in total government tax revenues is less than 80% (Codes D, E, F and G).

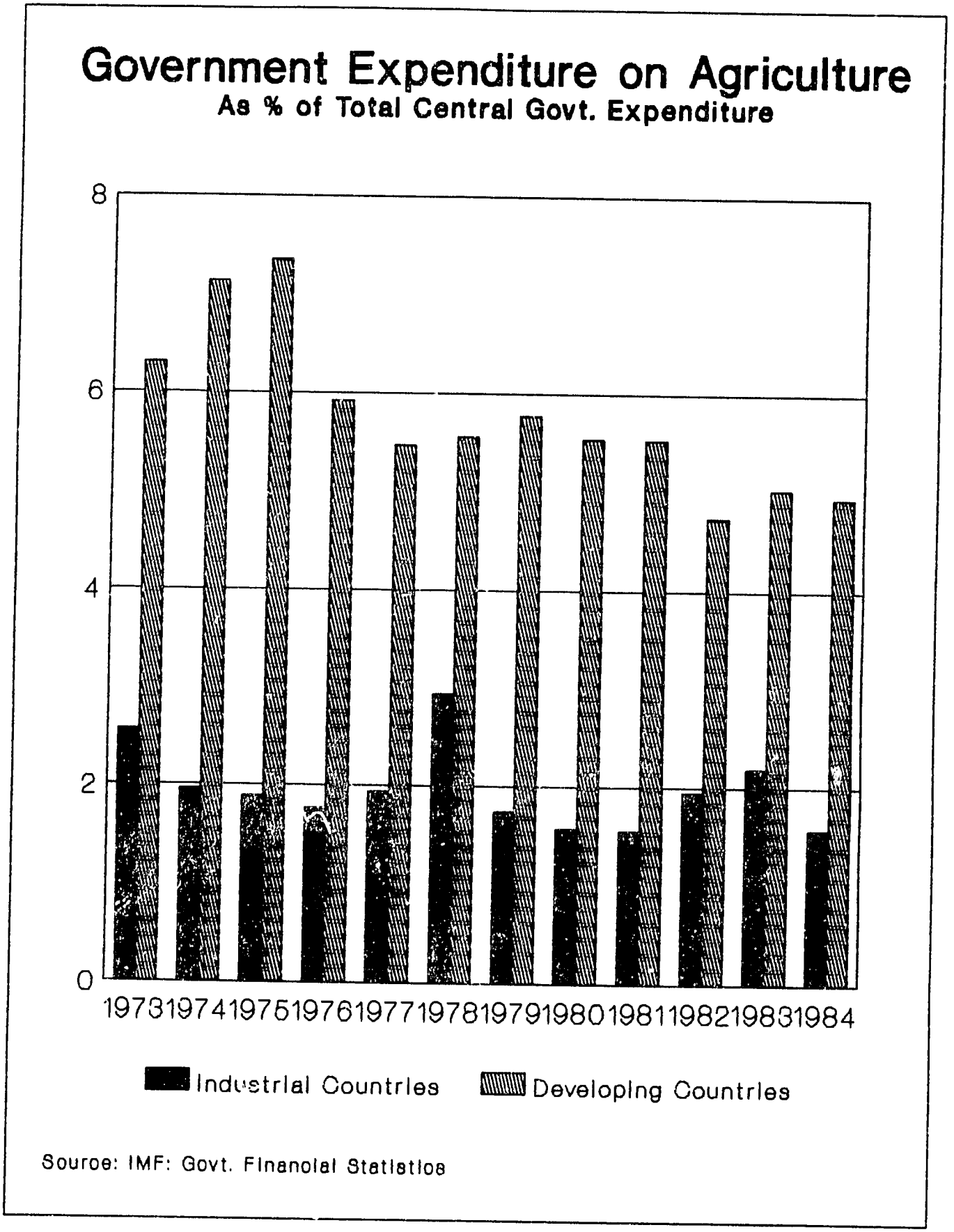
Source: Government Financial Statistics, 1986. Washington: International Monetary Fund, 1986.

Available information also suggests that the importance of agricultural expenditure in government budgets is declining slowing in developing countries as a group (see Figure 2.1). In part, this decline reflects the emergence of other productive sectors. Of course, this should also bring new alternative tax bases as development--and accompanying improvements in administrative capabilities--take place. Of equal significance, however, is the administrative and political difficulty of increasing and even maintaining the relative yields of land taxes in the face of inflation and real growth.

E. Possible Remedial Measures

To turn the agricultural land tax into a development instrument that is both fair and useful, one must find solutions for problems in the structure and the administration of this tax. In particular, government must find equitable and low-cost methods for assessing farm land. Government must achieve rate structures and levels that produce substantial revenues and are heavy enough to create the other effects of land taxes predicted by economic theory. And, as with other taxes, government should administer the tax fairly and efficiently, and use the revenues in ways which the taxpayers consider acceptable, hence offsetting in part the burden they feel in complying with the tax. While this is an ideal, experience shows that countries that come relatively closer to the ideal seem more likely to succeed in the efforts to use land tax as a development instrument.

Figure 2.1


Government Expenditure on Agriculture
As % of Total Central Govt. Expenditure
8
6
4
2
0
1973
1974
1975
1976
1977
1978
1979
1980
1981
1982
1983
1984
Industrial Countries
Developing Countries
Source: IMF: Govt. Financial Statistics

F. Programs and Projects of USAID and Other Donors

USAID has not overlooked the potential benefits of adequate taxes on agricultural land. Between 1950 and 1970, USAID helped finance several international conferences at which the issue was addressed (in Buenos Aires, Argentina; Santiago, Chile; and Istanbul, Turkey). USAID/Washington and various country missions funded technical assistance, training and material needs of land tax assessment and administration. Examples will be cited in the chapters that follow. Appendix B is a partial list of evaluations, by USAID personnel and outside consultants, of projects in cadastral surveys, land registration, titling and land taxation, carried out between 1960 and 1986, in 14 countries in Latin America, plus Afghanistan, Indonesia, Liberia, the Philippines and Senegal. In addition, the Access to Land, Water and Natural Resources Project with the Land Tenure Center of the University of Wisconsin includes land registry and tax questions in at least two African nations, Botswana and Mauritania.

Implementation of USAID's Decentralization: Finance and Management Project has just begun. In many ways it is a successor to the Local Revenue Administration Project which recently closed down. Both projects are major efforts to strengthen local government attempts to manage their own programs and finance them out of local revenues. Consequently, land taxation has been an area of interest in the Local Revenue Administration Project and will doubtless be as well in the Decentralization project.

At the country mission level, in recent years USAID has funded both studies and technical assistance in land taxation, sometimes as part of other projects in public administration or natural resources/agricultural development.

Many country missions in Latin America and elsewhere have supported cadastral and land registration projects, as in Honduras, El Salvador and St. Lucia. (See Appendix B for an account of many of these projects, as well as summaries of the project evaluations.) In most of these cases, though land taxation is not a principal goal of the project, the potential for increasing revenues and equity in a land tax has been cited as a benefit expected from the project.

The World Bank and the Inter-American Development Bank have also supported work on land registration and cadastral surveys, with the largest such projects being carried out in northeast Brazil in the last decade. Again, in the decision-making process of those donor institutions, land tax improvement is often mentioned as a benefit of such projects.

The Food and Agriculture Organization of the United Nations (FAO) has often supported studies of land registry and taxation. Articles on the subject appear occasionally in the UN series, PROGRESS IN LAND REFORM, and in the FAO periodical, LAND REFORM, LAND RESETTLEMENT AND COOPERATIVES.

G. Contents of the Remaining Chapters

In the chapters that follow, we will analyze four basic questions raised by USAID in the Request for Proposals:

- the relation between land taxation, land use, and productivity (Chapter III);
- the incidence of taxes on agricultural land; who really pays? (Chapter IV);
- processes and alternative technical approaches in creating or modernizing taxes on agricultural land (Chapter V); and
- constraints and limitations that impede implementation of an effective tax on agricultural land in developing countries (Chapter VI).

Chapter VII presents conclusions and recommendations concerning the role and use of agricultural land taxes in developing countries.

This report concludes with several appendices. Appendix A presents tables with data on the importance and form of agricultural taxation in developing countries.

Appendix B reflects the activity of USAID and its field missions in support of cadastral surveys and related projects, including land taxation. This appendix also includes extracts from the abstracts or executive summaries of the reports, and especially of the evaluations of those projects.

Appendix C presents a bibliography of published and unpublished material on agricultural land taxation. Included are abstracts or our own annotations on a number of the items that

are not readily accessible, but appear to be worth the attention of serious researchers.

Finally, Appendix D presents a more detailed description of the steps in a mass valuation process. In particular, the authors describe a method used successfully in Chile in 1963 to generate a consensus on unit values for land of various types and with varying ease of access to markets. This made it possible to virtually eliminate appeals of the resulting reassessed values, greatly facilitating implementation of an effective tripling of the land tax then in place.

III. RELATION BETWEEN LAND TAXATION AND LAND USE PRODUCTIVITY

This chapter begins with a brief review of the theory relating the taxation of agricultural land and the intensity of its use. We then present the findings unearthed by a search of the available literature. These findings are based on empirical data and on surmises based on statistical inferences and informed opinion.

Despite the apparently abundant literature, the harvest of hard facts based on field research was extremely meager. The theoretical considerations and surmises have changed little over the 30-odd years since the issue first received USAID attention. Yet one can perceive a growing sense of realism--bordering at times on skepticism--about the impact of land taxation on "agricultural development." This is paralleled by a similar growing realism/skepticism regarding its revenue-producing potential.

A. Theory

Much of the economic literature assumes that a tax on land is in principle a fixed cost, and not part of variable costs of production. Unlike other forms of direct and indirect taxation, land taxes are thought to have a positive impact on output and productivity, under certain conditions described later in this chapter. This concept is rooted in the Ricardian definition of "economic land rent," as modified by von Thuenen to account for

transport costs. For our purposes, the most useful restatement of that theory was made by Colin Clark:

> Rent is the amount by which proceeds actually received exceed the minimum amount which would have been necessary to evoke the supply of the factors of production required. In the case of agricultural land, "the minimum amount required to evoke its services" will be, in the long run, provision for maintenance, depreciation and interest on buildings and other fixed improvements. Anything else will constitute economic rent. If a land tax, tithe, or similar charge be imposed on the land this must necessarily be regarded, in view of the above definition, as part of the economic rent of the land, though the economic rent receivable by the owner will be less to the extent of the tax. (Clark 1973, 2)

This being so, it is reasoned, a land tax cannot be considered as a "cost of production" and is thus not passed on to consumers in the price of the produce. That is, the tax is a fixed cost of <u>owning</u> the land, rather than a cost of obtaining any particular crop from it.

In positive terms, the economic rent theory also means that a land tax encourages the owner to invest to increase the productivity of the land (which will not increase the tax), or to sell or rent the land to someone else who will make it more productive.

Intellectual interest in the possible impact of land taxes on land use and on productivity spread widely after the middle of the 19th century. The newly centralized states of Europe, as well as the newly independent states of the New World, Australia and New Zealand, were searching for revenue sources that were

politically rational, as well as technically and administratively feasible. It was also a time when the economic and social functions of land as a basic factor of agricultural production--along with labor--were being increasingly understood thanks to such thinkers as Ricardo, Jevons and von Thuenen. The policy discussion also reflected socioeconomic interest in landlord-tenant relations and the relation of taxes to actual rents, on the one hand, and with the incentive effect on landowner investments in land improvements, on the other.

For example, a "wild land" tax, "clearly intended to discriminate against the holder of unimproved land," was introduced in British Columbia, Canada, as early as 1873. Various states of Australia instituted some form of land tax, often intended to weigh more heavily on unimproved land than on improvements. The province of Alberta, Canada, was probably next, imposing a transfer tax on land, but explicitly exempting parcels of which 10 percent had been under cultivation in the 12 months preceding the transfer (Scheftel, 260-261).

Equity, as embodied in the concept of "unearned income" applied to land rent and to speculation with incremental land value, was probably of greater concern at that time than was the encouragement of greater investment in agricultural land improvement.

Nevertheless, well before World War II some land and tax economists--notably the disciples of Henry George--became more

conscious of the positive economic implications of taxes on landed property. At the same time, political philosophers grew increasingly concerned with the social effect of unchecked concentration of land ownership, especially where the supply of new land was exhausted and there were no tangible employment opportunities for surplus agricultural labor. "Site value" taxation, meaning taxation of the unimproved value of a piece of land in its natural state, was frequently discussed, though never implemented widely. For example,

> One argument is that much of what is paid for the use of land reflects socially created demand and is not a payment to bring land into existence...[also] higher land taxes would make for more efficient use of land. (Harriss 1974)

Economic research on agricultural land taxation in the United States after World War I tended to deal with the issues raised by farm indebtedness during the depression years, rather than with more fundamental questions of productivity incentives and disincentives (see Salter 1967, esp. 214-219). One of the classical texts (Ely 1940) for all intents and purposes ignores this aspect in the few pages that it devotes to the subject of land taxation. Johnson and Barlowe chose to devote the bulk of their chapter on taxation to the issues of land tax delinquency and reversion. At the end of their argument against the single tax, they note that for current landowners,

> . . . investment in land is often undistinguishable from other types of capital investment . . . it is not fair to tax away the income of land or rent while leaving untaxed the returns from buildings,

> factories, or other similar types of capital. (Johnson and Barlowe 1954, 321)

In the middle of the 20th century, however, land taxation began to become an issue in development theory (see Wald 1954 and 1959, for example). Some of the early interest focused on land taxation as an alternative or adjunct to land reform programs (see Pistono 1964, for example). This potential turned out to be weak in practice (except that a good, up-to-date cadastral survey facilitated expropriation and compensation, as, for example, in Italy, Chile and El Salvador). Attention then turned to the possibility that land taxes could promote socially more efficient use of land and labor.

In discussing the scope for penalizing "uneconomic land use" in the final chapter, "Nonfiscal Applications," of his second book, Wald writes:

> Provided the tax rate is not too low, a tax based on a realistic assessment of the land in its most productive use would provide a strong inducement to the owners to farm the land more intensively or to dispose of it to others who would do so. (Wald 1959, 220)

However, Wald qualifies this principle realistically by pointing out that introduction or application of intensive land use taxes is typically blocked by political opposition from landowner interests as well as "sometimes for administrative reasons." (See Chapters V and VI, below, for our analysis of these aspects.)

Wald points out that, at that time, such tax reform recommendations were typically made by international missions. Interestingly, the proposals--at least those originating from the UN system--appear to have been directed more at dealing with issues of equity than with efficiency. Indeed, the World Bank's first mission to Colombia, in 1949, under the leadership of New Deal economist Laughlin Currie, created considerable controversy by proposing a stiff rural land tax to modify the country's "uneconomic and paradoxical" land use pattern in which the cattle of the rich fatten in the valleys, while the poor starve on the hillsides (see Hirschman 1963, 117-121). The land tax proposal was subsequently criticized by other experts as an attempt by the Currie mission to soft-pedal the need for drastic, directly redistributive land reform. Nonetheless, it was incorporated in at least one later proposal for strengthening the 1962 land reform law (see CIDA 1965, Colombia, Appendix F).

By the early 1970s Richard Bird had come to the somewhat rueful overall conclusion that

> . . . most tax proposals by development experts substantially overestimate the potential of taxation to solve the many and varied problems underlying low agricultural productivity. If heavy taxes led more or less automatically to increased productivity, life would indeed be simple for the development economist. It is not. (Bird 1974, 19)

Yet, in discussing the specific topic of land taxation, Bird agreed that

> . . . a tax on land value or on the presumptive net income of all rural land, regardless of the actual

> type of production or degree of exploitation, will increase agricultural productivity by inducing owners to bring idle land into use and by increasing the efficiency with which land already in production is utilized. In the case of a tax on presumptive income, for example, the tax acts as a penalty to underutilization until the return on the land equals the presumed amount. Once actual returns are higher than the presumed rate, since the marginal rate of tax on the excess is zero, there is every incentive to earn still more. (Bird 1974, 182)

As we shall see later, there is still not even tentative empirical evidence to confirm or deny the accepted theory of land tax effects under the conditions stipulated by the theoreticians. This lack of evidence is due to the lack of specific research. This in turn reflects the fact that few new or reformed land tax systems have actually been improved in recent decades. Even in those cases, political forces have prevented a full-scale reform that could truly test the theory of land taxation.

Bird and others warn that land tax-related incentives would tend to work far better "in countries with a well-developed agricultural infrastructure . . ." than in the least developed countries (1974, 185). In other words, land tax incentives for more efficient land use and farm management may be most effective where they are least needed. This, of course, is related to the problems of developing and enforcing a reasonably rational and effective land tax system. These problems are discussed in other chapters below.

Bird also makes the interesting point that policy on the taxation of marginal producers may be more important than policy

on the taxation of improvements. He began with the then relatively recent definition of the "primitive farmer . . . as an optimizing risk averter," and suggested the need for a "carrot" as well as for the "stick" of land taxes:

> It is curious that the voluminous literature on the use of land taxes to penalize nonproductive farmers is not matched by much thought on how to reward productive ones . . . there is no equivalent under the land tax to the loss offset provisions of the income tax . . . (Bird 1974, 185)

The "stick" was still uppermost in the mind of Colin Clark, however, who wrote at about the same time:

> When agriculture is subsidized, or given tax concessions, or helped in any other way, the benefit accrues in the form of a rise in the price of land, rather than in the income of the farmer as such. Where . . . the farmer does own his land, it is second nature to him to think that land prices ought to go up. For the sake of attracting new enterprise into farming, for securing a rational reorganization of farms to meet changing circumstances, and for the public interest generally, it is desirable (except in a few remote areas) that land prices should come down. (Clark 1973, viii)

Leaving aside other key considerations of agricultural policy in both developed and developing countries, Clark's main point, partly related to his comments regarding "a severe and vexatious system of taxation of land sales" in early 19th century Europe, is that "Land should be taxed when people hold it without selling, rather than the converse" (Clark 1973, 13).

What Clark implies is that the use of land taxation as a tool for achieving microeconomic rationalization ought to be

confined to the imposition of the tax, and not to exemptions from it and other taxes.

Bird's concern for the marginal producer is, however, well-justified. It has both equity and efficiency implications. A meaningful land tax, like any other tax affecting all farmers, has a far greater impact on the miniscule cash incomes of very small producers, than on those of the larger farmers and landowners, and hence on their management decisions. Some have illustrated this effect empirically (e.g., Davis 1967 and Wells 1972--see below). If the land tax is onerous, the marginal farmer may be forced to seek off-farm employment in order to pay the tax and not lose his meager landholdings.

Colonial regimes imposed head taxes in southern Africa to force adult males to work in the mines; few today would want land taxes to do the same to the very small farmer in developing countries. Fortunately, this can be prevented by exempting smallholders from the tax.

A fixed tax on land might even reduce output rather than increase it. As Manig puts it:

> . . . it is possible to react to a rise in taxes with a fall in consumption. . . . If the consumption of food is, however, already near the subsistence level, a rise in taxes reduces the working capacity of those concerned and thus sets back productivity and output. (Manig 1981, 283: our translation)

In any case, this issue has more to do with the conditions surrounding tax effectiveness, discussed in Section III.C, than with the theories about it.

There is also a modest body of literature extending the idea of land taxes to cover other resources. For instance, Brownschidle (1985) analyzes the merits of a tax on the use of subsurface water for irrigation. In areas where subsurface water is sometimes scarce, such a tax would favor conservation for the periods of greatest drought. A tax on water used would tend to fall most heavily on the risk-adverse producers, who tend to apply more water than they really need when it has no perceptible cost to them (since no one well draws down the aquifer by a noticeable amount).

B. Evidence

Bird cites a number of countries where the authorities at one or another time intended to use the land tax to induce socially desirable factor (including land) use changes through changes in the land tax base, appraisal and rate systems, etc. However, he was unable as recently as 1973 to identify any cases where such results could be demonstrated directly or even indirectly.

In the case of Jamaica, which changed its tax base in 1956 to exclude improvements in order to encourage more efficient land use while preserving incentives for investment, Bird concluded at least by 1973, "There have been no dramatic effects as a result

of the adoption of the new tax basis." More recent work by the Local Revenue Administration Project and by the Land Tenure Center confirms this evaluation.

In South Asia, land taxes, where they exist, are judged to be generally well administered. But as recently as 1984, only Bangladesh had introduced the investment stimulation objective in its tax system, and it is apparently too early to tell anything about results (Schroeder 1984).

1. Colombia

Rhoads and Bird studied Colombia's land tax, concluding that

> The [conventional] property tax's incentive role in economic development has not really amounted to much. On both counts, then, with regard to its revenue productivity and to its incentive use, the property tax in Colombia has not as yet made much of a contribution to economic development, although there is some hope for improvement as a result of efforts now underway. (Rhoads and Bird, in Becker 1969, 202)

Bird reported in 1987 that "some success" was registered in Colombia in 1983, but that it has since faded. (Private communication. Attempts to obtain up-to-date information from Colombia experts by mail and telephone were unsuccessful.)

On the other hand, Rhoads and Bird found Colombia's betterment tax (impuesto de valorizacion) in the 1960s "interesting from both a theoretical and a practical point of view, but it has been almost totally ignored in taxation

literature in recent years . . ." (in Becker 1969, 202). The incentive effects of the betterment tax, in their opinion,

> . . . are also favorable to investment and development . . . [because] as a tax on pure site values . . . [it] does not penalize development of unimproved land, and in practice its use will also probably lessen reliance . . . on the regular property tax, which does penalize such development. . . . Since the valorization tax is a relatively large tax assessed over a short period of time, its effect in forcing better land use through the liquidity and attention-to-use effects should be stronger than a regular site value tax, where the rate may be too low to threaten the liquidity or arouse the interest in land use of any but the largest landowners. (Rhoads and Bird, in Becker 1969, 208-209)

Perhaps because this "valorization" tax had been applied largely in urban areas in Colombia at that time, however, the Rhoads and Bird assessment of its impact on agriculture was largely speculative.

One of the few empirical studies of the agricultural-economic impact of the land tax was done in Colombia by L. Harlan Davis for his Ph.D. dissertation (University of Wisconsin, 1967). In the introduction to his data analysis, Davis mentions that

> Researchers have not defined the level of taxation at which farmers are induced to intensify land use, technology employed, and yields, to offset the costs of higher land taxes or to produce the desired "income effects." (Davis 1967, 86)

In the case of Colombia at that time, Davis asserts that "it is not likely that this level has been reached . . . legal rates are relatively light at 4.2 mills . . ." (That is, a tax of 4.2 pesos per 1,000 pesos of land value.)

Davis' data were gathered in a field survey of nearly 300 farm households in two comparable communities. In one (Anolaima) properties had been reappraised and reassessed, presumably under the "technical cadastre" in 1964, while in the other community (El Colegio) the 1956 assessments (based largely on owner declarations) were still in effect. Substantial differences in farm management might have been expected from the finding that the tax base in El Colegio had been "seriously eroded" in the 10 years since 1956--by nearly three-fourths in real terms--while in Anolaima the 1956 assessments had lost only half of their real value. However, the data show:

> Because of low rates, the tax burden is a relatively small percentage of income and this fact . . . means there is little opportunity for the non-fiscal effects to operate . . . particularly . . . among the larger farmers, where the tax burden is lightest. (Davis 1967, 95)

This was true even of tax owed, to say nothing of the fact that many owners both large and small, did not bother to pay; there was little effort to enforce payment.

In fact, even in Anolaima, the average theoretical tax burden among that half of the sample farms with cash farm income above the median was substantially less than the level of six percent of estimated income found among the two smallest farm size groups. There was a clear, and expected, tendency for the tax incidence on income to decline as economic farm size rose. Indeed, in both communities, the tax appeared to represent a substantial burden, of 14 percent and 28 percent, respectively,

on the cash flows of the smallest size group (minifundia with less than 500 pesos net cash farm income, equivalent to US$50 at that time).

While this doubtless indicates a serious social regressivity of the tax, affecting nearly 10 percent of the sample households, it probably has little bearing on the land use/productivity issue at the aggregate level. The farms in this size class cover a negligible proportion of total farmland and produce virtually no marketable surplus. Even if they are tax-delinquent, it may not pay to enforce collection. In any case, Davis suggested the need for additional research on this point because, on the smaller farms, the tax burden is certain to be much lighter when it is related to total farm income rather than to cash income.

By contrast, Davis concludes that

> The large landlord, especially absentees, may not be interested in devoting more time and effort to the management of their farms, even if an increased tax burden means a reduction of farm income. . . . Holding land for social purposes and as a hedge against inflation, is common in Colombia, as is absentee landlordism. (1967, 123)

Davis compared the mean values of three "performance factors" among his farm samples between the two communities--land utilization, technology employed and crop yields for the two most recent seasons, "in an attempt to determine whether the additional tax burden, as a result of reassessment in Anolaima, had produced any discernible economic effects" (1967, 98). He found "little difference in intensity of land use . . ." (1967,

99), leading to the conclusion "that the higher property tax burden resulting from reassessment in Anolaima was not sufficient to force farmers to utilize land any more intensively than on Colegio farms . . ." (1967, 101).

Similarly, Davis found the difference between the "technology scores" of the two communities, based on nine practices, to be "not significant at the .025 level of probability" (1967, 103). Finally, comparison of the average yields of the three main crops, although all three were fractionally higher in Anolaima, showed that "the difference in the means was not significant at the .05 level" (1967, 106).

As regards the relation between per hectare tax assessments and the performance factors, "the regression coefficients were extremely small in all cases. . . . None of the regression coefficient values were significant at the .05 level. Coefficients of determination were also, again, small" (1967, 107).

In a further methodological refinement, Davis analyzed case studies of four of the most productive farms in each community (both small and large), only to find that "The tax level . . . both in absolute terms and as a percentage of income . . . varied greatly and, therefore, seemed to be an insignificant variable as far as the performance factors were concerned" (1967, 109).

Yet, one is intrigued by the finding that all eight high-productivity farms "were closer to a public roadway and generally closer to a village . . ." (1967, 109), which leads one to question whether farm appraisal for land tax purposes in Colombia at that time, at least in Anolaima, adequately reflected site value.

Davis' bottom line is that

> It seems safe to conclude that, on the average, farmers in the higher [tax] assessed categories are not performing any more efficiently than those in the lower categories, according to the criteria employed. The higher property tax burdens per hectare, as well as higher total property taxes and net worth taxes, have had little influence on farm decisions of the nature considered here. (1967, 109-110)

Davis' finding confirms, as expected, that there was no farm management impact of the Colombian land tax because the rates were so low.

2. Chile, Brazil and Argentina

Davis returned to the subject a few years later, together with Sazama, in one of the few published efforts to pull together existing empirical data. This time, they added a regression analysis of national aggregate variables on property tax assessments in Chile in the 1960s. The result was inconclusive and indicated to the authors that

> . . . even if property taxes have economic effects other than raising revenue, they can easily be swamped by other changes in demand or supply conditions. . . . While this analysis does not prove that there are no effects of agricultural land taxes

> on such things as output, yield, and so forth, it does suggest that, at least in the case of Chile, virtually no relationship existed. (Sazama and Davis 1973, 650)

The authors also briefly examined the results of interviews with farmers in two Chilean townships (comunas) in 1967 "to determine whether the 1965 tax changes had any effect on their economic behavior." They indicated that "the land tax does appear to have some small positive economic effects," although none of the respondents were able to point to any significant specific changes induced by the increase in taxes (Sazama and Davis 1973, 650-651).

The Chilean case, they state in their conclusions, is particularly significant because "Here, land taxes are the highest in Latin America, and yet there were no significant results" and, moreover, "the tax base is statutorily adjusted for inflation . . ." (Sazama and Davis 1973, 653). (However, tax impacts were clouded by the 1967 enactment of a land reform which specified that underutilized farms would be expropriated first. Also, the inflation adjustment was soon eroded politically. Chapter V, below, may help explain the inconclusive results of their time series analysis.)

Sazama and Davis' summary of a 1966 study by Alberto Franco et al. in two Brazilian rural communities ends on a similar note: ". . . the relatively higher tax burden in Pirassununga had produced no discernible effects on the variables under

consideration." However, once again ". . . perhaps the effective rate was still too low to figure significantly in the economic calculus of the farmer" (1973, 651-652).

Finally Sazama and Davis quote Arthur Domike's 1964 conclusion on land tax in Argentina, based on an empirical study of land taxes in eight departments of the Province of Cordoba, as follows:

> [The land tax's] influence on the production and planning of investment has not been very important. . . . For the smallest farms, these taxes are an insignificant cost [cf. Davis' Colombian data cited earlier which show the contrary], and for the largest, they are not sufficient to stimulate improved investment. (1973, 652)

Sazama and Davis (1973) state that the few other empirical studies they were able to find at that time "all reached conclusions consistent with the above findings," even though most concerned urban areas in developed countries.

In their conclusions, they, like many other students of the subject, point to the need for the existence of a market economy for the theoretical assumptions to apply (see Section III.C.3 below), and they recommend--perhaps also ruefully--that "we should concentrate our attention on the revenue-raising capability of the land tax" (1973, 653).

3. Costa Rica

Another land tax-oriented study, of over 200 farms in Costa Rica (Wells 1972), could have helped shed light on the issues at

hand with somewhat different focus and methodology. As it is, it tells us only that at the three per mill minimum rate of the land tax, its incidence on the average family farmer's returns to fixed capital--including land at realistic market values--would have been about five percent. However, at the low official assessments, the tax incidence was only about half that level.

- The incidence of the land tax on the official assessments of the land averaged 3.6 per mill; at a more realistic land valuation by the study team, the burden amounted to only 1.6 per mill.

- The average road maintenance fees (a separate local tax) and "private payments" amounted to 56 percent of the average land tax payment, raising the total tax burden to 5.5 per mill of the average official assessment, and to 3.2 per mill at a more realistic land valuation.

- The legal provisions of the Impuesto Territorial make no attempt to affect land use. Since improvements are supposed to be included in the tax base, the tax could act as a deterrent to development by taxing more heavily the person who invests in his land. (There is no evidence in the study, however, that the tax has had this effect.)

4. Others

Modern legislation governing taxes on agricultural land and/or on presumed agricultural income in various Latin American countries tends to assume, often explicitly, that positive developmental impact can be achieved with this tool. Such was clearly the case in the enactment of land tax laws in Colombia, Argentina, Uruguay and Chile. Yet, around 1970

> None of the Latin American countries except Chile have a rural taxation system that meets the tests of acceptability including that of efficient administration. Some have none. . . . Yet, it is precisely in the poorer . . . countries . . . where

> land taxes, and rural taxation in general, make the least relative contribution to government revenues. . . . This includes several countries which have undertaken substantial agrarian reforms. Neither Bolivia nor Venezuela have a land tax, and in Mexico such taxes contribute less than one percent to total tax revenues. (Domike and Tokman 1971, Table 8; Domike and Shearer 1973, 77)

Uruguay shifted in the 1970s from a "presumptive income tax" that was presumably efficiency-neutral, to a tax on potential net returns per hectare measured against an "average" yardstick, under the explicit assumption that the system would "reward" the efficient farm manager. More recently this tax was reserved for family farms, while the larger farms, which are assumed to have--or be capable of introducing--accounting systems, will be subject to a strictly revenue-oriented, flat-rate agricultural income tax. If the original theory was correct, Uruguay will thus end up with a dual tax system under which only the smaller farmers will be "rewarded" for efficient management with taxes that are a lower drain on net income than they are for less efficient managers.

An attempt was initiated in Argentina in the 1960s to use a combination of national land taxes and the income tax to reward efficient producers and penalize land underutilization by which a proportional land tax of two percent was levied jointly with the provinces (1.6 percent for the nation, the rest for the province), in place of the previous progressive provincial taxes. Taxpayers were allowed to credit the national portion against income tax. The system was never fully implemented, and it was

repealed after a few years. (In 1987, Argentina announced another land tax reform. It has not yet been enacted, let alone implemented.)

The Brazilian land tax has, since 1963, contained provisions for deductions ostensibly designed to encourage more intensive land use. However, in addition to undermining the progressive rates (by size), these provisions have recently been shown to have a markedly negative environmental impact. They have encouraged large-scale conversion of privately owned or claimed forest land in the Amazon to pasture or crop land where such conversion is not only ecologically destructive but would not have been economically justified without the tax provision. In addition, Brazil's income tax laws convert "agricultural investment" into a huge tax shelter, thus tending to aggravate the environmental damage as well as concentration of ownership, and nullifying any possible positive developmental effect of a land tax (see Binswanger 1987).

There is little recent empirical evidence from Africa or Asia, but one study of Mali found that it had continued direct taxes and price repression from the colonial period into independence, as did several other African countries. Far from stimulating production, the heavy taxes led to migration and reallocation of land to other crops for which prices were better. However, for cotton, there was some evidence of a backward-

bending supply curve--heavy taxes and quasi-taxes may have increased output (Krishnan 1972).

In another example, a study in Sudan examined the impact of overvalued exchange rates and a state marketing monopoly on the Sudanese oilseed producers. The implicit and explicit taxes together left producers only 23 percent of the world market price for gum arabic. Producers of peanuts and sesame seed received only 29 and 36 percent of the world prices, respectively. Unfortunately, the study is less clear as to the impact of these tax and quasi-tax burdens on allocation, investment and output (Gabir 1983).

Yet another study, again unfortunately without full evidence of impact, noted that the treatment of forests in the hill area of Uttar Pradesh, India, as a revenue source--rather than as a source of production and a means of livelihood for people--caused serious problems in both revenue and ecological and human dimensions (Sanwal 1986).

C. Conditions

The existing literature suggests above all certain conditions, some inherent and others extraneous to the tax itself, under which a positive efficiency impact of land taxes might be expected:

- the tax must not penalize new investment or good management;
- its impact on economic rent must be significant;

- other taxes must not nullify the effect of the land tax;
- productive and potentially productive land must be scarce (that is, there is no frontier open to settlement at minimum cost); and
- there must be an unexploited economic slack--market incentives must be effective, and appropriate technology, capital and physical inputs must be readily available.

Each of these necessary conditions are explored below in some depth:

The tax must not penalize new investment or good management. This condition for success in land taxation has been known since the 18th century. It requires a mechanism to:

- temporarily exclude from tax assessment the incremental land value deemed to represent new productivity-enhancing fixed investments; and
- tax presumptive, average returns to the land, rather than actual incremental returns due to individual management practices.

Both crucial principles were recognized, for example, in the first cadastral law enacted by the government of newly unified Italy in 1886. Fixed investments in farm improvements introduced subsequent to 1886 were to be ignored in cadastral appraisals for a period of 30 years. (Actually, the principle of ignoring or postponing recent investments in the process of estimating farm income for tax purposes was accepted by the State of Milan, for example, more than a hundred years earlier.) Second, taxable returns to any given class of land were to be those considered "ordinary"--i.e., average--for a given area, meaning that inter-

farm differences in managerial capacity were to be ignored (Bandini 1946, 203-207).

The 18th and 19th century Italian concept is similar to that which underlies most modern taxes on capitalized or annual land rent or on presumptive returns, rather than on actual income. It is found in the Argentine, Chilean and Colombian land taxes and the Uruguayan tax on potential returns to land, as described in the previous section and elsewhere in this report.

The impact of the tax on economic rent must be significant. If holders of land--no matter whether they are absentee landowners or owner-operators--are to be expected to respond positively in terms of land use efficiency to a land tax, the tax must take a bite out of the economic rent of the land that makes a tangible impact on the holder's personal income. There are no data to indicate what such a tax bite should be under given conditions, but a level of 10 to 25 percent of the economic rent would probably be noticeable enough to be effective without being oppressive or, worse, counterproductive. If market values approach 10 times the economic rent--not unusual in developing-country land markets--then the needed rate is in a range of 1.0 to 2.5 percent per year on true market value of the land, not including recent productive improvements. (Most U.S. localities fall in this range also.) As we have shown, developing countries are far below such levels of land taxation now, between low rates and low and outdated assessments. Counterproductive and socially

regressive impacts on small producers can be avoided by exempting holdings at the lower end of (up-to-date) assessments, and/or by sharply progressive rates.

Other taxes must not nullify the effect of the land tax. As we have seen, land taxes are ipso facto ineffective as economic policy tools when they are enacted or administered without consideration of their relation to other taxes. In most developing countries farmers are exempt from taxes on actual income or, even if they are not, there is seldom any meaningful collection. However, in some of the more "advanced" developing countries, such as Uruguay, both types of taxes are collected from the agricultural sector. This is feasible because the larger commercial farmers do keep books.

It also tends to happen because the land tax and the tax on actual income are levied by different political jurisdictions (as they are in the United States). In such cases, the impact of the income tax--as well as of the export taxes in the case of Argentina, for example--on the managerial decision-making of the commercial producers and landlords tends to override absolutely the impact of the land tax at present low assessment and rates.

Land tax payments are usually allowed as a deductible expense under income taxes. This reduces their burden on the efficient. However, if the inefficient are allowed a deduction or credit for land taxes, that can be offset against taxes on non-farm income, this encourages absentee ownership. It causes a

competitive handling for the owner-operator who does not have income from other sources from which to deduct farm losses. As in the United States, this bias against owner-operators tends to reduce the pressure of land taxes toward better land use.

The availability of non-marginal land must be sharply limited. This is a necessary condition for the applicability of theories regarding the economic impact of land taxes. The reasoning is simple: as long as there is low-cost or free access to productive land (e.g., grazing on public lands), investment in improved pastures and intensive cultivation of private, taxed land will be reduced. A tax on registered private land could tend to accelerate squatting and shifting cultivation, rather than foster intensification. (For a discussion of this phenomenon, see Boserup 1965). In countries where squatting on new lands is a real alternative, care must be taken not to exact an excessive slice of the rent of presently occupied land. Since the same factor will reduce market values of private land, proper assessment should prevent any problems.

As discussed in the previous section, Brazil may well be an example of this situation, especially because of its environmental impact (which is being replicated all around the periphery of the Amazon basin). However, in Brazil it is not the land tax per se that causes the problem, but rather the exemptions from it and from income taxes.

There must be an unexploited economic slack: market incentives must be effective, and appropriate technology, capital and physical inputs must be readily available. This set of conditions is stipulated by virtually all authors who deal with the subject. The best-designed and implemented land tax cannot possibly have a measurable impact on land use intensity and factor use efficiency unless the economic policy environment favors such a reaction. The land tax mechanism will not work to stimulate production if the market cannot be expected to absorb the additional production at remunerative prices.

Neither will it function if producers and landowners have poor access to income-enhancing technologies, to investment and working capital at reasonable real interest, and to the physical inputs needed to undertake fixed investments and apply improved technologies. In the absence of any of these conditions, the response to a significant land tax could actually be a contraction of output if the tax results in some previously utilized land becoming marginal. On the other hand, the revenues from a modern tax could be earmarked to help create these favorable conditions--capitalizing rural credit and marketing programs, for example.

In most developing countries there will be a marked difference in the economic slack between the landowning and entrepreneurial farming sector, on the one hand, and the subsistence and small family farming sector, on the other. This

is so because the two sectors' access to markets, technology, capital and inputs (and, of course, to land) is typically unequal. But it also has to do with differential economic behavior with regard to risk, labor use, leisure preference and the allocation of incremental income between consumption and investment. Some of these differences become irrelevant when small properties are exempted from land taxation; others will have to be taken into account in any case. (For a thorough discussion of these themes, see Manig 1981, Ch. 5 and 7.)

D. Conclusions

The post-1960 theories of the developmental potential of the land property tax have held their own, but there is little empirical proof. The theories have been refined over the years, particularly regarding the conditions under which the theories are deemed to be applicable. On the other hand, skepticism about the feasibility of the enactment and implementation of land tax systems for development ends (or even solely for revenue purposes) has grown because of the experiences in developing countries during the past three decades. Lamentably, neither the theoretical amendments nor the practical skepticism have been based on much empirical data. Field studies of the impact of land taxation are virtually nonexistent. Most of those which have been done do not deal--except marginally--with the land use and efficiency issues but rather with revenue generation or with such topics as tenure security.

What, if anything, can be concluded at this point with regard to the potential of a tax on land as a tool of economic policy to promote more efficient land use and "productivity," and to the feasibility of its use as such? The potential evidently exists despite the growing skepticism about the feasibility. Both the potential and the feasibility are circumscribed by the conditions outlined in the preceding section. In addition, policymakers and legislators have not, as a rule, been asking basic questions regarding goals and objectives before embarking on the design of land taxation for other than revenue-raising purposes.

Nothing has happened to contradict established theory regarding the production-cost neutrality and potentially positive equity impact of a reasonably heavy land tax. A tax-induced damper on land prices would make it easier for small farmers to rent or buy land, increasing both production and equity. This in itself makes the land tax an economic policy tool for developing countries bent on exacting an easily predictable amount of revenue from the agricultural sector, in preference to other types of taxes which are difficult or impossible to collect and/or lead to undesirable distortions.

However, there is unanimity among scholars and practitioners that the land tax cannot be expected to serve as the sole tool to achieve efficiency and equity goals, to which environmental goals must be added. However, it can be one of a set of tools within a

consistent policy framework, and under conditions such as those discussed in Section III.C above.

The bottom line of the rare field study that has attempted to deal with these issues has been that there was no measurable microeconomic impact from the tax because of its negligible incidence on land values and farm and personal incomes. We are thus faced with a vicious circle consisting of faulty design and indifferent implementation of the tax mechanism. The problem is in part a lack of information for either tax assessment or intelligent tax design. Governments, too, are seldom interested because present land taxes do not yield much revenue, and policymakers see the costs but fail to see the substantial benefits (in addition to revenues) that a modern cadastral survey could bring.

It appears that one of the fundamental reasons for the disappointments to date has been failure to distinguish macro economic goals from microeconomic realities. It is precisely in this important respect that adequately focused research should be able to establish some guidelines for policymakers anxious to convert credible theories into feasible proposals.

IV. INCIDENCE AND ECONOMIC IMPACT OF AGRICULTURAL LAND TAXES: COMPARISON WITH OTHER TAXES

This chapter compares the incidence of land taxes with that of other direct and indirect taxes on agriculture. More generally, we will explore the differential effects of these alternative fiscal instruments on the distribution of income, on land utilization, and on government revenue.

A. Types of Taxes on Agriculture

It is useful to reiterate the types of taxes that are discussed here. Agricultural land taxes are usually classified into four categories, according to the tax base. They are taxes that are based: upon land area; upon income of the land only (or the rental value of the land); and upon income of the land and other factors of production used on the land. A fourth category includes taxes based on the sale or transfer of the land, or on increased land values attributable to government investment. Examples are valorization or betterment taxes, transfer taxes, and capital gains taxes.

However, taxes on agriculture are not limited to taxes applied to the land. Governments also impose taxes on agricultural producers in the form of income taxes, personal taxes, labor taxes and poll taxes. Taxes on agriculture may be indirect, as with export, marketing, sales and excise taxes. Agriculture is also often burdened in more subtle ways, not called taxes but having similar impacts. For instance,

government marketing board monopolies may collect hidden taxes on agriculture by buying agricultural products at less than a competitive market price and then selling the products at a higher price. Marketing boards in West Africa sometimes pay producers less than half the world market price for cocoa. Understandably, a lot of cocoa is smuggled to neighboring countries, in which sellers get the full market price.

Similar burdens on agriculture may also be imposed via price ceilings on agricultural products. In this case, farmers lose and consumers gain just as though the government had taxed farmers' sales and used the revenue to subsidize consumers.[4]

The agricultural sector may also be burdened by exchange rate policies that maintain an overvalued exchange rate for domestic currencies, since exporters of agricultural products then receive less than the world market price for their goods. Import taxes and protection of the domestic industrial sector may have a similar effect on the agricultural sector, by raising the costs of farm inputs and of consumer goods.[5]

Taxes are, of course, only one of many factors that differ among countries producing a given crop for world markets. For an example of the importance of the other factors, one could see the

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[4]Lewis (1984) presents a thorough analysis of the effects of price ceilings, along with diagrams and examples.

[5]For a more extensive discussion of methods of imposing a relative burden on agriculture, see Lewis (1967) and Bird (1974).

comparison of tea production and marketing in Kenya and in Sri Lanka (Jayasundera 1982).

The discussion that follows focuses upon fiscal policies that affect agriculture and ignores--with one exception--those methods that work outside the government's budget. The exception is land reform. Land reform can be viewed as a forced capital levy on the owners of land. Its main purpose is to redistribute political and economic power; it may also be used to affect land utilization. For these reasons the effects of land reform on agricultural productivity and the distribution of income are also discussed.

B. Distributional Impact of Agricultural Taxes

The taxation of agriculture affects the distribution of income. This section provides a theoretical foundation for these impacts and summarizes the limited empirical work on the distributional effects. Taxes that are examined first are direct taxes on agricultural land: taxes whose base is land area, rental value of the land, and (total) income of the land, and taxes imposed for special purposes. The other major taxes on agriculture--export taxes, marketing taxes, and income taxes--are then discussed.[6]

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[6]For a general discussion of the principles of tax incidence, see Mieszkowski (1969), McLure (1976), and Pechman (1985). For a discussion that relates more specifically to the incidence of land and property taxation, see Netzer (1966), Mieszkowski (1972), and Aaron (1975). The developing-country context is discussed by McLure (1976), and Bahl and Linn (1982), although

1. Agricultural Land Taxes on Land Area

Agricultural land taxes that are imposed on land area have as their base a factor that is fixed in supply. Economic theory is clear on the incidence of such a tax: the burden of an area-based tax is on the owners of the land at the time the tax is created or increased, with the burden seen in an immediate decline in the price of the land equal to the capitalized value of all future tax liabilities ("tax capitalization"). As noted by Bird,

> The incidence is independent of whether the land is rented or owner-cultivated, or whether the landlord or tenant is the statutory taxpayer . . . [Moreover], landlords cannot shift the tax to farm laborers or to suppliers of inputs. (1974, 163-164)

If landowners are extracting from tenants as much rent as possible before imposition of the tax, and if they are likewise paying to input suppliers as low an initial price or wage as possible, then creation of a land tax does not give them any extra ability to raise rents or lower factor payments. If landowners were in fact able to do these things, they would already have done so. In short, theory concludes that it is the landowner who pays the tax.

Some recent analysis by Mills (1981), Wildasin (1982), and Tideman (1982) clarifies still further the conditions under which a tax on land is borne by the owner. As long as the land tax is imposed on a base whose magnitude is invariant to the current use

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the focus of their work is primarily upon property taxation in urban areas of developing countries.

of the land--that is, as long as the tax is based on the presumptive income of the land, as is the case for most land taxes in practice--then the tax will be neutral and borne by the owner of the land.

Note that the existence of tax capitalization increases the force of arguments for the use of heavy agricultural taxation. Tax capitalization serves several purposes. It may force landowners to sell (or abandon) part of their land in order to maintain their consumption in the face of reduced wealth. This may enable tenants to purchase land at a lower price; as owners, they will utilize the land more efficiently. And, because the ownership of land is heavily concentrated in higher income classes, the capitalization of the creation or increasing of a tax on land increases the progressivity of the tax system.

There is some evidence, at least in developed countries, that capitalization in fact occurs.[7] We have not located any empirical evidence of capitalization in developing countries. In one case of a land tax increase that should have produced significant capitalization, in Chile in 1965, land prices fell but it was impossible to distinguish capitalization of the tax increase from the impact of the expectation that a major land reform would shortly be enacted and implemented.

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[7]The original work is by Oates (1969). See Aaron (1975) for a discussion of this and related work.

Tax capitalization depends upon several assumptions that may not always hold in developing countries. As shown by Berry (1972), necessary conditions for full capitalization are that the supply of land is completely fixed, that each owner is maximizing farm income, and that all factor markets are perfectly competitive.[8] Each of these assumptions may be questioned. First, and most important, the supply of land may not be completely fixed, particularly around expanding urban areas; even if the supply of land to all uses is more or less fixed, the supply to specific uses is variable and may be changed over a period of time if the creation or increase of a land tax reduces the expected returns from investment in land.

If the amount of land in cultivation falls because it is taxed more heavily than urban land, urban boundaries will move outward more rapidly. The resulting decrease in the supply of farm land will cause the tax-induced fall in land value to be partially offset. The tax change will be shifted in part to consumers of agricultural products (through lower output and higher prices), and to the suppliers of agricultural inputs (through lower demand). Note that one effect of land taxation may be less utilization of land for farming, unless the tax change applies to other land uses as well.

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[8]Some additional conditions that must be met are: complete certainty in tax payments, unchanged government expenditures, and an unchanged discount rate.

Second, landowners may not be maximizing farm income. They may hold land in part for the prestige and social standing that ownership brings. They may also be reluctant to extract the full amount from tenants (a "rack rent") out of inertia or for paternalistic or humanitarian reasons. Under these conditions, the imposition of a tax on land area may lead to an increase in rents, greater resistance to higher wages, and reduced use of other inputs. This may lead to a decline in production, thereby raising prices and shifting some of the tax to consumers.

On the other hand, the decline in income of the landowner may lead to working harder in order to restore part of the lost income; that is, there may be an income effect from imposition of the tax that leads to more intensive cultivation and increased sales. There is in this case an added tax burden on the landowner, since the increased production of agricultural products will lower their prices. The income and substitution effects, therefore, tend to offset each other--so the government gets more resources, and output does not fall. But tenants and workers who were not previously squeezed as much as the market would allow, now are so squeezed--and the landowner tells them it is the tax that forces them to be squeezed.

Third, agricultural markets are unlikely to be perfectly competitive. For example, unequal bargaining between owners and tenants, or between producers and consumers; government price controls and other regulations; credit market borrowing

constraints; and factor immobilities are imperfections that reduce the likelihood that creation of or increase in a land tax will be fully capitalized in land prices and hence felt only by those who own land at the time the tax is created or changed.

There are few studies of the incidence of a tax based upon land area. However, given the concentration of land ownership in higher income classes, it is likely, as suggested by Bird (1974, 210), that "a roughly classified area-based land tax may in some instances prove to be surprisingly progressive in its incidence." Some evidence in support of this conclusion is provided by Gold and Foster (1972) for Nepal and Alm and Schroeder (1984) for Bangladesh. Gold and Foster find that a simple classification scheme that distinguished primarily between dry and wet land had a progressive impact on the distribution of tax burdens. Alm and Schroeder also find that a progressive-rate, area-based tax with no distinction across types of land had a progressive impact on tax burdens in rural areas. For example, 10 percent of all rural landowners in Bangladesh paid 87 percent of the total (potential) tax liabilities despite ownership of only 52 percent of the land. The per household and per capita tax liabilities also rose sharply as landholdings increased. Even with a proportional rate structure, the distribution of tax liabilities is progressive, particularly if a small exemption level is also established. Both in Nepal and Bangladesh, the progressive effects stem primarily from the concentration of land ownership.

One should be cautious in concluding that a tax based on land area will be an entirely equitable tax; indeed, property taxes in general may not be equitable because they are cast in an impersonal or in rem mold. The commonly accepted criterion for interpersonal equity in taxation requires that a tax be tailored to the individual circumstances (i.e., total income and/or net wealth) of a taxpayer. A tax based entirely upon land area is not personalized, and cannot reflect individual differences in ability to pay, such as unusual medical expenses in a given year. Still, in many cases such a tax seems likely to have a progressive impact on the distribution of after-tax income.

In some settings, however, rural property ownership may be so infrequent that a tax on rural property would make little change in the distribution of after-tax personal income. This appears to be the case in Tanzania (Semboja 1983).

2. Agricultural Land Taxes on Rental Income

The most common type of land taxes are those imposed on the actual or potential rental income of the land. Rental value is typically measured as the annual payment for the use of land ("annual value") or as the market value. estimated as the present discounted value of these annual payments ("capital value"). In principle, these two methods of calculating rental value are equivalent, since any capital value can be converted into an annual value and vice versa. In practice, however, it is unlikely that the two methods give the same results because they

tend to be applied differently. The calculation of annual value is usually based on past and current rental payments, even if more profitable uses of the land are available. Capital value is based more upon expected future income, and so is more likely to reflect the value of land in its most profitable use. Annual value systems are common in former British colonies, such as India, Pakistan and Bangladesh. Capital value systems are more typical in Latin America, and there is some evidence that there is a trend toward more use of capital value as a base for the property tax.[9]

Here, the income due solely to the characteristics of the land itself is identified and taxed. Income generated by other factors of production--capital improvements, labor, and material inputs--is excluded, at least in theory; taxes based on this more inclusive concept of income are discussed later.

The notion of rent has its origin in the Ricardian analysis of rent. Ricardo viewed rent as the payment for the use of land in excess of its return over "marginal land," whose rent was by assumption zero. The modern formulation of rent is somewhat different. As defined by Wald,

> . . . rental value is the payment that can be obtained in a competitive market for the opportunity to apply common techniques of agriculture in the cultivation of the land, after taking into account its location and other inherent qualities and whatever additional qualities it contains as a result of past human action. (1959, 15)

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[9]See Bird (1974) and Bahl (1976).

The incidence of a tax on rental value depends primarily upon what is actually included in the base of the tax. The base may be defined as the value of unimproved land alone, or land in its natural state, although this type of tax is uncommon. As suggested by Henry George in his now-classic PROGRESS AND POVERTY, the base may instead be defined as the value of land in its current form, but exclusive of any improvements ("site value taxation"). In either case the conclusions discussed above for taxation based on land area apply here as well. If the supply of land is completely fixed, each owner is maximizing income, and markets are perfectly competitive, then the incidence of a tax on unimproved or site value is borne completely by the owners of the land; that is, the price of land will decline by the present value of future tax liabilities.[10] Indeed, the result was one attraction of site-value taxation to those in the Single Tax Movement of Henry George. To the extent that the preceding assumptions do not apply, then the tax may be partially shifted to tenants, input suppliers and consumers.

(For a modern formal restatement of the economic theory of the incidence of site value taxation, see Brueckner 1987. He includes an analysis of the incidence of the short-run windfall gains and losses that would accompany a change from taxing land

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[10]This assumes that the tax is less than the economic rent of the land. If the tax exceeds the economic rent, then the tax may be shifted.

and improvements, to a graded tax in which improvements are exempt or are taxed at a lower rate than are site values.)

Site value taxation has been used only occasionally. Uruguay imposes a real property tax on land value, as do Chile, Australia and New Zealand.[11] Perhaps the most interesting experiment in land value taxation is Jamaica, which replaced a capital value tax that included improvements with a tax on unimproved land value in parts of the island in 1959. This tax has been the subject of much recent attention, as part of a comprehensive tax reform project in Jamaica. Follain and Miyake (1986) use a computable general equilibrium model to analyze the partial replacement of the individual income tax with the land value tax. They find the distributional impact is progressive--the burden of an increase in land value taxation is on landowners, with labor gaining from the change in taxes. Holland and Follain (1985) also conclude that the burden of the land value tax in Jamaica is borne more heavily by larger property owners.[12]

The incidence of a rental value tax becomes more complicated when the base includes the income due to other factors of

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[11]The experiences of Australia and New Zealand are discussed by Woodruff and Ecker-Racz (1969).

[12]For a detailed discussion of site value taxation, see Lindholm and Lynn (1982), especially the papers by Break, Gaffney and Prest; see also Carmean (1980). The history of site value taxation in Jamaica is discussed in Holland (1969) and St. Claire (1979).

production. On a strict interpretation, the expansion of the base to include part or all of the income generated by improvements, labor and materials changes the nature of the tax to one based on an income concept, rather than on the rental value concept. However, in practice it is quite difficult to decompose the income of property into the part attributable to the land itself and the parts due to other factors of production. If the return to these other factors is included in the base of the tax, then the tax may be usefully viewed in terms of the incidence of that part of the tax that falls on land and that part that falls on the other factors. The burden of the part that falls on land is the same as in the earlier discussion. The burden of the part that falls on other factors--and the other factor that is most commonly taxed is capital improvements--is more controversial and unsettled.

Consider a tax on improvements, although the discussion applies to other factors as well. A tax that falls on improvements lessens the return to these improvements, and the decline in their return will decrease the incentive to invest in these improvements. Now if the supply of capital is fixed, then the decline in its return will not affect the amount used, and the burden of the tax will be on the owners of capital; that is, the tax will not be shifted to other factors of production or to consumers. In this case, the burden of the tax is likely to be felt primarily by those in higher income classes because the ownership of property is heavily skewed toward these individuals.

However, if the supply of capital is responsive to a change in its return, then the tax will be shifted in part or in total, with the amount of shifting dependent upon the degree of supply responsiveness. In the case of a perfectly elastic supply of capital improvements, the entire burden of the tax will be shifted to consumers of agricultural products and to those factors of production used in agriculture that are relatively immobile. The incidence of this part of the tax may then be proportional or regressive in its impact.

The crucial issue in the incidence of the tax on capital improvements is therefore the elasticity of the supply of capital. Unfortunately, it is difficult to resolve this issue empirically. As a result, most analyses of the incidence of property taxation are based upon specific assumptions regarding the responsiveness of capital. Still, these assumptions can be tailored to the question at hand.[13] The general principle is that the more general the tax on improvements--in terms of both the types of improvements and the areas of the country that are subject to the tax--the less elastic the supply of capital is likely to be, and so the more likely that the burden of the tax will be on the owners of capital.[14] Conversely, a tax that is

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[13]See Mieszkowski (1972) for a detailed theoretical analysis of property tax incidence. The Mieszkowski approach is applied to developing countries by McLure (1976), and Bahl and Linn (1982, Ch. 5).

[14]These effects are sometimes called "profits tax effects." See Mieszkowski (1972).

imposed on a narrowly defined tax base is likely to be shifted to consumers and immobile factors of production because that base is likely to be mobile to other uses.[15]

Consequently, the incidence of the property tax depends upon the type of property tax being considered. If the tax is limited to a single region in a country, then the tax is almost certain to be shifted because the supply of capital to a region is very elastic; however, if the tax is a nationwide tax, the burden is more likely to be on capital owners because the supply of capital to a country is less elastic. Even for a nationwide tax, however, one must be careful in applying this analysis. The elasticity of supply of capital to a small, developing country is likely to be high because of the ease of capital flight. A nationwide tax in a developing country may therefore be shifted to consumers and immobile factors.[16] It is evident that to answer precisely the question--"What is the incidence of the property tax?"--requires a detailed understanding both of the type of taxes being considered and of the institutional characteristics of the country being analyzed.

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[15]These effects are referred to as "excise tax effects," and may arise because of local tax rates that are above (or below) the national average rate. Again, see Mieszkowski (1972).

[16]Bahl and Linn (1982, Ch. 5) reach similar conclusions, using a more complex model of the economy. They assume, however, that the supply of land to urban areas is elastic, so that in the long run even a tax on land is shifted to consumers and immobile factors. See also McLure (1976).

There have been numerous empirical studies of the incidence of property taxation in developing countries as diverse as Colombia, Korea, Panama, Peru, the Philippines, Portugal and Turkey.[17] Most of these studies deal with the incidence of a nationwide property tax, within the context of a general analysis of the incidence of all taxes in the country. Their results are crucially dependent upon the incidence assumptions that are used, particularly those regarding the mobility of capital. In general, a regressive pattern of incidence is found by those studies that assume that the tax is shifted forward to consumers, although this conclusion also depends upon the consumption and housing patterns of consumers; those that assume that the tax is borne by the owners of land and capital find a progressive pattern. Linn (1979) presents some evidence that administrative practices can also have a substantial effect on the incidence of the tax. The relevance of these studies to agricultural taxation is somewhat limited, however, because the tax that is typically analyzed is the urban property tax.

3. Agricultural Land Taxes on Income

Taxes that use rental value as the tax base attempt to identify income of the land that stems only from the characteristics of the land itself. Taxes that use an income concept have a broader base, at least in principle. These taxes

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[17]See Bahl and Linn (1982, Ch. 5) for a detailed review of these studies. For estimates of the incidence of the property tax in the United States, see Aaron (1975) and Pechman (1985).

include in the base the income from land; they also include the income from all other factors of production, such as capital improvements, labor and materials. As noted above, however, the distinction between rental value and income taxes is considerably blurred in practice.

There are several ways in which "income" can be measured. The base may be measured as gross- or net-of-expense income; it can also be measured in physical units or the cash equivalent. A tax based upon gross income measured in physical units is the tithe. This tax was once common, particularly in Islamic countries in the Middle East, but is now found in few countries. A modified version of a tax on gross income assesses land according to various classifications; such a tax has been used in Morocco and Korea. Taxes on net income are seldom used. Instead, such taxes are typically centered on the individual income tax, which treats income from all business activities much the same. In many cases--the exception is the tithe--the income tax base is estimated using presumptive methods.

The distinction between the various tax bases can be clarified using a simple example. Annual net income from agriculture can be measured as the difference between total revenues (or price X output) less the sum of the annual rental payment for land, the annualized cost of capital improvements (or the "user cost of capital"), the wages of labor, and materials costs. A tax on land area only has as its base the physical

component of land rent. A tax on rental income taxes simply the rental payment for land. A tax that falls on improvements is imposed on the cost of capital. A tax on gross income has a base equal to total revenues, while a tax on gross income measured in physical units is imposed on output only. Finally, a tax on net income has as its base the difference between revenues and total costs of production; equivalently, a net income tax is imposed on the net returns accruing to the taxpayer from all factors of production.

The incidence of a tax on net income can be analyzed using the same principles as employed in the earlier discussion. A tax that reduces the return to a factor of production will lead to an attempt by providers of that factor to reduce its burden, and their ability to shift the burden elsewhere will depend upon factor supply and demand. To the extent that the factor supply is fixed, the burden of the tax will be borne by the factor; a factor that is mobile will be able to shift the burden to consumers or immobile factors. For example, that part of the tax that falls on land is likely to be borne largely by landowners, although the earlier discussion indicated some circumstances under which the supply of land is less than perfectly inelastic. Similarly, that part of the tax that falls on the return to labor is likely to be shifted if workers are able to find alternative (untaxed) employment at similar wages.

The incidence of the tax on gross income is somewhat different. Such taxes have the same base as a tax on the agricultural good itself, and so are equivalent to marketing or excise taxes. Their incidence is most likely to be borne by consumers, which implies a regressive distribution of tax burdens if the proportion of income spent on food products declines with increases in income.

The analysis is further affected by special features of many income taxes. Complexity has its own costs, as taxpayers seek out tax shelters and revenue services try to control them (see, for example, Mayshar 1986).

One study suggests that where the income from agricultural land is taxed under the income tax, incentive provisions may offset any progressivity built into either a land tax or the income tax itself. Bravo-Ureta (1981) analyzes the impact of progressive and flat rates on farm incomes for "typical" large and small grain farms in the United States, of 1,920 and 240 acres, respectively. In his models, investment credits, accelerated depreciation, the deduction of interest paid on mortgage debt, and preferential rates for capital gains more than offset the progressive rates of the higher absolute income from the larger farm. A flat 25 percent income tax without these preferences would be equal to a flat property tax of 2.5 percent per year if land markets capitalize net farming income at 10 percent per year. And that flat tax, without the special

preferences under the income tax, would favor more and smaller farms, as compared to the present system. It would also slow the move to absentee ownership. The present system favors land buyers who have other, non-farming profits against which to offset accounting or real losses in farming, an advantage not as readily available to ordinary farmers.

4. Special-Purpose Property Taxes

Special-purpose taxes fall into several categories. Some Latin American countries impose land taxes that are designed to penalize certain activities, such as holding land idle or growing crops of certain (undesired) types. Many countries impose a capital gains tax on land, sometimes with the intent of capturing some of the "unearned" increment in property values caused by growth. (In other cases, capital gains taxes are simply part of an income tax system. They may even have rates lower than those applied to income from other sources, sometimes on the theory that some of the "gains" reflect inflation and are not real gains at all.)

Taxes on the transfer of property are also common, and are sometimes collected via stamp duties. If rates are significant, such as two percent or more, sellers and buyers often routinely conspire to underdeclare the transfer price. Most of these special-purpose taxes yield little revenue and have little apparent effect. These taxes could be reduced or eliminated with

little effect, positive or negative. They are not discussed further.

One special-purpose tax that has shown some ability to finance development projects is the special assessment, sometimes called a valorization tax or a betterment tax.[18] Valorization taxes have been used in several Latin American countries, such as Ecuador and Mexico. They have been used most extensively in Colombia.[19]

Valorization taxes are designed to capture from the owners of property some portion of the increment in their property values associated with a specific public improvement, such as the installation of roads, water and irrigation systems, sewerage systems, drainage and flood control, street lighting, and other similar urban and rural government services. Valorization charges therefore ensure that those who benefit from a project pay the project costs. Because the payment is linked so closely to the benefits received, beneficiaries are forced to admit that

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[18]A related though distinct tool for development projects is land readjustment, also known as land consolidation. Under land readjustment, small landholdings are combined into larger plots, services are installed, and the reassembled plots are then redistributed to the owners, with the government keeping some of the new plots for sale as compensation for its development efforts. Land consolidation has been used with some success in Japan, Korea and Taiwan; it is currently being tried on an experimental basis in Indonesia. See Doebele (1982) for further discussion.

[19]The Colombian experience has been analyzed extensively. See Rhoads and Bird (1969); Doebele (1975); and Doebele, Grimes and Linn (1979).

the project does bring them benefits; this linkage often reduces opposition to the charges.

In principle, the entire increase in value could be collected in taxes, without injustice to anyone. In practice, only the direct project cost is typically recovered, with this cost allocated among property owners in proportion to an estimate of the benefits received by each. Valorization taxes have been most extensively used in urban areas in Colombia, although they have also been applied on a limited basis in rural areas. At one time they accounted for a substantial amount of urban government revenues in Colombia; for example, revenues from valorization charges in Bogota in 1969 were two-thirds of property tax revenues, and expenditures on projects were over 10 percent of total government expenditures. The use of valorization taxes in rural areas has been much more limited.

Special assessments are based upon the notion that those who benefit from the provision of government services should pay for them (the benefit principle of taxation). On this limited basis, special assessments are often viewed as equitable. The distributional effects depend more generally, however, upon how much of the benefits are recovered from the property owners, where the projects are built, and what the alternative methods of financing are.

The evidence from Bogota indicates that all income groups benefited from projects financed by valorization charges.

Nevertheless, higher income groups consistently voiced some opposition to the programs, perhaps hoping to get the same benefits even if projects were funded from general revenues, which they assumed were largely paid by "someone else." Rhoads and Bird (1969) conclude from this that valorization charges may be a particularly progressive form of taxation.

Cost recovery is by no means limited to the valorization form of land tax, of course. Recent case studies of obvious relevance to developing countries would include many instances of successful or unsuccessful efforts to recover public investments. For example, see recent studies of cost recovery systems for self-help housing in Brazil and water systems in the Philippines (McCullogh 1983).

5. Export Taxes

The principal means by which agriculture is taxed in developing countries is through export taxes. Export taxes abound in developing countries, as do marketing board monopolies that procure at a fraction of export prices, which is much the same. The rate of taxation can be quite high. According to the World Bank (1986, 64-67), the farm price for coffee in Togo in the late 1970s was only one-third of the border price; in Cameroon and Ghana cocoa producers received less than half the border price; in Mali cotton producers received only half the border price. The experience of other countries is similar--Tanzania (rice, maize and tobacco); India (tea); Egypt (cotton),

Malawi (tobacco), Brazil (coffee), Colombia (coffee), and Sri Lanka (tea). Effective rates of export taxation via marketing board monopolies on the order of 50 to 75 percent (of world market prices) are not uncommon.[20] See also the Sudanese case cited in the preceding chapter (Gabir 1983).

The primary reason for the reliance upon export taxes is that these taxes are quite efficient in generating revenues. Compared to other forms of taxation available to the governments of developing countries, export taxes are easy to impose and collect, particularly by governments with limited administrative capabilities. Countries may also impose export taxes to take advantage of a supposed monopoly power in world markets, to subsidize the development of domestic industries that use the taxed commodities as inputs, and to encourage farmers to switch production from taxed commodities to other crops.

The effects of an export tax on the distribution of income depend upon two elements: the price elasticities of demand and supply for the taxed good, and the mobility of those factors that are used in its production. These two elements determine the amount of the export tax that is shifted to foreign consumers and the distribution of the domestic burden among landowners, producers and input suppliers.

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[20]There are other foreign trade policies that can burden agriculture, such as government marketing boards, exchange rate policies, general export and import taxes, and domestic protection. These policies are not considered here. For further discussion, see Lewis (1967) and World Bank (1986).

The price elasticities determine whether the export tax can be shifted to foreign consumers of the good. For a country that produces only a small amount of the world production--and most developing countries fall into this category--the price that the country can receive for its export is largely fixed by world demand for the product; that is, the world demand facing the country is perfectly elastic. Under these conditions, the imposition by a single country of an export tax will have no effect on the world price. Instead, the export tax will lower the price received by domestic producers by the amount of the tax, and so will discourage domestic production. Domestic consumers will also pay the lower price and so will benefit at the expense of domestic producers.

For a country that produces a large proportion of the world output, the outcome may be somewhat different. The export tax will now be reflected in a higher world price for the product, with the amount of the price increase dependent upon the elasticity of world demand. At least initially, then, the export tax will be shifted to foreign consumers. Even in this case, however, the shifting is not likely to be significant or long-lasting. The increase in the world price is likely to stimulate production in other countries; over time, alternatives or synthetic products may also be developed.

In fact, most countries that have attempted to exploit a presumed monopoly power in the export of a good have found that

their market power is fleeting, with sometimes severe effects on domestic producers. In the last two decades, Ghana has seen its share of world cocoa production fall from 40 percent to less than 15 percent. Exports of palm oil by Zaire and Nigeria have each fallen from roughly one-fourth of world production to less than one percent. Egypt's share of the world cotton market has been cut in half. Average export tax rates of 35 percent have contributed to a decline in the share of world tea production of Sri Lanka from one-third to less than one-fifth. These experiences are not isolated. As concluded by Goode, Lent and Ojha (1966), "with rare exceptions, countries that are considering export duties should regard them primarily as taxes on their own producers and traders rather than as a means of taxing foreigners."

The incidence of that portion of the export tax that falls on the domestic economy depends primarily upon the mobilities of the various agents. In general, those factors that are mobile will bear little of the tax burden, while those that are immobile will bear the bulk of the burden. For example, workers who are able to find alternative employment will avoid the tax, as will input suppliers who move from taxed to untaxed sectors.

On the other hand, if land cannot be easily switched to alternative and equally profitable uses, as seems likely in many instances, then landowners will bear the bulk of the domestic burden. Bird (1974, 48-49) concludes that "as a tentative

general conclusion export taxes may probably in the usual case be considered a tax on farmers without doing undue violence to the facts." Their incidence on the sources-of-income side will therefore depend upon the relative income of farmers. Because export taxes also lower the domestic price of agricultural products, their incidence on the uses-of-income side will depend upon the consumption pattern of consumers. The precise pattern of domestic incidence will clearly depend upon the specific circumstances of the country.

6. Marketing Taxes

A general sales tax is common in most countries. However, agricultural products are often exempt from such taxes. Instead, agricultural products are sometimes taxed domestically through taxes on marketed products. These taxes seldom generate significant revenues. They are typically collected by local governments at the time of the initial sale of the products, and are sometimes really fees for the use of village markets or slaughterhouses. They are occasionally collected in kind. It is likely that the burden of these taxes is divided between consumers and small producers, which makes their incidence somewhat regressive.

Marketing taxes are closely related to taxes on gross income, of which the most widely used tax is the tithe. The conclusions regarding the incidence of the tithe clearly apply here as well.

7. Income Taxes

A variety of direct personal taxes that approximate more or less the individual income tax are imposed upon individuals. In countries as diverse as Pakistan, Colombia, Turkey and Bolivia, a labor or poll tax has sometimes been used to staff government construction projects in local areas. The tax is payable either in kind (labor) or in its monetary equivalent. A more sophisticated variant of the poll tax has been widely used in many countries in Africa, where it has been a major source of local government finances in such countries as Ghana, Kenya, Nigeria and Uganda. This tax has several different names, but is often called a "personal tax."

A common feature of the African peasant tax is that the tax is assessed by local committees on the basis of observable measures of income or wealth, such as the size of the taxpayer's house, the number of coffee trees owned by the taxpayer, the size of the taxpayer's herd, and the presence of a vehicle; the rate structure is often progressive with no exemptions or deductions. Personal taxes are therefore a method of taxing an individual, however roughly, according to ability to pay. This produces some equity between villagers and urban employees, for instance, even though the difficulties of defining net income, the absence of records, the degree of illiteracy, and the difficulties of

administration prevent the use of a tax on actual measured income of the villagers.[21]

Wozny (1984) analyzes the problems of assessment and collection of the African personal tax in Kenya, Nigeria, Senegal, Uganda, Burkina Faso and Zambia. In an appendix, he describes this kind of tax in almost all African countries as of 1982. In some cases, it is also a cattle tax, with nomads assessed mainly on the basis of the number of head they own.

In Lesotho, however, the personal tax on adult males also varies according to the number of wives, at 2.50 rands per year per wife beyond the first one. However, there is a maximum tax of 8.50 rands per year regardless of the number of wives (Wozny 1984, 103). It is not clear to us whether this should be viewed as a tax on wealth, or as a crude tax on agricultural labor supply, since women do much of the farm work.

The final and most sophisticated tax on individual income is the conventional income tax. In most developed countries agricultural income is taxed in the same manner as any other income. This option is seldom available in developing countries because it is difficult to measure accurately net income in agriculture. Indeed, according to Bird (1974, 63), "to date no developing country has successfully applied a conventional income

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[21]African personal taxes are discussed by Due (1963) and Arowolo (1968).

tax to agricultural income, other than in the special case of large plantations."

In developing countries with an income tax, agricultural income is sometimes exempt, and often grossly underdeclared. Some compensate by calculating taxable income from farming on a presumptive basis, starting from the assessed value of the land. Such a tax is essentially a variant of the agricultural land tax; its incidence has already been discussed. (In Chile, however, landowners pay both a tax on land value and an income tax in which a certain amount of income is imputed, based on farm assessed values.)

The incidence of each of these other "income" taxes depends primarily upon the elasticity of labor supply. If labor is immobile between alternative employments, then the burden of the tax will fall on labor itself; if workers can move to lower taxed alternatives, then the burden of the tax will be shifted, to immobile factors or to consumers of agricultural products. The usual labor market conditions in rural areas of developing countries suggest that labor is likely to be relatively fixed in supply, so that the burden of the tax will stay with the individual. As always, however, generalization is risky.

8. Summary

Table 4.1 summarizes the main conclusions for the incidence of agricultural taxation. As stressed throughout the discussion, it is not possible to draw conclusions that fit all

Table 4.1

DISTRIBUTIONAL, ALLOCATIVE AND REVENUE EFFECTS OF ALTERNATIVE FISCAL POLICIES

Tax Instrument	Incidence	Land Utilization	Administrative Requirements Revenue Potential
Tax on land area, in broad quality classification	On landowner[a]	Uncertain effects	Low administration requirements Some revenue potential
Tax on rental income or market value of agricultural land	Tax on land: on landowner[a] Tax on improvements: Sources of income-- land and immobile labor[b] Uses of income--consumers[b]	Uncertain effects	Substantial administrative requirements Substantial revenue potential
Tax on actual income from agricultural land	Tax on land: on landowner[a] Tax on improvements: Sources of income-- land and immobile labor[b] Uses of income--consumers[b]	Uncertain effects	Substantial administrative requirements Substantial revenue potential
Valorization tax	On property owner (benefits and taxes)	Uncertain effects	Substantial administrative requirements Substantial revenue potential
Export tax	Sources of income--landowner[c] Uses of income--consumers[c] (consumers pay a lower price for the taxed good)	Negative effects on land utilization and production	Low administrative requirements Substantial revenue potential but subject to sharp cyclical variations
Marketing tax	On consumers and producers	Uncertain effects	Limited revenue potential
Labor, poll, personal, and income tax	On labor[d]	Uncertain effects	Substantial administrative requirements Limited revenue potential

[a] The supply of land is assumed to be fixed.
[b] The supply of capital is assumed to be mobile intra- and internationally.
[c] The world demand curve facing the exporting country is assumed to be perfectly elastic.
[d] The supply of labor is assumed to be fixed.

circumstances. The mere construction of this table is, perhaps, questionable. Still, as long as the assumptions upon which the table is based are understood--and these assumptions are listed in the table--the risk of overgeneralization is minimized. The table suggests that the more progressive agricultural taxes are those on agricultural land (taxes on land area, rental income, and income), and on special assessments; regressive taxes are mainly those on marketing.

C. Effects of Agricultural Taxes on Land Utilization

The distributional effects of taxation are closely related to the ways in which taxation affects the allocation of resources. The extent to which, say, a land tax can be shifted depends upon the ability of the landowner to change the use of the land in response to a decline in its return. To the extent that the land use is not changed, there are no effects upon land utilization or agricultural production (except to the extent that the loss of income alters behavior). However, if land use is affected by the land tax, then the factor prices will be altered as the employment of land, labor and capital adjust to the tax. More generally, a tax that has a zero marginal tax rate--or the rate at which the last addition to output or income is taxed--will have only an income effect, and will alter behavior only if individuals respond to the loss of income by working harder in order to restore their income. A tax law that has a positive marginal tax rate will also have a substitution effect that

discourages additional effort and investment and so will have disincentive effects on land utilization and productivity.

A crucial element in determining the effect of agricultural taxation on land utilization is therefore the marginal tax rate of the instrument. This marginal tax rate differs for the various agricultural taxes.

Agricultural land taxes--those on land area, rental income, and income--are in principle based upon land area or upon the presumptive income of the land and other factors of production. In these cases there is a zero tax on any increment in production. If individuals respond to the loss of income, or if, as noted earlier, they are not maximizing income in the absence of the tax, then the tax will likely lead individuals to work harder to increase production. They will also increase the efficiency of land use--idle land will be cultivated or sold, and land will be used to grow those crops that are most profitable. Agricultural production will also increase, as will agricultural marketing in order to pay the tax. In short, the effects of these land taxes on land utilization are quite favorable in theory.

In practice, however, the incentive effects may not be so beneficial, at least for the land taxes based upon some measure of land value. When assessing land value, it is virtually impossible to estimate presumptive income without considering the actual income generated by this or similar property in the area

(see Chapter III). Thus, agricultural land taxes may impinge at least partially upon the actual return to the land; that is, the taxes will have a marginal tax rate on increments to production that is not zero. Disincentive effects--for labor effort, capital improvements, land utilization, and sales of agricultural products--are almost certain to be introduced. Similar arguments apply to agricultural income taxes that are based upon some measure of net agricultural income.

The disincentive effects of export taxes and, to a lesser extent, marketing taxes are much worse. Because these taxes are based upon actual sales and production, their marginal tax rate is positive; in the case of export taxes, a tax rate of 50 percent is not uncommon. Since export taxes reduce the price of agricultural products received by domestic producers, their effect on domestic production and, indirectly, upon land utilization depends upon the response of domestic farmers to a decline in the price of their products.

There is now enormous evidence that price responsiveness of supply is quite large, particularly when time is allowed for adjustment to occur.[22] Long-run price elasticities substantially in excess of unity are common. The heavy reliance of developing countries upon export taxes has therefore led to a substantial contraction of domestic agriculture in these countries, as

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[22]This literature is reviewed in Askari and Cummings (1976).

suggested by the earlier discussion on the incidence of export taxes.

The reversal of these policies can stimulate land utilization and production. For example, Kenya has recently encouraged domestic producers of tea and has imposed only moderate rates of export taxes. Its share of world tea production has more than tripled since 1960, from less than three percent to more than nine percent of world markets. Marketing taxes have similar disincentive effects to export taxes, though these effects are not less severe because rates are lower and marketing taxes are not as widely used.

Valorization charges are more difficult to evaluate. Because the charge is a one-time tax that is directly related to the benefits received from the project, it is unlikely that there will be any negative effects on land utilization or investment. In fact, a more likely outcome is that valorization charges will encourage land utilization both by increasing access to land via the installation of roads and other services and by raising the profitability of investment in land in the affected areas. Note, moreover, that valorization programs will increase the total supply of usable land; this increase in supply may lower the real price of land, which will also encourage its more intensive use. On the other hand, projects financed by valorization taxes often respond to population growth and economic development--events which tend to increase the demand for land, and hence its price.

Thus, the project cum tax slows the rate of increase in land prices and intensifies land use.

These effects are summarized in Table 4.1. Export and marketing taxes are likely to have the most serious negative effects on land utilization. The effects of the remaining taxes are more uncertain. However, given the likely patterns of tax administration in developing countries, it is hard to avoid the conclusion that heavy agricultural land taxes will discourage at least to some extent investment in and utilization of land. However, these effects are likely to be much smaller than those of export taxes. In some cases--if the tax is in fact based upon potential or presumptive income--the tax may actually encourage more efficient use of land, more investment in land, more effort in agriculture, and more production and marketing of agricultural products. As concluded by Lewis in his discussion of land taxation,

> No other major tax available has comparable potential for forcing the agricultural sector toward the rest of the market economy, inducing increased supplies of agricultural products to the nonagricultural sectors, and, perhaps, increasing the efficiency of land utilization as well. (1967, 467)

D. Revenue Potential of Agricultural Taxes

The actual revenue performance of the various agricultural taxes has already been discussed. The revenue potential of these taxes is often, though not always, the same.

The revenue potential of a tax depends upon several factors. The tax must have a large base that maintains (or increases) its value over time, and the base should not fluctuate randomly. Of equal importance, the tax base must be easily identified by the tax authorities, its value must be readily assessed, and the tax must be efficiently collected. That is, the tax must be designed so that it can be administered at low cost to government and to taxpayers.

The agricultural taxes differ in their revenue potential. The tax with the most revenue potential--and one that is often in fact realized--is the export tax: there is a substantial tax base, and the administrative requirements of the tax are relatively low. The revenue potentials of the land taxes on rental income or an income concept are also considerable. Within these classes of land taxes, a site value tax also has a significant potential, though it is less than other land taxes at similar rates, because improvements are excluded from the tax base. (Site value tax proponents urge higher rates, however.)

The agricultural sector in developing countries is often the dominant sector of the economy. Although the administrative requirements for tapping this potential are substantial, these requirements are not prohibitive. Technological advances in land registry and surveys are reducing still further the limitations that administration places on tax authorities. The agricultural land tax based on land area is more easily administered than

those property taxes based upon value; however, the relative administrative simplicity comes at the expense of a smaller tax base. Personal taxes also can be easy to administer; this ease of administration is offset by a small and inelastic tax base.

Valorization taxes require skilled administration, and they can yield substantial amounts of revenue, at least for projects that generate large increases in the value of properties. However, because they are a one-time charge, their revenue potential is likely to be less than that of a recurrent land tax based upon some measure of value. Hence, valorization taxes should be seen as a complement to annual land taxes, rather than as a substitute. Finally, marketing taxes would seem to have some revenue potential, given the amount of agricultural produce that is sold domestically in developing countries. However, their incidence would tend to be regressive and there are no instances in which these taxes have generated much revenue.

A tentative ranking of the agricultural taxes in terms of their revenue potential would therefore be (from most to least productive): export taxes, agricultural land taxes (income base, rental income base, site value base, and then land area base), income taxes, valorization charges, and marketing taxes. These results are summarized in Table 4.1.

E. Land Reform

"Land reform" refers to a variety of changes in land tenure systems. It may involve simply a change in the terms of

contracts between landowners and tenants, a change that increases the tenant's security or lessens the tenant's rent. It may involve a redistribution of land to the tenant, with or without compensation to the landowner. It may convert large private holdings to individual parcels, to production cooperatives, or collective (state-run) farms. The history of land reform contains numerous instances of each type of these reforms.[23]

There are many reasons for land reform. The most important motivation is usually political, rather than economic. Land reform is a way to redistribute political power from the land-owning class to the rural, peasant class, and may be seen as a way of ensuring the political support of the rural classes. (Alternatively, it may be a way of ensuring that the rural poor do not support would-be guerrilla movements trying to overthrow the government.) Reform may also stem from the desire of tenant farmers to control their own future via a more secure land tenure (for example, in Taiwan, Japan, South Korea and El Salvador). On economic grounds, reform may be motivated by the desire to redistribute income and land to low-income tenant farmers, or to the landless. It is also often believed that reform will improve agricultural productivity by bringing idle or underused land into production.

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[23]There is an enormous literature on land reform. Some flavor of the discussion may be found in Mellor (1966). More detailed analyses are in Warriner (1969), Brown and Lin (1967), AID (1970), Walinsky (1977), and the numerous publications of the Land Tenure Center of the University of Wisconsin (Madison), from 1962 to date.

The effects of land reform on the distribution of income, the utilization of agricultural land, and the revenues of the government depend upon the type of reform that is implemented and the institutions of the country that are involved. As always, it is difficult to generalize.

Consider, for example, the impact of reform on the distribution of income. Redistribution of land to tenants will have a major impact on the distribution of income only by classes[24] only if full compensation is not paid to landowners, or if compensation is paid in the form of bonds that are financed from general tax revenues rather than from payments by reform beneficiaries. In this latter case, the wealth of landowners may be reduced if inflation erodes the nominal value of the bonds. Full compensation will only change the form of wealth for the land-owning classes, and may also lead to the eventual reestablishment of their political power. Land reform that creates collective or state farms is likely to do little to increase the income of farmer laborers or tenants, even though their relative position may be improved.

The impact of reform on land productivity also depends upon the type of tenure in the system that is reformed and the manner in which the reform is carried out. If a reform were to break up

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[24]However, the position of individual beneficiaries may be greatly improved if they previously were subject to arbitrary, unpredictable relocation or denial of land at the start of every year.

large, efficient estates or plantations that use intensive methods of cultivation and production techniques that exhibit economies of scale, and replace them with small peasant producers who know little of modern agricultural techniques, the impact on agricultural productivity could be extremely negative. However, this is not what usually happens. The beneficiaries are usually the workers already on the property; they know quite well what has to be done because they have been doing it all along.

Land reform can also lower productivity if the landowner used to provide services to the tenants, such as irrigation, drainage, credit and information on new production technologies, and if these services cannot be provided in a different way.

On the other hand, agricultural productivity may actually increase if the large estates were not farmed intensively, or when the previous landowner was absent for much of the time, did not maximize agricultural income, provided few services to the tenants, and used his income from agriculture for consumption rather than investment in the farm.

Similarly, if the previous system of tenure was one of small farms, then the transfer of ownership to the existing tenants will likely increase productivity because secure ownership will give incentives for investment, innovation, conservation and intensive cultivation. There is also substantial evidence that output per acre is inversely related to farm size, even after a reform reduces the average size of farms. In other words, by

reducing the size of the average holding, reform tends to increase investment and agricultural production. See Berry and Cline (1979) for a review of the empirical evidence on the relation between farm size and productivity. It should be clear that prediction of the effect of land reform on land productivity requires detailed knowledge of a country's institutions.

It is unlikely that land reform will generate additional tax revenues. In fact, reform will almost certainly require the immediate infusion of government resources, and beneficiaries are often exempted from existing land taxes. Government's revenue requirements may rise if compensation is paid to the previous landowners sooner or at a higher value than is paid by beneficiaries. Even in the absence of compensation, however, land reform will act as a drain on government. To be successful, reform requires giving secure title to beneficiaries, which usually requires land surveys. The new landowners may also need the provision of some government services, such as credit, technical assistance, roads, markets and the like; these services are especially important if the previous landowner provided them to the tenants.

If reform does have an adverse effect on agricultural production, and if taxes fall heavily on agricultural exports, government revenues may decline. It is not uncommon for reform to be followed by the exemption of the new owners from property taxation, and this will also reduce revenues. In total, it is

likely that the immediate effect of land reform will be to reduce, not increase, net revenues from agriculture. However, the immediate decline may eventually be reversed if land reform increases land utilization and agricultural income.

Land reform and (heavy) land taxation may both lead to a redistribution of agricultural land. This similarity has led Moral-Lopez (1965) and Hunter (1969) to suggest that these policies are alternatives to one another; that is, land taxation may be a simpler and less disruptive method for achieving the goal of a land redistribution. However, this conclusion is unwarranted. Land taxation at a high enough level to achieve the redistribution of land is unlikely ever to be politically acceptable to landowners. However, if heavy land taxation is acceptable, it is likely that land reform will also be possible--and will happen.

If redistribution of land is desired, then it seems best to address this issue directly via land reform rather than land taxation, since the redistributive effects of taxation are not certain and may take some time to occur. In fact, the enactment of land reform may enable an effective system of land taxation to be implemented, particularly if the new landowners perceive that their taxes are used for development projects that directly benefit them. In short, land taxation is unlikely to be a substitute for land reform. Instead, it may be more productive

to view them as complementary methods by which to achieve agricultural development.

F. Conclusions

The major conclusions of this discussion may be summarized as follows:

First, there is no single, general remedy or conclusion that applies to all countries at all times. As emphasized by Bird (1974, 12), "no general policy prescription can or should be expected to fit all circumstances." Instead, the specific characteristics of each country must be analyzed before recommendations are made.

Second, the use of agricultural taxes for the achievement of better land utilization has not been achieved by any country. This is because:

- Taxes that have some potential to promote greater productivity, mainly the agricultural land taxes, are imposed at too low a rate to affect incentives. If imposed at higher levels, poor administration in most developing countries would likely turn those incentives predicted by theory to be positive into negative ones.

- Taxes that are imposed at significant levels in practice, such as export taxes, produce substantial revenues but have been shown to have extremely negative effects on agriculture productivity.

Although this may be an overly pessimistic conclusion, it seems unlikely that agricultural taxation can in practice achieve the positive allocative effects predicted in theory. At best, its negative allocative effects can be minimized.

Third, the impact of agricultural taxes on the distribution of income has been minimal, again because of the low levels of agricultural taxation. Some taxes are better able to impose tax burdens that have a progressive impact on income distribution. These include land taxes (area or site value), land taxes imposed upon rental income or income (especially if capital is immobile internationally) and, possibly, valorization charges. However, it is a mistake to think that an impersonal, in rem tax can be a strong tool for redistribution. Equity in taxation requires in part that a tax be tailored to the personal circumstances of the taxpayer, through such features as exemptions, deductions and credits. Instead, equity in taxation most likely requires that personal taxes be levied elsewhere in the fiscal structure, most likely in the individual income tax. Land taxes are difficult enough to administer without introducing elements that would personalize the tax.

Fourth, agricultural land taxes have a substantial, though not unlimited, revenue potential, despite their administrative requirements. The focus of governments should be on using taxes to generate revenues in the simplest way possible, without giving much consideration to those taxes that achieve a better land utilization and a more equitable distribution of income. These goals are more appropriately achieved by other means: by removing the penalties and obstacles to greater production that now exist in many developing countries, and by imposing

personalized taxes in other parts of the fiscal system. Governments should be realistic in their revenue projections.

Fifth, there is a growing consensus that property taxes are best administered at the local government level. By tying tax payments to government expenditures, land taxation at the local level is more likely to achieve the political support that is necessary for greater revenue mobilization. Central governments should be encouraged to let local governments utilize more fully agricultural land taxes.

Finally, it is arguable but plausible that the most effective way to encourage agriculture is to rely more on rewards through the market system than on penalties through the tax system. This suggests that appropriate agricultural policy may be to reduce the disincentives for production that occur through such instruments as export taxes, marketing taxes, government marketing boards, and sectoral policies that discriminate against the agricultural sector; and to increase those services and facilities that assist farmers in producing and marketing their crops.

The removal of elements of the tax system that hinder development, and reliance upon the demonstrated responses of farmers to price incentives, will be an effective policy. The authors are much less optimistic about the feasibility of using the tax system to fine tune the economy in pursuit of allocative, distributional, and revenue goals that cannot be realistically

achieved in developing (or even developed) countries. Under these circumstances, the appropriate agricultural tax may well be a simple classified land tax on land area. If administrative capabilities are more advanced, a presumptive tax on rental income may be feasible. Although such a land tax falls far short of those that are often recommended for developing countries, it may be the best that is currently achievable in many countries.

V. ALTERNATIVE METHODS FOR CREATING OR MODERNIZING AGRICULTURAL LAND TAXES

The creation or modernization of a tax on agricultural land involves at least seven major stages:

- design and planning of the project: definition of the tax base, decision as to the rate structure, and creation of a means of automatic future updating;
- legislation, organization, staffing and training for the project;
- identification and description of the lands to be taxed (ideally, a full-blown cadastral survey);
- determination of the value of each land unit;
- notification to taxpayers;
- resolution of appeals; and
- billing and collection, including dealing with non-payers.

None of these stages is so easy that it requires no major effort, though the fourth stage, valuation, is usually considered the hardest. In practice, the inadequacy of most existing land taxes is precisely the result of values that were set (or have drifted during inflation) to levels far below market values of the land, or actual going rentals, the usual stated standards. The relatively few instances of successful land valuation for tax purposes do demonstrate that effective design, planning and implementation are possible. The present chapter analyzes these stages. The next chapter then analyzes all of the political and other reasons that so few countries have been truly successful at creating and collecting an effective tax on agricultural land.

A. Design and Planning

The first step, naturally, should be to determine the objectives for which the land tax is to be created or modernized. Is it primarily for revenue, and, if so, how will that revenue be used? (For instance, will it finance local schools, roads and other productive investments, or will the taxes collected disappear into the general revenue of the central government?) Is the tax also supposed to encourage more intensive land use, or the subdivision of large estates? Is it to encourage investment in irrigation and other capital outlays, to increase production, employment, and exports?

The second step is to design the creation or modernization of the land tax to achieve the stated purposes; in some cases a closer look at what would be needed to achieve them will lead to a redefinition to a more feasible set of objectives. The decisions made at each stage may determine key impacts, such as who bears the tax burden, possible changes in food supplies and prices, changes in the market values of land, changes in land tenure, and the distribution of landholdings by size. Tax design may even affect urban sprawl and other land use variables.

At this point, government also decides whether farm land is to be taxed along with urban land and buildings, in a general real estate tax, or even as part of a more general tax on personal net wealth. Many assessment techniques are similar--for instance, unit value methods are as useful for urban residential

buildings as for agricultural lands. However, farm land is sometimes taxed at rates different from those applied to other property. Urban fringe areas are a special case, to be dealt with perhaps by a current tax based on the land's value in farming, but a deferred tax being recorded, to be payable if and when the land is converted to non-farming use.

1. Defining the Tax Base

Most countries that tax agricultural land assign a capital value to each farm, as the tax base. However, some countries assign instead an annual rental value or an estimated potential income-generating ability. This is particularly likely to be used when the tax is collected as a presumptive income tax rather than as a tax on the land as a form of wealth. (Note that we are not concerned here with efforts to apply income taxes to actual farm income nor to gross sales of farm products; taxes on actual net farm incomes are difficult to enforce, and both net income and gross sales or export taxes may have serious disincentive effects.)

2. Defining the Rate Structure

Taxes on agricultural land are usually at a flat rate, except that the very small holdings are often exempt. However, farms large enough to be taxed are subject to the tax on their entire value, rather than on the amount by which the value exceeds an initial amount that is exempt (as in an income tax).

Nonetheless, some countries have land taxes with rates that are highly progressive according to the size of holdings. This structure could reflect a belief that large holdings are more profitable, and hence that the owners of larger landholdings have a relatively greater ability to pay taxes. It could be intended to encourage the owners of large estates to divide them. It could even be designed to offset the well-documented fact that assessors tend to value larger properties at lower amounts per hectare than smaller properties. Actual market values may show a similar difference; there are many more potential buyers for small parcels than for large estates, so the price per hectare of small parcels is often higher in fact than it is for large estates. (Division into smaller parcels requires some effort and investment, so market forces alone do not keep prices per hectare uniform for different farm sizes, even for similar soil, water and locations.)

Argentina, for instance, has progressive taxes in many provinces. However, current values are so far below market values that the steep tax rates do not appear to have induced subdivision, real or fictitious, nor to have led to more intensive land use.

Those who oppose land reforms often assert (erroneously) that large estates are more productive than smallholdings. As a rule, this is true in terms of output per employee or per dollar invested, but not in terms of output per unit of land. The

reason is that large estates tend to use much less labor per hectare, because of the diseconomies of large-scale operations, such as the extra layers of supervisors required. The fear of future land reform, or of populist labor laws, also motivates mechanization on large estates.

Large estates, at least in Latin America, are often undercapitalized because the owners have other interests that they regard as more profitable places in which to invest capital and effort. Large estates, in fact, sometimes serve landowners mainly as collateral for low-interest bank loans not otherwise available. Donor agencies such as USAID have often provided funds on soft or below-market terms specifically for agricultural lending at subsidized interest rates. Some of the money borrowed against the farm land is likely to be invested in factories or other urban activities for which credit is harder to get.

For most situations, a flat rate seems more appropriate than graduated rates. The land tax is usually an in rem tax, levied in theory on the land and due from whomever controls the use and products of the land, rather than a tax on the owners as persons. It is much easier to administer a flat rate tax, parcel by parcel, than one that requires identifying all the landholdings of each owner, in order to apply a progressive rate scale. It is also not obvious that equity or ability-to-pay concepts require taxing progressively by size of holdings, regardless of soil quality, if the tax base does not include other types of property

such as factories, movie theaters, apartment buildings or shopping centers.

On the other hand, the use of computers to handle land records has now made it relatively easy to sort records and compile such lists--thus land taxes that are progressive with respect to total holdings of farm land are more feasible than they were when land and tax records were all compiled by hand.

3. Defining the Means of Future Updating

There is little point to making the effort involved in creating or modernizing a tax on agricultural land, if no provision is made to update it and prevent a recurrence of the problems that plague many existing land taxes. Many countries rely mainly on adjusting tax values to reflect declared sales prices when land is transferred. However, most such countries also tax the transfers at steep rates--and buyers and sellers respond by routinely reporting false prices that greatly understate the actual transfer prices.

This method is seldom effective for updating land values when land is sold, much less in updating the tax values of land that does not change hands. If one purpose of land taxation is to encourage the division of large estates, heavy transfer taxes work in the opposite direction. If reported sales prices are then used to raise assessed values, there is even more incentive for false reporting of sales prices.

The only cost-effective method of updating tax values is the use of a price index. A specialized index of farm land prices could be developed on the basis of auction and other transfer prices thought to be accurate, but it would require a substantial effort and most developing countries probably have more urgent uses for the staff who could create and maintain such an index. An index of prices received by farmers, adjusted for an index of farm costs, may be easier to develop in countries already gathering these data for other purposes.

The only reliable method of automatic updating for most countries is also the simplest method: let the land tax law specify automatic updating. Apply a general price index to land tax values each year. A suitable figure readily understood in many countries would be the same index used to adjust legal minimum wages for inflation. If there is reason to believe that land values lead or lag the general price index, government may want to adjust the index for this purpose--but this runs the risk that it will be abused and instead serve to reduce real land taxes under the guise of a technical adjustment.

Chile's highly successful land reassessment, promulgated in 1965, was gutted in real terms by 1973 because the law left this indexing decision to a "technical commission." The commission had five members. Two represented landowners, two represented the government, and the tie breaker was the dean of the Faculty of Economics of the University of Chile, serving ex oficio.

Those who drafted the law assumed that the dean would understand and fairly apply the concept of the terms of trade between farmers and the rest of the economy. However, two successive deans happened to have personal political ambitions. They therefore largely ignored the actual rate of inflation, siding with the landowner associations and against the finance ministry in most years--until land tax values were once again far below market values (Strasma 1975).

Instead of worrying about the fact that land values do not always move exactly in line with a general price index, Chilean legislators should have worried about the tendency of discretion to be invoked against the public interest and in favor of the landowners. This phenomenon has been noted in Colombia and elsewhere as well (Bird 1974). The reason, of course, is that the owners perceive and defend their interests vigorously, while there is no constituency for keeping the revenue from the land tax in line with inflation. (This might be offset in part if the land tax revenue were earmarked to local uses, so that falling revenues would lead to visible reductions in services.)

B. Legislation, Organization, Staffing and Training

In most countries, existing legislation and organization are part of the problem that makes existing land taxes ineffective at producing either revenue or increased farm output, investment and employment. Thus the planning stage of the creation or modernization of a land tax also includes the drafting of needed

changes in laws and regulations, and the training of needed staff to implement them.

The most significant areas usually requiring legislative action are those having to do with the assessment method, with streamlining appeals, and with effective collection methods. The desirable approaches are discussed below. In cases in which the land tax revenue now disappears into central government revenues, there is seldom any constituency interested in creating an effective tax on farm land. This could change somewhat if the law earmarks the proceeds of the farm land tax to highly visible investment that benefits farmers (such as roads, bridges, marketplaces, credit programs, etc.), giving the farmers a voice in actually setting priorities for the use of revenues raised in each area.

The Bolivian case shows dramatically how insistence that revenues go to the central government doomed a farmland tax that had already been accepted in principle by the powerful unions of land reform beneficiaries. An early draft of the law provided that union leaders would determine the priorities and most of the money raised would be invested in local public works. However, the finance minister insisted on changing the bill to put the receipts into central government revenues. He promised the union an unspecified influence in the budget for the Ministry of Agriculture; they told him what he could do with the tax, and it died shortly thereafter (Strang 1970).

One Communist nation, Poland, has long had an effective tax on farm land (much of which is still privately held). The tax was made much more tolerable by providing that a large part of the revenue must be invested locally, to benefit farmers, and that much of the rest must be invested in the farm equipment industry, to produce tractors and implements (Gimeno 1963).

As to the staff required, the Chilean experience is by far the best documented record as to the human and material resources required to carry out a modernization of a tax on farm lands (Novak 1970; Strasma 1966; and Vera 1964).

C. Identification and Description of Lands to Be Taxed

1. Identifying Farm Lands for Tax Purposes

The creation or modernization of a farm land tax starts by compiling a list of tracts or parcels that appear to be farm units or parts of farm units, along with enough description to permit the identification and valuation of that parcel for tax purposes. Although not necessary for valuation, it also facilitates tax collection if one compiles information as to the person or entity that appears to be responsible for the land. (This is of course essential if the rates are progressive according to the amount or value of farm lands held by one person.)

In many countries, the present tax rolls were made up by demanding declarations by landowners. The owners were then

listed, together with the areas they declared, and taxes were collected accordingly. Even when the owners are required to supply plats or rough maps of their holdings, experience of countries like Chile and Colombia is that significant amounts of land are not declared.

Modern aerial photography provides an inexpensive way to detect evasion; the photographs themselves become the base for a composite map, or mosaic, of holdings. Where no one has declared ownership of specific fields, it is relatively easy to send young functionaries to the field, photo in hand, to ask who owns the fields in doubt. The Chilean reassessment of 1963-65 essentially paid for itself just with the additional revenue brought in by identifying the owners of the 63,000 "holes" in the property map, which looked like Swiss cheese when owner declarations were drawn on a plastic overlay for the aerial photographs (Novak 1970; Strasma 1966).

2. Must Land Be Titled Before It Can Be Taxed?

Some countries do not in fact tax farm land unless a title has been issued and registered in official records. This could theoretically be a disincentive, tending to discourage owners from recording land they had purchased or inherited, and thus tending to reduce the security of landholdings. We did not find instances in which this had actually been a problem, however. Panama, for example, applies a very low, arbitrary, assessed value to farm lands regardless of quality. Partly as a result,

no one interviewed in a 1986 study of squatters cited the fact that the land would be taxed as a reason for not seeking a title for public lands over which they had undisputed rights by peaceful occupancy for the required time (Thome et al. 1986).

Land titling programs are often justified in part by the increase in fiscal revenues that will be obtained as newly titled land goes onto the tax rolls. One recent example is a land registry project in St. Lucia (Strasma 1983).

On the other hand, there is no real need to limit taxes to land that has been titled. Various countries require that the farm land tax be paid by owners, tenants, or possessors by whatever right. Indeed, anecdotal reports from Bolivia, Colombia and Panama indicate that campesinos without secure titles sometimes pay land taxes precisely to get a receipt, to strengthen their claims to ownership in any future dispute. (Strasma 1975; Thome 1986; Bird 1987, personal communication).

3. Cadastral Surveys

The next step in land valuation is to expand the list of property units, to include information about the land that will help establish its value: soil types, slopes or terrain, access to water, proximity to roads and markets, etc. Again, mosaics or maps made from aerial photos, "rectified" or corrected electronically for differences in elevation and angle, are ideal for plotting data directly over the maps of property boundaries. Likewise, the area of each parcel can be estimated within one to

two percent accuracy with a simple device called a planimeter, directly on the rectified photo mosaic (Vera 1964).

The data gathered in cadastral surveys can be useful for a variety of inventory and planning purposes, and in at least some cases these surveys are fairly well-advanced even without a land tax as a reason for carrying them out. The Dominican Republic, for example, has a fairly detailed cadastral survey of almost all the agricultural land, although it has no annual real estate taxes, urban or rural (Strasma 1979).

D. Determining the Value of Each Land Unit

The tax value of each parcel, or piece of agricultural land, may be set by the government, with a formal evaluation of each parcel; it may be determined by the owner, and reported in a declaration that is also a self-assessment; or it may be calculated on the basis of physical features of each property and unit values used by the government to value all properties of that type in the region, valley or province.

1. Individual Assessment at Market Value

In many countries, the law establishing a tax on agricultural land (and usually on urban property as well) requires the government to send a valuer to assess each parcel of real estate individually. In theory, the assessed value is usually supposed to be about the same as the figure that would be given by an appraiser, as the estimated "market value" of a parcel being sold

by a willing seller to a willing buyer, neither under any special pressure.

When a landowner objects that the tax assessment figure is too high, the legislation in these countries usually allows the taxpayer to appeal the value. In most cases, the first appeal is to the tax assessment body, and if the taxpayer is not satisfied by the result of this administrative appeal, he may then go to the courts. The owner hires an expert, the state provides a valuer, and in many cases the first two experts then jointly choose a third expert, who becomes the tiebreaker.

The traditional appeals process is slow and quite expensive. It is thus available mainly to the wealthy, although if many appeals are presented even merely at the administrative level, the tax becomes ineffective because the government cannot deal with a relatively large number of appeals. (More than five percent is probably enough to lead most governments to cancel a tax reassessment rather than fight through all the appeals.)

2. Individual Self-Assessment by Owner Declaration

Some governments, realizing the physical impossibility of professional valuations at market prices on a parcel-by-parcel basis, rely instead on declarations by the landowners that include a physical description of the property, and the owner's declared estimate of its market value. Tax officials and scholars alike agree that owners tend to declare values well below market prices in most cases (Bird 1974).

Economists have long tried to devise effective incentives or sanctions to induce owners to declare the true values of their properties. For instance, Harberger (1960) and others have proposed allowing anyone to buy any property at the value declared by its owner for tax purposes, whether or not the owner wishes to sell. A subsequent proposal modified the Harberger scheme to make it administratively feasible and politically more palatable. For instance, owners not wishing to sell at any price could reimburse the government for the cost of a professional appraisal of their property, and that value would then not be subject to bids from would-be buyers (Strasma 1965).

The new proposal, called "market-enforced self-assessment," also allowed owners to decline offers, but only upon accepting an increased assessment at the amount rejected, plus the payment of several years' tax differences. As an incentive to induce bids even if owners could refuse to sell, this payment would be split between the government and the frustrated offeror (Strasma 1965). Even with such provisions, the market-enforced self-assessed proposal has been criticized by many scholars, such as Holland and Vaughan (1969). Bird describes it as a form of privatizing part of tax administration, fearing that it will lead to corruption and blackmail. He also criticizes the fee to frustrated bidders as a "glorified scheme" (Bird 1974, 244). He apparently disapproves of rewarding informers, although the enforcement of income and other taxes would be badly crippled without them. Other experts, however, are usually quite willing

to provide incentives to those who help the government do its job (e.g., Novak).

Market-enforced self-assessment has not been tested anywhere, so far as we have been able to determine. However, it has found a simpler, feasible role as a low-cost appeals procedure. Owners who want to appeal, but do not want to face the cost and delays of the traditional method, may submit a statement that the property is only worth a certain amount, lower than the assessment. The tax office then advertises the property for sale at auction, with the owner's price as the lowest acceptable bid. If there are no takers, then the assessment is changed to the lower figure. (If someone does buy the property, that establishes a market price, and the assessment changes to that amount.) This appeals method has actually been applied in Ocean County, Florida, and perhaps elsewhere (Strasma 1986).

3. Unit Values and Consensus Exercises

Individual assessment as if for a private transaction is prohibitively expensive, while self-assessments produce under-assessments of a degree that varies among landowners according to their consciences. That is hardly fair to the honest.

An alternative, which has been demonstrated successfully in Chile, is to abandon the "market value of this parcel" approach. Instead, mass assessments use values which are admittedly only an approximation, but which seek to be fair among all landowners in like circumstances.

E. Mass Valuation Methods

For the creation of a new land tax, or the updating of an existing one, individual assessments parcel-by-parcel are often impossible. They cannot be carried out in a reasonable time with the staff who are likely to be available. In many developing countries, by the time the parcels in one valley are assessed, inflation tends to make hopelessly obsolete the assessments set the previous year one valley over.

The alternative method, which may be called "mass valuation," makes no pretense of determining the precise market value of each property. Rather, it starts with objective data that describe the agricultural potential of each parcel, and then applies average or unit values per hectare to each parcel, with an adjustment for access to markets. The generation of those unit values is, of course, the critical factor in determining how closely the result will approach average actual market values.

This process was used in the successful reassessment in Chile (1963-65), and similar methods have been used more recently in the Philippines. A detailed account of the procedure appears in Appendix D.

This chapter has not dealt with the problem of allocating the benefits of public works to specific landowners in order to collect a valorization tax or special assessment from them. The methods required are analyzed in Bird (1974, 158-162), Rhoads and Bird (1969), and Felstehausen (1971). A more recent

contribution, on cost-sharing for irrigation projects, is Aliraahman (1981).

In the interest of brevity, we have also omitted analysis of use-value tax assessments, sometimes practiced in urban fringe areas. In such schemes, farmers pay land taxes on the value of the land in farming, but the value of the land in urban use is estimated each year, and the tax difference is accumulated as a lien on the property. When and if the land is converted to urban use, the back tax and interest come due. Meanwhile, however, the tax does not pressure the farm owner to take the land out of farming simply because its value for housing is greater and the farming activity cannot cover property taxes and a normal rate of return on effort and investment. There are several ways of making use-value estimates; see Dunne (1981) for an analysis.

F. Notification

Notification to property owners also takes several steps, each seeking to build consensus and acceptance of the new tax base. First, each owner receives a statement of what the assessment project believes to be the area of his or her holding, by soil types, the availability of irrigation water, and the type of access to markets and distance to the nearest major market. The owner is asked to notify the project of any discrepancies. There is still no value appearing anywhere on this first notice. All complaints are resolved, in the field if need be, and corrected notices are sent out where applicable.

1. Tax Value Notification

The next notice does tell the owner what the tax value of the property will be, for the current year. It still does not state what the owner's tax due will be; that depends on the rate, and on whether there is inflation requiring indexation before the tax is due. Once again, owners are invited to come in to report any discrepancies in the physical data (repeated on the notice). Some that ignored the first notice will come in this time and, again, if their complaints are that the road is dirt, not blacktop--or that their soil is Class III, not II--a quick field verification determines the facts, and needed adjustments are made.

2. Appeals

Only when the actual bills arrive will most owners see just how sharply mass valuations part company with traditional "market price" valuations, eroded by inflation, corruption or under-declaration by owners. Complaining taxpayers are told flatly that the law does not allow them to demand a reduction in the tax value of their property just because they want to pay taxes on a smaller amount. (The owners may allege that the tax value is higher than the market value, though their real complaint is usually that they do not want to pay that much in taxes.) In traditional assessments, complainers generally got concessions, which is why the rich tended to pay taxes on a lower fraction of the true property value than did owners in the lower- and middle-income brackets.

With mass valuation, the unit values are already set, in a process in which there was ample public participation, and fairness to all requires that they be applied to everyone. The only grounds for appeal are grounds based on objective, verifiable, physical characteristics. And those appeals can be resolved politely and in the field, on objective standards such as soil samples and visual inspection of the access road.

G. Establishing Rate Level and Structure

The merits of flat rates and progressive rates have been mentioned above. There is a very clear consensus in the economics profession that a flat tax rate is easier to administer than a progressive rate, and that if the rate is at a significant level (say one percent or more on market values, or 10 percent on rental values), it should encourage productivity. Various authors suggest that the flat tax rate should be supplemented by exemptions or credits for productive investment (Moral-Lopez 1965; Hicks and Hicks 1964; Harberger 1975; Mathew 1968).

The rate structure question is both one of administrative ease and of goals of the tax. It is easier to value each parcel than it is to be sure one has identified all of the parcels a given individual owns. Questions arise about the fair application of a progressive scale that depends on the total amount of land owned, if some of the land is owned in partnership with spouses, siblings or other relatives.

Again, if the goal of the tax is to burden the owners of unproductive land, while barely affecting the rate of return on land that is farmed intensively, the flat rate is best. The tax does not go up or down according to the individuals involved, nor their other holdings, nor their production. Of course, this means that if the net income produced by the land is deemed the suitable yardstick of welfare, then those who leave their land idle have no income, and they find the tax terribly onerous. That is precisely the idea. As a good stimulus to put idle land into production, a land tax does not claim to be equitable in terms of the ratio of tax due to actual income generated from the land. Rather, it is equitable in terms of the potential income--if the owner chooses not to use the land productively, the consequences are his/her own doing.

Guatemala and a few other countries have experimented with surtaxes or penalty tax rates on land deemed underutilized. Though such laws are common, enforcement of them is not. There are many practical problems, such as determining the number of cows that must graze 10,000 hectares of pasture before that land is deemed to be in full production. Are two enough? Two hundred? How many? These laws were apparently put onto the books to give the illusion that something was about to be done to punish landowners who neglected their land, without actually doing anything at all.

H. Tax Collection and Dealing with Non-Payers

Owners have been notified of the tax values of their properties, and appeals have been dispatched administratively. Rates have been set, and the actual tax bills should merely commence a routine collection process. Again, Chilean experience suggests that there will be hundreds or thousands of protests. Again, those which are based on objective, physical, verifiable discrepancies will be resolved administratively and in the field. But again, tax officials will tell irate taxpayers that there is no provision for appeals based on a wish to pay less tax, nor on political status or the other traditional sources of erosion in real estate taxes based on market values of each property.

1. Seizure of Tax-Delinquent Land

The subject of collection enforcement has been dealt with quite well by many writers (e.g., United Nations 1968). The legal system in most developing countries provides mechanisms for collection--if the government chooses to apply them.

Even in Costa Rica, widely recognized for its democracy, literacy and civic spirit, some effort must be made or taxes will not be collected. Of 211 small farms in six areas studied in 1971, only about half had paid their land taxes even though the rate was a nominal three colones per thousand of value. Many paid as much as that, in cash, in "voluntary contributions" toward road maintenance by neighborhood associations (Wells 1972).

Readers may also be especially interested in a recent study by McCullogh (1983), analyzing Tunisia's recent improvements in local property tax collections. (He also presents a case study of the collection of head taxes in Ghana.)

Tax arrears are not necessarily associated with poverty. In Bangladesh before 1982, the land development tax contributed very little to central government revenues. Though arrears were present in all sizes of holding, they were the highest per acre on the larger farms (Das and Rahman 1981). This study helped lead to broad reforms of both the tax and its collection.

The great attraction of the in rem tax, which land taxes usually are, is that government can pretend that it is collecting from the land and not from the person who owns or tills it. This preserves dignity all around, yet collection can be quite effective if government is actually prepared to take possession of land on which taxes go unpaid more than two or three years.

The accumulated taxes are but a small fraction of the true market value of the land. Thus if landowners see that the government really does foreclose on land for unpaid taxes, evicts owners and sells or otherwise distributes the land to other farmers, government will very seldom actually get any land this way.

2. Land Pledged as Collateral

When there is a debt to a bank, secured by the land, the bank will itself pay the taxes, if necessary, to protect its own interests. The bank will then collect them from the landowner. Even where the land is free of debt, and even when the owners live elsewhere and appear to be ignoring all notices, in most cases they are quite aware of their tax debt. Thus, the back taxes and interest will tend to be paid at the last possible moment--but they will be paid. If necessary, the owner will mortgage the land, or sell part of it, in order to pay and not lose the land. (This also happens in developed countries.)

3. Cases in Which Land Is Actually Seized for Non-Payment

In the isolated case in which the owner is absent, dead or otherwise out of touch, the land tax collection process serves the socially useful purpose of getting the land into the hands of someone else who can and will farm it. When the tax is still unpaid at the final deadline, government should seize the land and auction or otherwise dispose of it. If the sale price exceeds the taxes due, with interest and penalties, and if the former owners do eventually appear, the law entitles them to the difference--but in money. Normally, they cannot recover the land itself, since society is best served by giving definitive title to the new owner and limiting the former owner to recourse against the money.

I. Costs

There is surprisingly little hard data readily available on the actual cost of creating and modernizing agricultural land taxes. In part, this is because few such projects are actually implemented. It may also reflect the fact that tax projects are carried out largely with existing public-sector staff already in the national or local government budget. Since they probably have other duties as well, this raises joint cost problems for the analysis of the cost of tax projects.

The Chilean reassessment project cost was estimated at US$5.39 million (Vera 1964, 10). However, this included some extraneous work, such as a geophysical and aeromagnetic survey and other studies for the national oil company to help it locate subsurface anomalies. (This portion was estimated at $310,000, which the oil company paid.) The cost estimate did not include economic studies, data processing or expatriate technical assistance, which were covered from the Chilean fiscal budget and by USAID. Aerial photography, ground control, and mapping of cities was financed by $550,000, donated by other countries through the Organization of American States after the Chilean earthquake of 1960 (Vera 1964, 10-12). For staff and operating expenses, the Chilean national budget provided about US$1.83 million per year for over two years. Finally, to accelerate the work, the Chilean government borrowed another $2.1 million from the Inter-American Development Bank, repayable over 12 years at

four percent interest, with three years' grace to allow time for higher tax collections to begin.

In a more recent project in Honduras, US$7.2 million was spent or committed between 1983 and 1986 (Barnes 1987). This project has two main phases: delineation and mapping of parcels, and titling of those occupants who turn out to be eligible to receive titles (having been in peaceful occupancy of public lands for the required time). Barnes estimates the average cost of the delineation and mapping at about $4.30 per hectare for parcels averaging 8.59 hectares. For the 13 percent or so who turned out to be eligible for titles, the average parcel size was 5.12 hectares and the average cost was $92 per title issued, or $18 per hectare titled (Barnes 1987, 23- 24).

Bernstein (1985) has compiled the available data on the costs of modernizing land information systems in general. That is, her costs are mainly for multipurpose cadastres, intended to facilitate land transactions, land administration, public planning and development control, in addition to their use in land taxation (urban and rural). As she states (1985, 3), these costs reflect the particular conditions of specific countries, and "cannot be readily applied to the calculation of costs for programs elsewhere." Bernstein also observes that per capita incomes and prospects are too low in many countries to justify the cost of a high-technology land information system. However, beneficiaries can be asked to clear boundaries and help the

surveyors. If the parcel holders also provide the corner markers (in agreement with their neighbors), that can lower the overall project cost by as much as 25 percent, compared with the usual concrete corner markers installed in cadastral and titling surveys (Bernstein 1985, 9).

As illustrations, with caveats about validity for any other country or purpose, Bernstein presents the projected costs of land information programs in Brazil and the Philippines. In Brazil, the World Bank sought to photograph, map and demarcate some 56 million hectares; identify the tenure situation on 31 million hectares; produce between 600,000 and 1,000,000 titles; and acquire some 3.2 million hectares suitable for settlement by small farmers. The total cost was projected at $250.5 million, for an average parcel size of 30 hectares and average cost per parcel of US$220. (This information came from a 1985 Staff Appraisal Report for the proposed loan.)

In the Philippines, a proposed Land Settlement II Project (prior to President Aquino's administration) called for the creation of a geodetic network with modern satellite location technology, aerial surveying of 5.5 million hectares, and the production of ortho-photo maps covering 2.2 million hectares. Soils and land uses would be studied from the photos, a land data bank would be created, and land tenure would be regularized on an unspecified amount of land. The land data bank would include tax maps at large scale (1:500 and 1:5,000), plus an index of owners

in alphabetical order with lists of the parcels each owns. The total cost was estimated at $27.4 million over five years, of which capital costs were 70 percent (Bernstein 1985, 55). The unit cost for the cadastral survey was estimated at about $7 per hectare. (It appears, however, that the estimate includes only the microcomputers for the data bank, but not the cost of the staff who are supposed to actually create the land data bank.)

It is clear that a mission seriously considering funding a land information project, for land taxation or any other purpose, will need to develop its own cost estimates based on actual conditions, project purpose, and the precision required.

J. Conclusions

The most important single factor in the success of mass valuation methods is undoubtedly elimination of the visit by an assessor to every property, and the costly and largely subjective appeals based on alleged market value of a given property at a given time. The key to success lies precisely in the use of unit values, and in developing a sense that these values fairly reflect relative values of different kinds of land and location.

While this chapter has outlined methods that are both thorough and feasible, they will not be attainable in all countries at all times. As Bird observed, the success achieved in Chile and Jamaica is owed in part to a willingness to proceed with a "second best" method if the theoretically best method was stymied. Dreams of the unattainable "perfect" must not be allowed to prevent doing something that is "good" (Bird 1974, 110).

VI. OBSTACLES AND CONSTRAINTS TO SUCCESSFUL TAXATION OF AGRICULTURAL LAND

A. Introduction

The principal consideration driving most governments to implement an agricultural land revenue system is the need for revenue to finance government programs and activities. The rates, however, are usually too low to produce a significant share of total revenues. Moreover, land revenues, as a share of overall government revenues, have been falling worldwide for some time. (For the Indian case alone, for example, see Bhargava 1976; Gandhi 1966; Indian Merchants' Chamber Economic Research and Training Foundation 1970; Jain 1974; Johl 1972; Khot 1958; Lindauer and Singh 1979; Mathew 1968; and Titus 1984.)

A second objective of agricultural land revenue systems may be to influence people's behavior. This paper focuses on systems which have been designed with this as a priority objective. Agricultural land revenue systems designed for incentive effects on land use are a minority of the universe of agricultural land revenue systems. Nonetheless, other taxes on agriculture, such as export duties, could be replaced by land taxes in order to get the same revenue in ways that would have fewer disincentives.

The obstacles and constraints to effective agricultural land revenue systems designed for incentive effects on agricultural production depend on several different factors:

- the character of the revenue system in question;

- the target group of the assessment and the behavior the revenue system was designed to elicit from it; and

- the conditions of agricultural production of the target group in that country in which the agricultural land revenue system is being implemented.

First, the character of a particular agricultural land revenue system is determined by the choices its designers make in three areas. The first is the assessment base of the system--the site value, use value or market value, for example, of the land. The second is the methodology for determining the value on that assessment base. The third is the relative assessment rate per unit of value and the structure of exemptions, if any. These elements were described and analyzed in Chapter V. Naturally,the obstacles and constraints to implementation vary somewhat from system to system.

The second factor is the assessment's target group and the behavior the revenue system was designed to elicit from it. Large landowners have different interests and resources, both material and political, from small landowners. Implementation of an agricultural land revenue system will confront different obstacles and constraints according to the scale of landholding targeted by the system. In addition, the objective of the land revenue system may be to encourage the breakup of large estates and/or simply to encourage the intensification of production. A system is best targeted on large landowners to achieve the former objective, but on all landowners to achieve the latter. Again,

obstacles and constraints to implementation vary according to the group targeted and the objective of implementation.

Third, a number of factors relating to the imposition of agricultural land revenue systems are directly linked to the conditions of agricultural production in the country. Obstacles and constraints to implementation of an agricultural land revenue system vary greatly, from densely populated countries in Asia where land has been occupied for centuries, to less densely populated countries of Latin America, to the sparsely populated countries of Africa where individual tenure of rural agricultural land is only now beginning to develop.

For example, although taxes long favored cattlemen over cultivators in Guanacaste Province, along Costa Rica's northern border with Nicaragua, Costa Rica only became self-sufficient in beef about 30 years ago. Now a supplier in the world market, the cattlemen only really became productive after government agrarian, price and credit policies also turned in their favor in the 1950s (Edelman 1985).

The following sections of this chapter discuss obstacles and constraints to the use of agricultural land revenue systems as incentives to increasing agricultural production. For reasons mentioned above, this, in itself, limits consideration to a minority of agricultural land revenue systems.

The discussion begins with constraints at the highest institutional level--the national political level--and, step by step, proceeds to the level of the individual landowner, at the farming system level. A discussion of interference from exogenous economic factors concludes the chapter.

This chapter is, therefore, presented under five general headings: political, administrative, institutional support, farming systems, and exogenous economic factors. The discussion under each heading ends by evaluating the constraints on two scales: how critical removal of the obstacle or constraint is to successful implementation of the tax; and the likelihood that these obstacles or constraints can be relaxed and by what methods.

B. Political Obstacles and Constraints

Policymakers have generally been hard-pressed to find the political constituency to support implementation of agricultural land revenue systems for non-fiscal purposes. Dorner and Saliba (1981, 6) maintain that "The initial and most difficult hurdle which all taxation proposals must overcome is political opposition from those likely to be taxed most heavily." Ironically, they may be understating the implacability of the political opposition by identifying it merely as "those likely to be taxed most heavily." Mellor, as well, has underestimated the political opposition to incentive taxation. His analysis of the political opposition and its rationale does not go far enough.

Referring to the use of agricultural land revenue systems as a relatively painless mechanism leading to land redistribution, he states:

> There are few countries which have applied it. This may be because, in most countries, political views on land systems have been polarized. On one end are those persons with large land holdings who wish full preservation of their control of economic power, and on the other end are their opponents wishing a drastic redistribution. It is apparently rare for a compromise position to be politically palatable on this issue. (Mellor 1966, 89-90)

This section of Chapter VI shows that, in fact, agricultural land revenue systems are not compromise positions between the status quo and outright redistribution and, for that reason, have been unable to generate a political constituency.

There is no question but that large landowners have a political interest in opposing land revenue systems and, in practice, they do. Davis (1967, 10) attributes problems in application of the land revenue system in Colombia to opposition from large landowners. Schwab (1972) shows how enactment and application of Ethiopia's agricultural land revenue system in 1966 got caught up in the national and regional political process and was ultimately frustrated by the landed aristocracy. "The law, which was initially seen as an instrument of land reform, through existing political pressures became merely an additional tax poorly implemented" (Schwab 1972, 183).

Much the same happened in Turkey. An annual land tax at one percent was based on sales values declared in a 1936 self-

assessment, vetted mainly and casually by local officials. However, there was little adjustment for inflation and economic growth over time. Thus by 1960, actual land values were up about 50 times, but revenues rose only 2.7 times and the tax had become insignificant in total revenues. Nicolas Kaldor advised replacing the tax with a substitute tax based on the average net product per hectare for major land types. It would have been fairly simple to implement this approach, because such estimates were already prepared each year for the national economic accounts. However, the landowner lobby in the legislature called his plan "too complicated," and they and the military compromised by merely tripling the existing assessments, leaving the tax still about one-fifth of what it was in 1936 in real revenue terms (Bulutoglu 1968).

Most writers on the problem would agree with Hirschman that,

> The weakness of land taxation is that while it arouses the opposition of the landed interests, it does not hold out an obvious appeal to any other important social groups. (1964, 433)

1. Smallholders

Experience has shown that active political opposition to taxes aimed at subdivision of large estates is not restricted to the large landowners. Eric Shearer has written (personal communication, 16 November 1986):

> Based on personal experience in Colombia, Panama, the Dominican Republic and Bolivia and on second-hand knowledge of a few other places such as

> Argentina, there is no doubt in my mind that the main obstacle is the (predictable) opposition of the large landowners, who typically succeed in coopting both small and medium holders to their position.

Why is it that small and medium landholders make common cause with large landholders in opposition to agricultural land revenue systems? In what ways do all their interests converge? Or are the large landowners simply hoodwinking or intimidating the small and medium landowners?

The key to the paradox is that agricultural land revenue systems generally propose levies on small and medium landholders to some extent yet make no credible promises of benefits.

The impact of a given revenue rate is often heavier on the smallholder, living close to subsistence, than on the larger landowner. As Mathew (1968) points out, the levy will represent a much greater share of the smallholder's annual cash income than it will of the larger landholder's. That is one reason for smallholder opposition to agricultural land taxes.

People do not support new tax levies unless they are convinced that they will somehow benefit from them. Agricultural smallholders are skeptical of agricultural land taxes because they do not believe they will get any benefits from them. Domike and Shearer (1973, 77) blame this belief for the failure of a Bolivian effort to create a modern land tax in 1968. A coalition of peasant organizations originally supported the idea, but opposed it when the finance minister insisted that the revenue go

into the general revenues of the central government. The earlier proposal allowed the peasant leaders to decide and direct the use of the revenues for local projects.

The problem is to detach smallholders' political interest from that of the large landholders. Political support from smallholders for an agricultural land revenue system cannot be mobilized without convincing them that returns from their cash payments will benefit them. Smallholders are more interested in how they will benefit from paying the levies than in the macro-policy ends of the land revenue system.

2. Market-Enforced Self-Assessment

Market-enforced self assessment of agricultural land revenues has been widely discussed over the years (see Strasma 1965, in particular). This assessment methodology stirs up a particular profile of opposition which illustrates how the interests of large and small landholders converge in opposition to land revenue systems. Lewis (1967, 466) describes market-enforced self-assessment succinctly as,

> Self-assessment of land value by the owner. Honesty would be enforced by requiring that the land be purchasable by government or private buyers at the assessed value.

In effect, smallholders could protect themselves from an undesired sale and relocation only by assessing their land at well above its presumed market value. Even then they would fear, however unrealistically, that some jealous rival with abundant

cash would be able to force them to sell. The large landholder is less at risk than the smallholder simply because fewer people would have the financial resources to force a sale. Market-enforced self-assessment puts everybody's landholding at risk (although the smallholder more so than the large landholder) and, thus, readily arouses passionate opposition across the board. Of course, landowners also fear that such a plan would force them to pay more taxes than with the present weak assessments.

Ironically, then, outright land reform is, in fact, politically more feasible than achieving redistribution through incentives embedded in an agricultural land revenue system:

> Latin American experience indicates that it may be politically easier to enact and implement a semi-confiscatory land redistribution programme than a . . . land tax system effective enough to lead to more intensive land use and/or voluntary subdivision of large estates. One simplistic explanation for this is that no political leader gains support by advocating taxes, but agrarian reform can gain popular backing. (Domike and Shearer 1973, 77)

Although it relies on pitting class against class, land reform, at least, has a political constituency. That is more than can be said for an agricultural land revenue system enacted for its incentive effects.

The political obstacles of instituting an agricultural land revenue system have been insurmountable in many recent cases. The reason has been that the designers have discounted the need to tailor their systems to draw together a political constituency

that would support them in exchange for the benefits the group would receive.

3. Possible Solutions

Overcoming the political obstacle is absolutely crucial to creating an effective agricultural land tax. To recruit smallholder political support, planners must build two types of consideration for the smallholder into an agricultural land revenue proposal. The first is in the realm of exemptions. Smallholders will mistrust any new tax measure. A high exemption level which, in effect, excuses a large number of property owners from liability, leaves the large landholders politically isolated in opposition. The second is in the area of benefits. While smallholders will seek to avoid new taxes, they will welcome certain benefits which only money can buy. Agricultural land revenue system planners will have to determine what those benefits are and make their provision an integral part of the revenue system package. To the degree that planners can convince smallholders that they will receive valuable benefits from the proposed system, the planners will not simply be avoiding opposition, they will be building political support.

C. Administrative Obstacles and Constraints

Once an agricultural land revenue system has been legislated through the political process, the administration is responsible for its application. Effective operation of a land revenue system often simply adds new strains on an already overburdened

administrative management system. At the same time, adding implementation of land revenue legislation to the responsibilities of the bureaucracy further challenges its administrative capacity.

This section begins with a discussion of the general problems of administrative staff in aid-recipient countries in achieving effective management. It then explores the administrative requirements, task by task, of effective implementation of an agricultural land revenue system.

1. General Administrative Shortcomings

There is general agreement (see Dorner and Saliba 1981, 6; and Hipgrave 1967, 257) that a general lack of funds and lack of trained personnel have hampered implementation of agricultural land revenue systems. In Ethiopia, for example, the Ministry of Finance, faced with the responsibility of implementing an agricultural land revenue law in 1967, declared it needed to hire 600 additional skilled employees to carry out the law (Schwab 1972, 141). The civil services of aid-recipient countries simply do not have trained staff in place in sufficient number to take on the burdens of administering an agricultural land revenue system. Nor do they have access to the funds needed to implement the system effectively.

As a general rule, the more decisions the agricultural land revenue system requires the administrative staff to make to arrive at the tax for a particular plot, the more costly the

implementation of the system in terms of personnel time and expertise. The chief attraction of market-enforced self-assessment, for example, is the theoretically low cost to the administration of assessing the value of the property. Systems in which holdings are divided into several land categories, to be taxed differentially, for assessment purposes, such as the Ethiopian system, are more difficult to administer than systems which recognize only absolute land areas as the basis of assessment. Similarly, progressive systems, in which larger landowners have heavier taxes per unit area than smallholders, are difficult for the bureaucracy to administer and invite abuse by the large landowners.

2. Establishing Title to Land

In many parts of the world, title means simply a community acceptance of use rights by a family. This is especially true in tropical Africa, but also true in many parts of Latin America. Without identifying an actual landowner, however, it is impossible to levy and collect land revenues effectively. It is difficult to determine, for example, who should be penalized for non-payment on a particular plot. A lack of records of ownership, therefore, often handicaps the administration of agricultural land revenue systems.

3. Identifying Properties

Assessment depends on a cadastral survey or some other method of surveying and classifying land. "Land based taxes

stand or fall on the strength of land survey information on which they are inevitably based" (Bird 1974, 100). This is true for all agricultural land revenue systems where the government administration assesses the property. Systems using market-enforced self-assessment are, therefore, excepted. It is hard, however, to carry out a good survey in countries with strong landowners, weak local administration and difficult logistics. Ethiopia provides a typical example of large landowners working together to thwart the efforts of the provincial assessors to survey their land (Schwab 1972, 170-180). Cadastral values are, therefore, often based on unverified owner declarations. The quality of cadastral information often leaves something to be desired.

4. Assessment

Assessment presents both theoretical and practical problems. Moreover, on the practical side, assessment is not a one-time exercise. It requires regular updating.

Jamaica has attempted to build development incentives into its land revenue system by basing its assessments on unimproved site values. In theory, therefore, owners' tax burden does not increase with the increases of earnings they reap from investments in land development. However, "Some observers have felt that it is both theoretically and practically impossible to separate the land and improvements components of improved sites" (Netzer 1966, 34).

It is difficult to make assessments of unimproved value with accuracy. There are several reasons for this. Chief among them are the difficulties in getting accurate, up-to-date market data and the problem of distinguishing the value contributed by old improvements to land, such as grading and fertilization, from the bare site value. Yet unimproved value is often the basis for assessment of agricultural land revenue schemes.

The matter of carrying out the assessment in the field usually rests in the hands of the administration. Any assessment is only as good as the assessment data on which it is based. The data are often not available. And their existence and interpretation are subject to political pressures.

Finally, even when good land survey data exist, it is necessary to revalue periodically in order to keep assessments up to date with changes in relative as well as absolute prices. This is especially true in economies with a high rate of inflation and/or where economic development is proceeding fairly rapidly. In practice, official valuations seldom change. In large part, the reason for this is that each new assessment, however necessary, opens anew the theoretical and practical problems of the first one.

5. Levying the Tax

There is general agreement that one of the most important reasons agricultural land revenue systems have had so little impact on agricultural production is the universally low rate of

taxation. Davis, analyzing the data from his village studies in Colombia, observes:

> Because of low rates, the tax burden is a relatively small percentage of income and this fact, coupled with tax delinquency, means there is little opportunity for the nonfiscal effects to operate. This is particularly true among the larger farmers, where the tax burden is lightest. (Davis 1967, 95)

Dorner and Saliba (1981, 12) feel that low rates are the primary reason for the general failure of agricultural land revenue systems to have incentive effects. They also support Davis' conclusion that the theoretical argument for incentive taxation remains essentially untested due to low rates.

Strasma (n.d., 17) notes that, "Studies in Colombia and Brazil found that tax differences failed to produce economic effects, and the reason is clearly that the net taxes were simply too low, after as well as before the tax reform." He feels that the only country in Latin America where land revenue rates are heavy enough to have an impact on the way people use the land is Chile.

Taeuber's critique of the Australian land revenue system is as pessimistic. He argues that the land redistribution objectives of the agricultural land revenue system in Australia were reached, but under pressure from other forces much more than from the revenue system itself. For one thing, "The rates of the tax have never been high enough, on their own, to cause owners to

choose sub-division as one of the possible alternative uses of the land" (Taeuber 1967, 150).

Gandhi (1968) and Hays (1964) are, nonetheless, optimistic about the potential role of land revenue systems in promoting increases in productivity in India and Iran, respectively. They, too, have to note in both countries, however, that the present tax rate is so low it has no impact toward meeting the policy objective.

Other writers are, however, pessimistic about future prospects for agricultural land revenue systems. They are articulating a realization that there are as many political obstacles to levying a burdensome revenue rate as there are to enacting the enabling legislation, in the first place.

In effect, given the argument that the theory of the incentive effects of agricultural land revenue systems remains virtually untested since there are very few cases where the tax level has been high enough, what is the threshold level of taxation beyond which will have an impact on the way people use their land? The question can not be answered in absolute quantitative terms. The answer depends on several factors, chief among which are:

- the cash amount of the levy as a share of the landholder's annual cash income;
- the opportunity costs of investing in other revenue-producing activities; and

- the probabilities of strict enforcement of payment of the levies.

It should be noted, moreover, that tax rates at a given level often have greater impact on smallholders than on large landowners. As pointed out in Section VI.B.2, the payment often represents a larger share of a smallholder's annual cash income than of a large landowner's. Smallholders also have few realistic investment opportunities other than the family farm. They may even have fewer opportunities for tax evasion than larger landholders.

The threshold level of agricultural land revenue rates to have an impact on land use is, therefore, probably significantly lower for smallholders than for large landowners. Unless there is some kind of exemption system--which, itself, is complicated to administer and subject to abuse--an effective level of agricultural land levies is likely to have a greater impact on smallholders than on the large landowners. Yet the objective of applying the revenue system would often be to target the large landholdings for the benefit of the smallholders.

To determine the exact threshold level of agricultural land revenue rates that will have an impact on the way people choose to use their land, the designers of the system would have to carry out empirical experiments in the targeted area.

6. Delinquency and Evasion

The theoretical responses to application of an agricultural land revenue system notwithstanding, administration of the systems has, in practice, left ample latitude for landowners to develop other responses.

Davis noted that only 60 percent of the landowners in his village study in Colombia were paying their land revenue assessment. Wells (1972, 58) noted comparable levels of delinquency or default in Costa Rica. Delinquency is a general problem in the administration of agricultural land revenue systems worldwide.

At some point delinquency shades over into evasion. In addition, in systems where assessment is based on differential taxation for land categories with different development potentials, landowners employ a number of strategies to get their holdings reclassified into lower taxed types. In systems with progressive revenue structures, landowners in many parts of the world often give the appearance of reducing the size of their holdings by subdividing within their families. "The opportunity has always existed to lessen the impact of progressive rates of tax by subdivision of ownership within families" (Taeuber 1967, 150).

7. Summary

The most serious administrative constraint to an agricultural land revenue system implemented with agricultural

production objectives is intertwined with political constraints. Application of levies high enough to have an impact on the landowner's pocketbook has often been an insurmountable political problem. Carrying out the cadastral survey on which the assessment system is based, likewise, creates political tensions. Finally, assessing the value of the land is fraught with political controversy. Carrying out the cadastral survey, assessing the value of the land and levying the revenue charge are, however, the three fundamental administrative actions upon which a successful agricultural land revenue system is built.

The more tractable administrative problems fall under the general rubric of institution-building. With adequate time, money and technical assistance, people can be trained. They can acquire new skills. The general level of administrative performance of a bureaucracy can be raised. Improved record keeping would, for example, resolve most of the titling and collection problems in the administration of agricultural land revenue systems.

The political problems associated with the administration of these systems would have to be tackled at the outset, at the same time as the political problems associated with creating the systems in the first place.

D. Institutional Support Obstacles and Constraints

Agricultural land revenue systems do not operate in isolation. They cannot be detached from an ensemble of

production support institutions. Bird pinpoints the problem very well:

> Whatever the theoretical case may be, another lesson suggested by experience in various lands is that higher or "better" land taxes alone will do little to increase production unless, at the same time, roads and market organization are improved, price policy is correctly structured and needed inputs, including credit, are provided. (Bird 1974, 187)

There are two aspects to the problem of institutional support. In the first place, landowners must have production support--access to the technical and institutional packages to permit them to increase their production under pressure from agricultural land revenue systems. In the second place, landowners must have market support--adequate commercial channels to market their production increases with a reasonable return.

1. Production Support

An essential precondition to increasing agricultural production is the producer's technical capacity. A producer must have access to the inputs to support an increase. In discussing the oft-cited example of the Japanese experience with the production effect of agricultural land taxes, Lewis points out:

> It is sometimes argued, often while favorably citing the case of Japan, that the land tax per se has an output increasing effect on the agricultural sector and that one principal advantage of such taxes is that they result in greater efforts to increase output. . . . In the Japanese case, however, there was a sustained rise in agricultural productivity, which was no doubt because the heavy agricultural land tax was accompanied by the infusion of fertilizers, education, and other improved inputs at relatively low cost to the agricultural sector. (Lewis 1967, 465)

2. Market Support

Producers respond as much to their perception of marketing conditions and trends as to any factor in programming use of their land. Unless they are fairly confident that the market will reward them for marginal increases in production, they will decline the marginal effort. Nonetheless, even under the best of conditions, as Bird (1974, 170) points out, the irony of the output markets is that, by increasing the volume of production landowners bring to market, an agricultural land tax could lead to a drop in selling prices. This may be an advantage to the consumer but it would be a problem for the producer.

The market will often have to supply agricultural inputs as well. Manig (1981, 45) takes the argument one step further. Not only must landowners have access to inputs and lucrative outlets for their production, they must also have convenient access to the consumer goods that they desire so that increased income has value to them.

The land marketing system also plays a role in how landowners respond to the implementation of an agricultural land revenue system. Land markets are the most important mechanism for determining the value of land. Only when the land markets are fairly active and the values of land high and/or rising, will the opportunity cost of suboptimal production on the land force landowners to intensify or subdivide. On the other hand, the absence of an active land market restricts the choices open to

the landowner. How can one subdivide if there is no credible mechanism for disposing of parcels? In this way, the relationship between land values and land use may be as important as that between land revenues and land use.

3. Summary

Ross (1983, 15-16) reviews a range of institutional factors that would support implementation of an agricultural land revenue system. Of all of the factors on this list the single most important is access to markets for agricultural output. Output markets are essential to validate the land revenue system. No agricultural land revenue system should be implemented in the absence of marketing opportunities for crops most likely to be produced to cover the tax.

In the meantime, the presence of other institutional support mechanisms on Ross's list would increase the probabilities of successful implementation of an agricultural land revenue system. The probabilities for successful implementation are highest in an institutional environment with maximum support to agricultural production and innovation.

While the absence of certain institutional support systems may constrain the degree of response to an agricultural land revenue system, it does not present an insurmountable obstacle. These systems develop organically with the evolution of local socioeconomic conditions. International donor and national government action can culture the local socioeconomic conditions

to provide the necessary context to support an agricultural land revenue system.

E. Responses at the Farming Systems Level

The discussion in this chapter has been brought to the point of focusing on the individual landowner family. Here, the question is, from the point of view of the way the family manages its land, what choices will the family make when confronted with an increase in the tax it has to pay on it? The response to this question is important because of the insight it gives into how the imposition of an agricultural land revenue system will affect concrete behavior.

1. Low-Income Landowners

Davis argues that low-income farmers will resist intensification more than landowners already committed to producing for market. Low-income landowners will resist strongly any changes in techniques and technologies that might put their family food supply at risk.

> In an environment where a large share of farmers are near the subsistence level, it may take a stronger force than taxation to make them change to new land use patterns and adopt new technologies to increase yields. In this environment, the farm may be seen as a means of livelihood rather than a business operation. . . . Hence, increased tax costs may be taken out of savings or it may mean a reduction in permanent income. (Davis 1967, 122)

Mathew noted a similar phenomenon in India. "We concluded that, in the case of low-income farmers, increased taxes are likely to come almost entirely from consumption" (Mathew 1968,

108). A reduction of consumption can have very negative consequences for low-income landowners, however. If people at or near the subsistence level reduce their food consumption in order to pay a rise in taxes, they may reduce their laboring capacity and sacrifice production and productivity.

One alternative to such a response may depend on liquidity and the elasticity of supply of investment capital. Rather than intensify agricultural production or pay the levies by reducing consumption, many low-income landowners borrow from local money-lenders. In other words, landowners may decide to cover their revenue assessments from other funds rather than intensifying agricultural production if other sources of funds are available to them in the economy.

This strategy has had pernicious outcomes in some low-income landowner cases. In another Indian case, over a period of time large estates coalesced under money-lender control:

> The initial effect of the Punjab land tax seems to have been that it periodically forced Punjab landowners into the hands of the money lenders in their effort to stave off the loss of the land for non-payment of taxes. Then, once entrapped in the high interest rates which this has brought, it appears that many went under, and all or part of their lands were sold. . . . It also appears that the land was forced into liquidation by the tax systems after all other measures to raise revenues, including capital consumption, were exhausted. (Lindauer and Singh 1979, 184)

Strasma has seen a different unanticipated and unfavorable side effect of low-income landowner response to incentive taxation in Chile:

> [In] several cases in which landowners voluntarily parceled and sold their land in units similar to those in land reform, in Chile the sellers invariably asked, and the buyers agreed to, payment on such short terms that the buyers were critically short of working capital. To meet their payments and live, buyers who actually worked their land were forced to grow those products (rice or oilseeds) for which cash advances were available from buyers. They did so, for so long and without any other rotation, that the soil was seriously damaged by erosion and loss of structure. (Strasma, n.d., 18)

Many low-income farmers will need more encouragement than simply the application of an agricultural land revenue system before they decide to intensify production. Before many of them can respond positively, implementation of the tax will have to be coupled with a lot of the types of institutional support discussed in Section VI.D.

2. Higher Income Landowners

What about higher income landowners? Davis' experience in Colombia, again, gives some indications:

> The large landlords, especially absentees, may not be interested in devoting more time and effort to the management of their farms even if an increased tax burden means a reduction of farm income. This type of farmer may make his living from a business in Bogota and the farm may be held only for prestigious and speculative purposes and as an instrument through which losses can be claimed for national income tax purposes. Holding land for social purposes and as a hedge against inflation, is common in Colombia, as is absentee landlordism. (Davis 1967, 123)

Lindauer and Singh suggest a parallel phenomenon in the Punjab when absentee landlords built large landholdings by foreclosing on loans made to low-income landowners to pay their land taxes:

> It may be that when the decapitalized land was combined into larger holdings, no capital was added by the new owners because of the high profits from putting money into alternatives such as money lending. Furthermore, it appears that, instead of operating larger, more efficient farms, the large holdings were broken into even smaller farms and rented to tenants. Thus, the average size of each farm fell, tenancy increased and capital was consumed and not replaced. (Lindauer and Singh 1979, 84)

The opportunity cost of increasing production on the land of higher income landowners may be so high that they are willing to take the tax out of consumption or savings. Higher income landowners often have more productive uses of capital than agricultural production. In addition, these higher income landowners may not even own their land solely or even primarily for agricultural production--all the more reason they may resist subdividing to reduce their tax burden.

In fact, the land markets may be as big an inducement for higher income landowners to subdivide as the agricultural land revenue system (T. Mehen, personal communication). Taeuber has remarked that in Australia,

> The long-term trend in land values has been an increase and, in periods of economic prosperity, the increase has been at a faster rate than increases in the other forms of capital. Consequently, there have been powerful inducements, in the form of

realized capital gains, for owners of land to sell. (Taeuber 1967, 151)

This section has considered concrete responses to the imposition of agricultural land revenue systems at the margins of both small and large landowners. These responses illustrate tendencies that might be more or less accentuated according to the degree of stress from elsewhere in the agricultural system. These stresses, therefore, act as constraints on the effective implementation of agricultural land revenue systems. Attenuation of the stresses and the consequent tendencies toward aberrant responses to the land revenue systems appears to reside mainly in strengthening the institutional support mechanisms discussed in Section VI.D. To maximize the response to agricultural land revenue systems in accord with theory, incentives should be built into the farming system. Carefully planned institutional support is probably the most effective way to reach this goal.

F. Interference from Exogenous Factors in the Economy

The final set of factors that constrain the implementation of an agricultural land revenue system are exogenous factors in the economy. These exogenous factors compete and/or conflict with the effects of an agricultural land revenue system. The application of an agricultural land revenue system does not take place in an economic and fiscal vacuum. Specifically, the system is implemented in a context of economic conditions that have an impact on landowner response to it.

Inflation is the most important exogenous economic factor affecting landowner response to the land revenue system. In 1960, Uruguay introduced a presumptive income tax based on the potential productivity of agricultural land. Over the next several years inflation obliterated the effect of the tax. It had to be revised in 1968 (Bird 1974, 98-99). Tax rates or tax assessments have to be revised constantly for levies to maintain their burden on the landowner. In fact, rates are usually relatively inflexible and assessments few and far between so that the impact of levies dwindles in times of inflation. Under these conditions, the burden of land revenues may rapidly become insignificant despite the original effectiveness of the system.

There is also a set of fiscal factors whose impact on agricultural production surpasses that of the agricultural land revenue system. People's response to the agricultural land revenue system will depend on their overall tax burden. In many cases, for example, export taxes have a much greater impact on agricultural intensification and investments in cash crop production than land revenue systems do.

Taeuber maintains that income tax deductions for land improvement "have had a far greater influence on land development in Australia than land taxation" (Taeuber 1967, 151). The burden of the income tax is far greater than that of the land tax in Australia. People, therefore, develop their land use strategies around the income tax burden.

Finally, there is often a conflict between the two objectives of agricultural land revenue systems, raising revenues and changing behavior. Governments may resist applying a progressive agricultural land revenue system for incentive purposes, for instance, if revenues from the upper-bracket landowners do not counterbalance exemptions for those in the lower brackets. They would be loathe to see government revenues suffer a net drop even for the sake of laudable social objectives.

Economic factors are constraints insofar as they conflict with or dilute the impact of an agricultural land revenue system. However, none of the specific factors cited in this section is critical to the successful implementation of a revenue system, although each one should be considered. Several of the economic factors support the revenue system. The economic constraints, therefore, are neither as critical to successful implementation of an agricultural land revenue system nor as difficult to resolve as, say, the political constraints.

G. Conclusions

The above review presents a mixed picture of obstacles and constraints to the effective application of agricultural land revenue systems to induce landowners to increase production or subdivide their landholdings.

The most formidable obstacles are the political ones associated with enactment of a system and determination of the assessment base and the rate of the levies. The overall

conclusion from an examination of other obstacles, however, is that the outcome from application of an agricultural land tax is hard to predict. There are too many variables that go into evaluation of the impact of the system on land use.

Perhaps the most important reservation about application of such a tax concerns using a fiscal instrument to achieve non-fiscal objectives. First of all, as a rule of thumb, landowners, including low-income landowners, will resist payment of any levy for any purpose. The resistance hardens if authorities cannot show the landowners a material benefit in the form of goods or services in exchange for their payments. Furthermore:

> Many countries have learned that failure to employ discretion and restraint in non-fiscal applications of taxes can be a costly fiscal experience. Above all governments should be alert to two insidious dangers: first, the usefulness of the taxes as fiscal instruments might be impaired, and, second, the equitableness of the taxes might be undermined. (Wald 1959, 210-211)

The other major finding of this chapter is that agricultural land tax systems are not implemented in a vacuum. They are necessarily applied in a particular context of institutional support, administrative capability, political and economic conditions. This context exhibits its particular profile of obstacles and constraints to successful implementation of the revenue system.

The conclusion is, then, that the agricultural land tax, in the context of obstacles and constraints to its effective

implementation, is an instrument of limited effect at best. It will probably perform best as one of a group of mutually supporting instruments, measures, institutions, etc., all conspiring toward the end of a more productive use of resources.

VII. SUMMARY AND CONCLUSIONS

A. Experience in Aid-Recipient Countries

In theory, the creation or modernization of a tax on agricultural land will encourage landowners to raise money to pay the tax by increasing the production and productivity of their land. Based on this reasoning economists have long urged the use of land taxes as economic incentives rather than merely as fiscal instruments. Though revenue is always a primary motivation, the incentive aspect has been stressed in the debate in the few aid-recipient countries that have used these taxes effectively, or have seriously considered doing so.

The overall experience with using agricultural land revenue systems to influence land use in aid-recipient countries is inconclusive. With the exception of Chile and Uruguay in the 1960s, the use of agricultural land taxes to achieve better land utilization has not been successful in any aid-recipient country. On the more positive side, there is no evidence that taxes on agricultural land have discouraged investment, effort or productivity, whereas taxes on agricultural products or exports have clearly done so in Argentina and various African countries. In each of the land taxes implemented to date, basic conditions for testing the theory have been absent.

The main deficiency in the system is usually that the land revenue rates were too low to affect incentives. This is not very helpful, since the minimum level of rates that affect

incentives is unknown, and probably varies among countries and over time. The relationship between agricultural land revenues and agricultural productivity is not readily apparent from the case studies. In Colombia and Brazil, for example, differences in revenue rates have not been high enough to influence land use. In Chile and Uruguay they were for a time but then inflation eroded their real burden.

Bangladesh introduced an investment stimulation objective into its land revenue system in 1984. No credible assessment of the impact has yet been made, so far as we can determine. Jamaica, likewise, after two and a half decades of taxing site value of rural lands at rates too low to have an impact on land use, recently enacted a comprehensive tax reform package. However, it is too early to assess its impact on land use.

Wald (1959, 211) offers some consolation: "The utility of tax incentives can be demonstrated less easily in agriculture than in industry and less easily in underdeveloped than in developed countries."

In any case, however, the experience in Argentina around 1973 of an ill-fated, never-implemented law gives cause for reflection. Efforts to enact a tax on potential land rent, as a means of forcing the intensive use of land, produced frustration from unfulfilled expectations, yet complicated both the legislative approval and the administrative implementation of the tax. In the end, the law passed but was never implemented. It

just did not happen (Nunez 1985). Argentina has announced a new tax reform; will history repeat itself?

B. Implications

The historical record reveals a set of conditions necessary to implement an agricultural land revenue system with incentive effects on land use. The most important condition is the political support for enactment of such a system and for application of rates high enough to have an impact on landowner behavior. A second condition is an administrative system capable of implementing the legislation under the conditions set by the political authorities.

An important lesson from this study is that there is no single, general remedy or conclusion that applies to all countries at all times. As Bird (1974, 12) stresses, "No general policy prescription can or should be expected to fit all circumstances." Instead, the specific characteristics of each country must be analyzed before launching an agricultural land revenue program. Significant differences among land tenure and farming systems in Africa, Asia and Latin America mean that land tax systems must also be designed and implemented differently.

The path to an agricultural land revenue system is strewn with choices. The most important choices are:

- To determine the assessment base--Will the revenue system be based on land area, or site value, or improved value, or actual or potential income?

- To identify the methodology for carrying out the assessment--Will the assessment rely on a cadastral survey, or aerial photography or self-assessment, for example? And how will unit values for soil types, availability of irrigation water, and type of access to markets be determined?

- To establish a tax rate per unit value--Will the revenue system have a flat or progressive rate structure, and what will the rate(s) be?

There will be trade-offs among the options chosen. These trade-offs will be in terms of costs, efficiencies in implementation, administrative burden, and political acceptability. A critical element in the creation of an agricultural land revenue system is developing a set of accommodations that take account of the realities of the political, economic, institutional, financial and administrative environment for which they are being proposed.

C. Guidelines for Policymakers

USAID should not, in any systematic way, promote establishment and implementation of agricultural land revenue systems with the sole objective of influencing land use. The empirical record is too spotty and inconclusive. Many of the experiences are out of date, and their reports do not present all of the pertinent data.

However, from time to time, aid-recipient countries will seek to create or modernize real estate taxes for revenue reasons. And these countries or others will also consider replacing the present export taxes or marketing board monopolies

with land taxes as a way to obtain the present revenues with fewer negative impacts on investment and productivity.

USAID should, therefore, promote and monitor the creation of one or two experiments with agricultural land revenue systems to test the viability of influencing agricultural production and productivity through them. In choosing the countries to target and the systems to design, USAID should heed the following guidelines:

- Institution of an agricultural land revenue system is possible only in an environment of strong political support. Before launching such a system, policymakers must analyze its political support.
- Whatever measures are proposed, they should be kept simple, with sufficient technical and staff resources, vehicles, field staff, aerial photography and photo-interpretation support, etc., so that the valuation exercise can be substantially completed within two years or less, and implemented before the political ability to do so vanishes as a result of unrelated events.
- When an agricultural tax or revenue arrangement is going to be modified, USAID should attempt to arrange for a baseline study and an evaluation. This would enable the government involved to adjust and perfect the process during project implementation, and to help donor agencies and other developing-country governments determine whether they should support and undertake similar projects.

D. Resources for Planning and Implementation

The following resources are available through USAID mechanisms to support AID/Washington or mission efforts to plan and implement an agricultural land revenue system.

Until last year, Syracuse University was implementing the Local Revenue Administration Project for the USAID Science and Technology Bureau's Office of Rural and Institutional Development. That project has recently been succeeded by the Decentralization: Finance and Management Project, whose mandate is to increase the capacity of aid-recipient countries to develop and sustain public goods and services in the rural areas. Agricultural land revenue systems would, logically, be one tool to achieve these ends.

The University of Wisconsin's Land Tenure Center has a cooperative agreement with the same AID/S&T Bureau office to implement the Access to Land, Water and Natural Resources Project. Over the years, the Land Tenure Center has built up a repertory of knowledge on a wide range of land use issues. Its resources are currently being drawn upon for land cadastre and titling work in several African, Central American and Caribbean aid-recipient countries. This work could readily incorporate studies of costs and effectiveness of land revenue mechanisms.

AID/Washington and USAID missions have access to these resources through the project add-on mechanism.

E. Further Research

Definitive conclusions on the potential of agricultural land revenue systems to influence land use must await further research and analysis.

1. Field Studies

A small group of systematic field studies would be very helpful. Both Colombia and Jamaica have been experimenting with various forms of agricultural land revenue systems for over 20 years. Case studies of these two experiences would be valuable contributions to the field.

Bangladesh and Argentina have both recently initiated agricultural land revenue systems with land use objectives. Systematic monitoring of these experiences would, likewise, make valuable contributions to our understanding of the effects of revenue impositions on landowner behavior. (Since Argentina is not a USAID aid-recipient country, perhaps the World Bank could be persuaded to underwrite monitoring there.)

2. International Conference

The time has also come for another international conference on the subject to identify, review, update and synthesize the research and experience of scholars, policymakers and implementing agencies over the last 15 years since the last conference. Interest at the World Bank in the impact of agricultural land revenue systems on agricultural land use has become very lively recently. USAID should consider approaching the World Bank about the possibility of cofinancing such a conference.

3. Decentralization

In the present study, we have not treated the question of the impact of local or regional imposition and administration of the agricultural land revenue system on land use. We are not aware of any empirical information available on this question. Given the recent trend of increasing interest in decentralizing administration and public finance, however, it would be worthwhile to explore the implications of localized agricultural land revenue systems. The most productive context for carrying out this research, of course, would be monitoring a pilot decentralized financial administration project in a particular USAID mission portfolio.

4. High Technology and Study Costs

One real reason for considerable optimism about the possible future use of land registry and taxation for local development is the fact that technological breakthroughs in this area have been made at an incredible rate for about six years. Simple rectified aerial photography can be replaced by much more sophisticated means; enterprises in the Soviet Union and France are offering higher-resolution photos from space than were previously available to consumers from Landsat.

Computer-assisted methods determine locations in a triangulation system faster than ever possible with rod and chain, and computer-assisted tabulation, computation and plotting accelerate all kinds of land information systems. Costs are

falling for the new technology, and we are probably on the eve of a total revolution in cost-effectiveness. Funding may well be available from other federal agencies for relevant geographic information systems research directly applicable to taxes on agricultural land. Thus, the time is perhaps ripe for a new look, blending the wisdom of past experience with the new technical possibilities.

F. Conclusions

There are very few empirical studies of the relationship between agricultural land revenue levies and agricultural land use. Many of the studies that do exist start with an expectation of finding a relationship, but conclude that the data do not support one, usually because the tax rate was too low to provide an effective test of the hypothesis.

There are alternative methods for achieving the objectives of agricultural land revenue systems designed for their incentive effects. They have common requirements, such as reasonably accurate delineation of rights of access to land and water, and institutional arrangements providing reasonable security in those rights.

The main problem with agricultural land revenue systems is mobilizing a political constituency in favor of enactment and, then, applying levies at a high enough rate to have an impact on land use.

Policymakers and programmers should, therefore, experiment further with agricultural land revenue systems to test the possibilities of overcoming the obstacles identified in the present study. However, no concerted, systematic effort should be made at present to implement agricultural land revenue systems in all aid-recipient countries as means to influencing land use.

APPENDIX A

Patterns of Agricultural Taxation: Revenues, and Yield by Type of Tax as a Percentage of Total Tax Receipts

#1/ Country	Year	Amount2/	Percentage of Revenues			
			Personal	Export	Land	Products
AFRICA						
Benin	1979	34,200				
4.1 Recur. Taxes on Immov. Prop.		8	---	---	0.0	---
6.2 Exports		503	---	1.5	---	---
Botswana	1984	416.97				
4.4 Transfer Duty-Landed Prop.		0.67	---	---	0.1	---
6.2 Export Duties		0.61	---	0.1	---	---
(of which, cattle)		(0.49)	---	(0.1)	---	---
Burkina Faso (Ex-Upper Volta)	1984	49,260				
4.4 Land Registr. Tax		94	---	---	0.2	---
4.6 Livestock Tax		54	---	---	---	0.1
6.2 Export Duties		925	---	1.9	---	---
6.6 Tax on Transit of Livestock		48	---	---	---	0.1
Burundi	1981	10,461				
4.1 Recur. Taxes on Immov. Prop.		22	---	---	---	0.2
6.2 Export Duties		179	---	---	1.7	---
(coffee)		(25)	---	---	(0.2)	---

Note: 1981 appears to be atypical. Duties on exports and coffee averaged 1600 and 1400 respectively from 1976-80 and in 1985 were 3963 and 3730 respectively. No total tax revenue data is available from 1982 to the present.

1/ Account numbers in Table A, consolidated central government revenues, in IMF, Government Financial Statistics, 1986, which is the source for this table.

2/ In millions of the respective national currency units, except as noted (B means billions, and T means thousands). The first figure is tax revenues for that year.

#[1] Country	Year	Amount[2]	Percentage of Revenues			
			Personal	Export	Land	Products
Cameroon	1985	809.95B				
4.1 Recurrent Tax on net wealth		3.65	0.5	---	---	---
6.2 Export Duties		20.31	---	---	2.5	---
Central African Republic	1981	28,264				
4.1 Recur. Taxes on Immov. Prop.		32	---	---	---	---
6.2 Wood Exports		194	---	0.7	---	---
Cotton Exports		20	---	0.1	---	---
Coffee Exports		340	---	1.2	---	---
Chad	1976	12,823				
4.1 Recur. Taxes on Immov. Prop.		30	---	---	0.2	---
6.2 Export Tax		1,280	---	10.0	---	---
Congo	1980	97.26				
4.1 Recur. Taxes on Immov. Prop.		0.03	---	---	0.0	---
6.1 Export Duties		0.25	---	0.3	---	---
Ivory Coast	1980	454,255				
4.1 Recur. Taxes on Immov. Prop.		3,408	---	---	0.8	---
Surtax on Land		63	---	---	0.0	---
6.2 Export Duties		51,034	---	11.2	---	---
(on timber)		(13,385)	---	(2.9)	---	---
Djibouti	1980	13,803				
4.1 Recur. Taxes on Immov. Prop.		288	---	---	0.2	---
6.2 Export Duties on Cattle		3	---	0.0	---	---
Egypt	1985	8,200				
4.1 Recur. Taxes on Immov. Prop.		47	---	---	0.6	---
6.2 Export Duties		3	---	0.0	---	---

#1/ Country	Year	Amount2/	Percentage of Revenues			
			Personal	Export	Land	Products
Ethiopia	1980	1,344.8				
4.1 Recur. Taxes on Immov. Prop.		48.3	---	---	3.6	---
6.2 Export Duties		333.5	---	24.8	---	---
Gabon	1976	143.26 B				
4.1 Recur. Taxes on Immov. Prop.		.01	---	---	0.0	---
6.2 Export Duties		4.06	---	2.8	---	---
The Gambia	1982	78.81				
6.2 Export Duties		3.77	---	4.8	---	---
Ghana	1985	31,918				
4.1 Recur. Taxes on Immov. Prop.		25	---	---	0.1	---
6.2 Export Duties		9,172	---	28.7	---	---
Kenya	1984	15,987				
4 Taxes on Property		12	---	---	0.1	---
6.2 Export Duties		201	---	1.3	---	---
Note: Local Gov't. collects 595 in taxes, of which 441 is from property tax.					2.7 (local tax as % of total taxes including local tax receipts.)	
Liberia	1986	172.7				
4.1 Recur. Taxes on Immov. Prop.		1.1	---	---	0.7	---
Madagascar	1982	126,567				
4.1 Recur. Taxes on Immov. Prop.		77	---	---	0.1	---
5.2 Tax on Sugar Prod.		84	---	---	---	0.1
6.2 Export Duties		5,070	---	4.0	---	---
Malawi	1984	296.26				
4 Taxes on Property		.16	---	---	0.1	---

#1/ Country	Year	Amount2/	Percentage of Revenues			
			Personal	Export	Land	Products
Mali	1983	100,964				
4.1 Recur. Taxes on Immov. Prop.		1,178	---	---	1.2	---
4.6 Tax on Livestock		1,528	---	---	---	1.5
6.2 Export Duties		2,174	2.2	---	---	---
Mauritania	1979	4,937				
4 Property		50	---	---	1.0	---
6.2 Export Duties		62	---	1.3	---	---
Morocco	1984	22,933				
4.1 Recur. Taxes on Immov. Prop.		29	---	---	0.1	---
6.2 Export Duties (excluding minerals)		71	---	0.3	---	---
Niger	1980	65,435				
4.1 Recur. Taxes on Immov. Prop.		29	---	---	0.0	---
6.2 Export Duties (excluding minerals)		2,153	---	3.3	---	---
Nigeria	1978	5,155.9				
6.2 Export Duties		1.5	---	0.0	---	---
Rwanda	1980	11,874				
4.1 Recur. Taxes on Immov. Prop.		59	---	---	0.5	---
4.2 Net Wealth		88	0.7	---	---	---
6.2 Export Duties		2,636	---	22.2	---	---
Senegal	1983	167.8 B				
4.1 Recur. Taxes on Immov. Prop.		1.47	---	---	0.9	---
6.2 Export Duties		1.04	---	0.6	---	---
Sierra Leone	1985	285.5				
6.2 Export Duties (excluding diamonds)		3.7	---	1.4	---	---
Somalia	1978	1,153.2				
4 Taxes on Property		44.7	---	---	3.9	---
6.2 Export Duties		17.3	---	1.5	---	---

#1/ Country	Year	Amount2/	Percentage of Revenues			
			Personal	Export	Land	Products
The Sudan	1982	673.3				
4.1 Recur. Taxes on Immov. Prop.		1.8	---	---	0.3	---
6.2 Export Duties		33.3	---	4.9	---	---
Tanzania	1984	13,480				
4.1 Recur. Taxes on Immov. Prop.		16	---	---	0.1	---
6.2 Export Duties		12	---	0.1	---	---
Togo	1985	82,721				
4.1 Recur. Taxes on Immov. Prop.		77	---	---	0.1	---
6.2 Export Duties		957	---	1.2	---	---
Tunisia	1984	1,652.2				
4.1 Recur. Taxes on Immov. Prop.		0.7	---	---	0.0	---
6.2 Export Duties		14.0	---	0.8	---	---
Uganda	1985	162,092				
6.2 Export Duties		96,090	---	59.3	---	---
(coffee)		(94,174)	---	(58.1)	---	---
(cotton)		(1,916)	---	(1.2)	---	---
Zaire	1984	23,837.5				
4.1 Recur. Taxes on Immov. Prop.		7.1	---	---	0.0	---
(buildings)		(5.3)	---	---	0.0	---
(land)		(1.8)	---	---	0.0	---
6.2 Export Duties (excluding minerals)		360.6	---	0.3	---	---
Zambia	1984	1,017.4				
4 Property		2.2	---	---	0.2	---
6.2 Export Duties (largely copper)		94.5	---	9.3	---	---
Zimbabwe	1984	1,827.8				
4 Property		8.4	---	---	0.5	---

#[1] Country	Year	Amount[2]	Percentage of Revenues Personal	Export	Land	Products
ASIA						
Bangladesh	1983	22,713				
4						
4.1 Land Revenue		237	---	---	1.0	---
6.2 Export Duties		107	---	0.5	---	---
India	1984	238.14B				
4.1 Recur. Taxes on Immov. Prop.		1.00	0.4	---	---	---
6.2 Export Duties		.94	---	0.4	---	---
(coffee)		(.48)	---	(0.2)	---	---
Note: State and regional tax revenue = 103.97 of which 1.78 is property tax.						
Indonesia	1984	15,221B				
4.1 Recur. Taxes on Immov. Prop.		157	---	---	0.1	---
6.2 Export Duties		91	---	0.6	---	---
Iran	1984	1,188.6B				
4.1 Recur. Taxes on Immov. Prop.		8.0	---	---	0.7	---
Jordan	1984	285.77				
4.1 Recur. Taxes on Immov. Prop.		.20	---	---	0.1	---
Korea, Rep. of	1985	12,105.2B				
4 Taxes on Property		80.1	---	---	0.7	---
Malaysia	1984	17,131				
4 Taxes on Property		88	---	---	0.5	---
6.2 Export Duties						
Rubber		161	---	1.0	---	---
Palm Oil		193	---	1.1	---	---
Pepper		6	---	0.0	---	---
Others		1,688	---	9.9	---	---
(excluding minerals)						

#1/ Country	Year	Amount2/	Percentage of Revenues			
			Personal	Export	Land	Products
Nepal	1985	3,171.9				
4.1 Recur. Taxes on Immov. Prop.		88.9	---	---	2.8	---
6.2 Export Duties		55.6	---	1.8	---	---
Pakistan	1984	55,701				
4 Property on Taxes		181	---	---	0.3	---
4.2 Recur. Wealth		171	0.3	---	---	---
6.2 Export Duties		458	---	0.8	---	---
Note: State Gov't. collected 5764 in 1976 (not disaggregated)						
The Philippines	1985	61,192				
4.1 Recur. Taxes on Immov. Prop.		122	---	---	0.2	---
6.2 Export Duties		997	---	1.6	---	---
Note: Local Gov't. taxes = 2,617 of which 1471 are from property taxes.						
Sri Lanka	1984	31,629				
4 Taxes on Property		93	---	---	0.3	---
4.2 Net Wealth		45	0.1	---	---	---
6.2 Export Duties		3,589	---	11.3	---	---
(other levels of gov't. = tax. rev. 279)						
Thailand	1985	144,483				
4 Taxes on Property		2,152	---	---	1.5	---
6.2 Export Duties		2,615	---	1.8	---	---
Note: Local Gov't. collect 8292 in taxes of which 1664 is property taxes.						
Turkey	1985	3,981.8 B				
4.1 Recur. Taxes on Immov. Prop.		29.9	---	---	0.8	---

#[1] Country	Year	Amount[2]	Percentage of Revenues Personal	Export	Land	Products
LATIN AMERICA						
Argentina	1984	705,006 T				
4.2 Recur. Taxes on Immov. Prop.		15,487	2.2	---	---	---
5.2 Emerg. Tax on Agric. Production		112	---	---	---	0.0
5.3 Taxes on Sale of Cattle		1,145	---	---	---	1.5
6.2 Export Duties		60,516	---	8.6	---	---
Barbados	1984	600.7				
4.1 Recur. Taxes on Immov. Prop.		22.9	---	---	3.8	---
6.2 Export Duties		0.9	---	0.1	---	---
Belize	1984	94,131 T				
4.1 Land Tax (rural land utilization tax)		580	---	---	0.6	---
6.2 Export Duties		2,136	---	2.3	---	---
Bolivia	1984	572.5				
4.1 Recur. Taxes on Immov. Prop.		0.4	---	---	0.1	---
6.2 Export Duties		0.1	---	0.0	---	---
Brazil	1984	60,733 B				
1.2 N+NE Land Programs		487	---	---	0.8	---
4.1 Recur. Taxes on Immov. Prop. Rural Prop.		42	---	---	0.7	---
5.2 Sugar and Alcohol		517	---	---	---	0.9
6.2 Export Duties		2,390	---	3.9	---	---
(includes quota contribution on coffee exports 1743)			---	(2.9)	---	---
Chile	1985	570.91		n.a.		
(Recur. Taxes on Immov. Prop. were approx. 2.50 from 1976-80, 1984, but reported 0 in 1981, 82, 83, 85). No explicit export taxes.						
Colombia	1983	291,238				
4.1 Recur. Taxes on Immov. Prop.		859	---	---	0.3	---
6.2 Export Duties		3,800	---	1.3	---	---

#1/ Country	Year	Amount2/	Percentage of Revenues			
			Personal	Export	Land	Products
Costa Rica	1983	26,768.5				
4.1 Recur. Taxes on Immov. Prop.		35.1	---	---	0.1	---
5.2 Excise Taxes						
Sugar		2.7	---	---	---	0.0
Coffee		749.4	---	3.0	---	---
6.2 Export Duties		3,350.4	---	12.5	---	---
(Sugar)		(53.2)	---	(0.2)	---	---
(Bananas)		(1,795.6)	---	(6.7)	---	---
(Ad. Valorem Exp.)		(1,482.6)	---	(5.5)	---	---
Note: Another 835.1 is collected by local gov't., 50% from property tax and 50% from tax on goods and services.			---	---	(1.5)	---
Dominica	1979	31.52				
4.2 Recur. Taxes on Net Wealth		5.44	17.3	---	---	---
6.2 Export Duties		.36	---	1.1	---	---
Dominican Republic	1984	1,093.3				
			---	---	0.0	---
6.2 Coffee & Cocoa Exports		19.1	---	1.7	---	---
Ecuador	1984	95,813				
4.1 Recur. Taxes on Immov. Prop. (10% on Rural Prop.)		23	---	---	0.0	---
6.2 Non-oil Export Duties		61	---	0.1	---	---
Note: State and regional taxes only 1,729 and no details.						
El Salvador	1985	1,698.8				
4.1 Recur. Taxes on Immov. Prop.		5.5	---	---	0.3	---
4.2 Recur. Tax on Net Wealth		58.9	3.5	---	---	---
6.2 Export Duties		362.7	---	21.4	---	---

#[1] Country	Year	Amount[2]	Percentage of Revenues Personal	Export	Land	Products
Guatemala	1982	750.19				
4.1 Recur. Taxes on Immov. Prop.		5.77	---	---	0.6	---
6.2 Export Duties		48.90	---	6.5	---	---
(Coffee)		(35.92)	---	(4.8)	---	---
(Bananas)		(11.12)	---	(1.5)	---	---
(Cotton)		(1.30)	---	(0.2)	---	---
(Sugar)		(.16)	---	(0.0)	---	---
Guyana	1985	807.6				
4.1 Recur. Taxes on Immov. Prop.		10.4	---	---	1.3	---
6.2 Export Duties		6.7	---	0.8	---	---
Haiti	1985	1,074.3				
4.1 Recur. Taxes on Immov. Prop.		0.3	---	---	0.0	---
6.2 Export Duties		61.0	---	5.7	---	---
Honduras	1981	699.1				
4 Taxes on Property		6.7	---	---	1.00	---
6.2 Export Duties		113.9	---	16.3	---	---
(Bananas)		(45.5)	---	(6.5)	---	---
(Coffee)		(48.5)	---	(6.9)	---	---
Jamaica	1981	1,586.1				
4.1 Recur. Taxes on Immov. Prop.		28.8	---	---	1.8	---
4.2 Rec. Net Wealth		3.4	0.2	---	---	---
Mexico	1984	4,338.3B				
4 Taxes on Property		0.2	---	---	0.0	---
6.2 Export Duties		2.0	---	0.0	---	---
Note: State and regional gov'ts. collect 273 in taxes of which 14 is on property taxes.						
Nicaragua	1983	9,763				
4.1 Recur. Taxes on Immov. Prop.		44	---	---	0.5	---
6.2 Export Duties		5	---	0.1	---	---

#1/ Country	Year	Amount2/	Percentage of Revenues			
			Personal	Export	Land	Products
Panama	1982	874.1				
4.1 Recur. Taxes on Immov. Prop.		18.3	---	---	2.1	---
6.2 Export Duties		14.9	---	1.7	---	---
Paraguay	1985	114,042				
4.1 Recur. Taxes on Immov. Prop.		5,137	---	---	4.5	---
(Rural Prop.)		(2,487)	---	---	(2.2)	---
6.2 Export Duties		13	---	0.0	---	---
(previous 10 yr. ave. = 350)						
Peru	1982	2,352.8B				
4 Taxes on Property		154.4	---	---	6.6	---
4.2 Net Wealth		75.9	3.2	---	---	---
6.2 Export Duties		159.2	---	6.8	---	---
Trinidad & Tobago	1981	5,993.0				
4.1 Recur. Taxes on Immov. Prop.		8.6	---	---	0.1	---
Uruguay	1985	104,269				
1.1 Tax on Agric. Activities		614	---	---	---	0.1
1.3 Tax on Agric. Income		1,089	---	---	---	1.0
4.1 Recur. Taxes on Immov. Prop.		4	---	---	0.0	---
6.2 Export Duties		846	---	0.8	---	---
(Livestock By-products)		(728)	---	(0.7)	---	---
(Lamb meat)		(118)	---	(0.1)	---	---
Venezuela	1984	89,647				
4 Taxes on Property		739	---	---	0.8	---

APPENDIX B

USAID Support for Cadastral Surveys and Similar Programs

What follows is a list of unpublished materials in the USAID library, obtained in a computer-assisted search undertaken upon request by PPC, for projects concerning cadastral surveys, land registration and titling, and land taxation. The list is not complete, as it excludes both published material and a number of projects or evaluations that, for whatever reason, are not in the AID/Washington library or were not retrieved by the computer search (for example, any material concerning the reassessment of 1961-65 in Chile, and at least one mid-project evaluation of a land resettlement and titling program in Costa Rica). However, some of the missing items are listed in Appendix C.

Table B-1

SOME COUNTRIES AND PROJECTS FUNDED BY USAID IN CADASTRAL SURVEYS, LAND REGISTRATION OR TITLING, AND LAND TAXATION

COUNTRY	YEARS	PROJECT
Afghanistan	1964-65	Cadastre & land taxation.
	1965-66	Cadastral, tax & administrative programs.
	1970	Cadastral programs.
Bolivia	1970-71	Owner-operators' individual property rights; titling; review of land reform
	1975	Rural land ownership.
Brazil	1964-68	Western 2/3 of Brazil-resources survey project of Frontier Homestead Program.
Colombia	1970	Property inventory/maps & property tax.
	1971-74	Cadastral loan.
Costa Rica	1974	Cadastral program, property tax improvement, land reform, natural resource inventories.
	1964	Tax mapping/appraisal & topographic mapping projects.
	1971-74	Final eval. of Farm Devel. Program.
	1980	Agrarian settlement & productivity.
El Salvador	1975	Preparation of training material, instructors, & land valuation courses.
	1977	National cadastre.
Guatemala	1967	Property tax development loan.
	1974	Cadastral program, property tax improvement, land reform, natural resource inventories.
Honduras	1970	Rural land inventory & agric. project development.
	1974-80	National cadastre program.
	1980	Choluteca watershed natural resource management.
	1982	Evaluation of rural land titling.
	1982-85	Small farmer titling project.
Indonesia	1973, 83	Land mapping, titling & registration.
Jamaica	1972-74	Cadastral demonstration.
	1974-77	National cadastre loan project.

Table B-2 (continued)

COUNTRY	YEARS	PROJECT
Liberia	1982-86	Increased revenue for development.
Nicaragua	1974	Cadastral program, property tax improvement, land reform, natural resource inventories.
Panama	1974	Cadastral program, property tax improvement, land reform, natural resource inventories.
	1977	Integrated rural development.
Paraguay	1973-81	Cadastral survey & property tax development/improvement.
	1980	Cadastral survey property.
Peru	1978-82	Evaluation review: Sub-tropical Land Devel. Project.
	1979-85	Integrated regional development.
	1982	Central Selva/Palcazu Valley resource management.
Philippines	1975-77	Agrarian reform support.
St. Lucia	1983	Agriculture structural adjustment to remove key sector constraints. (Includes land cadastre and titling, and individualization of undivided family parcels.)
Senegal	1986	African econ. policy reform program.

Drewes, Wolfram U. Cadastre. USAID, Bur. for Program and Policy Coordination. AID Spring Review of Land Reform: Analytical Paper. 11(12):1970.

Platt, Kenneth B. Cadastral Surveys. USAID, Bur. for Program and Policy Coordination. AID Spring Review of Land Reform: Analytical Paper. 11(12):1970.

Regional Conference on Housing in Africa. USAID, Bur. for Development Support. Office of Housing. Regional Conference on Housing in Africa. Abidjan. Vol. 7. 86p. April 20-24, 1980.

Goldstein, Bernice A. Inter-Country Evaluation of Cadastral Programs: Costa Rica, Guatemala, Nicaragua, and Panama. USAID, Bur. for Latin America. Office of Development Programs. Program Evaluation Studies. June, 1974. 29p.

Reviews the status of AID supported cadastral programs in Central America, including the background of such programs, a summary of implementation and goals accomplished, and the major problems of past programs. The need for more precision in definition of purpose, a narrower focus for the study, improved project design, and integration into a comprehensive country program strategy are stressed. The relation of the cadastral program to property tax improvement, land reform, and natural resources inventories is discussed. A "phased" approach is suggested under which a scaled down version of a complete program would be required before going on to a second and expanded phase. A detailed accounting of the purpose, implementation, and accomplishments of project goals in Costa Rica, Guatemala, Nicaragua, and Panama is also presented. The program came closest to meeting project goals in Nicaragua and Guatemala.

USAID, Bur. for Technical Assistance. Office of Agriculture and Fisheries. Land Reform: A Selected List of References for AID Technicians. USAID, Bur. for Program and Policy Coordination. AID Reference Center. Agriculture 4(1). 51p. May 1, 1970.

Layton, Robert E. Evaluation of Contract Performance Public Administration Service: Report Control. USAID, Bur. for Near East. Kabul, Afghanistan. 3p. July 29, 1965.

Evaluates project performance from 4/15/64 to 10/15/64 in Afghanistan. Project assists the Royal government of Afghanistan (RGA) to: 1) train surveyors, and 2) establish rates and methods of collecting real estate taxes. Evaluation methodology not specified.

Evaluator feels contractor has a clear understanding of the scope and nature of contract objectives and has demonstrated good leadership both in Afghanistan and at its home office. Adequate, realistic goals in accounting, budget and revenue have been developed which assure completion of contract objectives on schedule. Contractor has performed efficiently by: adopting effective methods of selection, use, inspection and maintenance of equipment submitting all required reports promptly and efficiently compiled; and developing harmonious, satisfying working relationships between RGA and mission staffs.

Obstacles to contract success have been largely eliminated. RGA has passed a new income tax and land law. Three accounting teams have visited and given on-the-job training in seven provinces and eight ministries. Budget manual has been revised to incorporate more sophisticated techniques. Training of 400 surveyors will soon be completed who will: 1) assist the RGA survey public lands, and 2) function in the new land registration offices. Evaluator feels local managers and operators will be able to assume management of this project after contract termination.

Layton, Robert E. Evaluation of Contract Performance Public Administration Service: Report Control. USAID, Bur. for Near East. Kabul, Afghanistan. 5p. November 16, 1966.

Evaluates project performance from 7/1/65 to 11/16/66 in Afghanistan. Project aids RGA to develop financial and administrative techniques to run RGA's cadastral, tax and administrative programs.

Evaluator feels contractor has a clear understanding of the scope and nature of contract objectives and has demonstrated good leadership both in Afghanistan and its U.S. office. Adequate, realistic goals have been developed which assure completion of contract objectives on schedule. Contractor has performed well by: adopting effective methods of selection, use, inspection and maintenance of equipment; and developing harmonious, satisfying working relationships with RGA and mission staffs.

Courses in land registration and classification have been added to the cadastral survey school (CSS) which has graduated 16 students during evaluation period and 322 students since project's beginning. Training goals fall short by 78 students due to recent low registrations and dismissals for academic reasons. RGA plans to increase enrollment during next registration period and train locals to fill positions being vacated by four filipino instructors in 1967.

Total surveying operations have improved. The cadastral survey has established a geodetic control traverse around Kabul. Methods have been developed to produce quick evaluations of low value land, leaving the detailed work for later. Kandahar office, staffed by CSS graduates, will open in November. The Ministries of Real Estate, Justice and Finance have agreed on the principles and first registration which, if successful, will be used in all provinces.

Under contractor leadership, preparation and submission of daily expenditures have improved; the accounting department has submitted its first quarterly and semiannual financial report; the pcv-sys division team is now free to audit reports and eliminate difficulties; PAS has designed forms and procedures to assist the treasury department in selling and redeeming government bonds; and the revenue advisor position has been filled which should allow income tax law implementation during the next period.

Evaluator feels adequate actions are being made to enable Afghanistan to administer project after contract termination.

Layton, Robert E. Evaluation of Contract Performance Public Administration Service: Report Control. USAID, Bur. for Near East. Kabul, Afghanistan. 5p. June 15, 1966.

Evaluates project performance from 7/1/65 to 6/15/66 in AFghanistan. Project aids RGA to develop financial and administrative techniques to run RGA's cadastral, tax and administrative programs more efficiently.

Evaluator feels contractor has a clear understanding of the scope and nature of contract objectives and has demonstrated good leadership both in Afghanistan and its US office. Adequate, realistic goals have been developed which assure completion of contract objectives on schedule. The Ministry of Finance (MOF) has hired more staff and is engaged in training personnel from other RGA agencies. The new MOF junior advisor has designed and installed a new central accounting structure for Kabul University. MOF on-the-job training visits to various RGA agencies resulted in a 90% completion rate (previously 60%) of daily expenditure reports prepared by RGA agencies. The lack of aa feasible classification plan and administrative organization to administer land classification has been eliminated with the completion and RGA's acceptance of the Land Registration Manual (LRM) and Arable Land Classification Manuals. These manuals pave the way for a modern cadastral system in Afghanistan. The LRM defines steps in land registration processes; settlement of land disputes; conveyancing;

recording rights and encumbrances of both individuals and RGA; and limitations of land ownership.

Under contractor leadership, the first provincial land registration offices will be opened in 1966 in Kandahar, Helmand, and Kabul, with plans to soon open others in Ghanzi and Kunduz. Offices will be manned by the first cadastral surveyors which have been graduated and given career civil service positions.

The Machine Records Division has developed good ledgers and is preparing reports for the Accounting Department; year-end closing and request cash procedures have been designed, improved and installed; Agency Budget officers were trained in the use of the new budget manual; and new income tax laws have been defined in an income tax manual.

Evaluator feels RGA will be able to administer program on its own after contract termination.

Layton, Robert E. Evaluation of Contract Performance Public Administration Service: Report Control. USAID, Bur. for Near East. Kabul, Afghanistan. 6p. November 20, 1967.

Evaluation period April 15, 1967 to October 15, 1967.

Crain, Lawrence. Evaluation of Contractor Performance (U- 367). Public Administration Service. USAID, Bur. for Near East. Kabul, Afghanistan.

Evaluates project performance from 4/15/70 to 10/15/70 in Afghanistan. Contractor aids RGA to develop its cadastral program through personnel training and advisory services. Evaluation methodology based on observations, reports and discussions with staff.

Evaluator feels contractor has complied with all contract requirements and performed well by maintaining good working relations with USAID/Afghanistan and RGA. All contractor reports have been on time and good leadership is apparent.

RGA's cadastral system has improved during this evaluation period. Scheduled land surveys will easily be completed by the end of the five-year contract. Suggestions of a new PAS advisor, similar with real property taxation and RGA revenue administration, has resulted in substantial recommendations for change in the project with a phase-out of technical assistance in the survey program. The advisor's placement in the Ministry of Finance (MOF) enabled him to improve administrative change in tax purposes with a new SLB project being responsible for the entire range of revenue administration in the MOF. Advisor's recommendations are to

transfer land surveys to the USAID engineering division upon termination of the land inventory project in 9/71.

The final 172 students, to be graduated 3/71, have been enrolled in the cadastral survey training program. AFter this 1971 graduation manpower requirements of the cadastral survey organization will be sufficient for several years. No new employees will be recruited until after at least two years work experience of the 1971 class. A selected number of Afghan surveyors are presently receiving additional training in the U.S., plans are to provide six additional surveyors with microfilming training in Iran and train two surveyors locally concerning instrument repair and maintenance techniques.

Auburn, J. E. Public Administration Improvement. USAID, Bur. for Near EAst. Kabul, Afghanistan. 17p. February 25, 1963.

Korin, Michael. Agrarian Reform. USAID, Bur. for Asia. Manila, Philippines. May 10, 1977.

7/75-4/77. Difficulties in inter- and intra-agency coordination have hindered Philippine performance. Agrarian reform research delayed by lack of funding release. End-of-project conditions changed: certificates of land transfer increased to 75%; production data of 2500 barrio committees on land production approved; 20% landowner compensation claims paid.

Rushing, Keven A. and Ir Soepranowo. Land Mapping, Titling and Registration. USAID, Bur. for Asia. Jakarta, Indonesia. 53p. May 31, 1983.

Evaluates project to upgrade the land mapping, titling, and registration (LMTR) capability of the Directorate of Land Registration (DLR) of Indonesia's General Agrarian Directorate (DGA). PES covers the period 8/81-3/83 and is based on document review and discussions with USAID/Indonesia and DLR personnel and U.S. Bureau of Land Management (BLM) contractors.

On the basis of performance to date, achievement of objectives is unlikely within the 1.5 years left in the project. A comprehensive report describing Indonesia's current LMTR system and outlining project implementation activities was completed in 8/82, but only 21 of the 50 activities outlined in the report have been completed or are in progress. Specifically, a completely improved and testable LMTR package has yet to be developed, and work has only begun on developing a revised DGA/DLR organizational scheme; it is highly probable that the government will reject the latter

when developed. Further, findings indicate that except where operating in concert with national programs, LMTR activities provide few if any socioeconomic benefits to the rural population (the project's beneficiary goal) and fail to increase the access of the rural population to land resources (sector goal).

The key implementation problem has been extensive delays in contracting the BLM and in the arrival of a full BLM team on site; action should have been taken early on against BLM/W's failure to respond to USAID/Indonesia requests in line with the provisions of the contract. Other major problems have been postponement of the training of DGA/DLR personnel pending specific personnel assignments and lack of focus and leadership in on-site project management. Anent the latter, the DLR director delegated the project officer's responsibilities to two less qualified individuals, and an unqualified mapping specialist replaced the original BLM team leader when he was forced to leave for medical reasons. BLM-DLR project management meetings have been held only on an ad hoc basis and project status reports not prepared regularly.

Subsequent to the evaluation, the USAID/Indonesia director determined that the project should be terminated, and all goods and services provided by 9/83.

Sadler, Lloyd E. Mapping and Surveying for Land Mapping, Titling and Registration Projects. USAID, Bur. for Asia. Jakarta, Indonesia. 24p. May 28, 1983.

Agrarian Reform (PAR of 6/17/71). USAID, Bur. for Latin America. La Paz, Bolivia. 4p. June 17, 1971.

Evaluates project to institutionalize the individual property rights of owner-operators in Bolivia by issuing land titles. Evaluation covers the period 7/28/70-6/2/71. No methodology is specified.

The planning and execution of this project by both USAID/Bolivia and the National Agrarian Reform Service (NARS) has generally been excellent--the Government of Bolivia have been very cooperative and has given the project high priority; deficiencies in commodity records and controls detected by USAID/Bolivia at the NARS warehouse are being corrected; and procedures from the 1953 Agrarian Reform Act are being followed. However, because USAID has not ordered commodities during periods of political upheaval, project implementation has been delayed. Only 90 of a planned 162 personnel and 10 of 18 mobile units are in the field. Soils specialists attached to mobile units received training from the British Tropical Agriculture Mission. Personnel have

been trained in automated title registration and certification, and the system will be operational by late FY 1972. All important equipment, including the computer, perforators, and sorters, are operating. Due to the magnitude of the work involved, preparation of the agro-ecological map started late.

Agrarian Reform (PAR of 7/18/70). USAID, Bur. for Latin America. La Paz, Bolivia. 10p. July 28, 1980.

Evaluates project to distribute land titles to Bolivian peasants living on but lacking title to land received under the 1953 Land Reform. Evaluation covers FY 1970. No methodology is specified.

The project is being implemented successfully and there are no apparent obstacles to achieving targeted outputs by 1975. Mobile units were effective in establishing boundaries and mitigating conflicts in rural areas. Nine additional mobile land titling units were delayed in shipping but will be in service by FY 1971. A delay in the processing of titles--only 20,000 of a planned 60,000 titles were distributed--due to remodeling for a larger computer will be remedied with the computer's final installation in early FY 1971. A signature machine has been installed. The Government of Bolivia has been very supportive in providing basic staff salaries, counterpart funds and establishing the National Agrarian Reform Service (NARS).

An attempt to shift the project from a regional to a country contract failed to adhere to AID administrative requirements, but a contract representative has eliminated these problems. Although NARS initially lumped together donations and financial records with little attention to the value of location of funds, a new control system was implemented in 3/70. As campesinos are only just now receiving their titles, it is too early to judge how many will be able to obtain credit--a key indicator of the project's true success and lasting impact. The evaluators conclude that this is one of the best land reform operations in Latin America and that a picture story on the mobile units could be of use.

Clark, R. and Peter Kolar. Agricultural Refinancing Fund. USAID, Bur. for Latin America. La Paz, Bolivia. 10;. May 26, 1969.

Grant is provided to the Government of Bolivia to distribute titles of land ownership to 300-350,000 rural families by 6/75. The project will be implemented by the National Agrarian Reform Service, a semi-autonomous public agency.

The Mobile Unit pilot project, presently operating with six units of agrarian judges and topographers who determine property rights and distribute titles to peasant families, will be expanded to 18 units. The units will be instrumental in resolving 8,000 pending cases of land expropriation and distributing titles to 200-225,000 peasant families, landlords who have retained part of their property, and 100-125,000 families living in free-holding communities (i.e., where land is owned in the name of the community). Mobile units will be deployed based on the number of requests for the area's importance in the proposed wheat and wool programs, and the area's development programs, agricultural extension offices, and peasant organizations.

Computers will be rented and modern registry and certification services will be implemented to speed the drawing-up and issuing of titles. USAID will issue a monthly publication and broadcast short Aymara- and Quechua-language radio spots to inform the rural population of available development institutions and services. The 8-10,000 landlords who retain part of their previous holdings will be encouraged to sell out or to work their land more intensively. The project will result in security for peasants, promote capital improvements, increase access to credit, and facilitate rural development programs.

Funicello, A. Review of Agrarian Reform PAR dated July 28, 1970. USAID, Bur. for Latin America. 2p. November 27, 1970.

Outgoing airgram of 11/70 reviews PAR (PD-AAH-446-B1) of Bolivian Agrarian Reform Project. AID/Washington's evaluation panel reviewed the PAR to improve its use as a management tool.

There is a lack of output indicators and quantifiable data with which to measure the project's success in achieving its goals and end-of-project status, i.e., the lack of records of campesino's cash income prior to project implementation makes it impossible to identify increases that may be attributable to the project. The evaluation's statement that campesinos will need a source of agricultural credit and technical assistance once land titles have been provided calls into question the whole project purpose of raising rural incomes through processes set in motion by the issuance of land title relationship with the availability and flow of agricultural credit in Bolivia in order to assist in clarifying how to achieve project goals.

Hockensmith, Roy D. Resources Survey Project of the Frontier Homestead Program Ministry of Agriculture. Brazil. 42p. June 27, 1968.

Evaluates project performance from 1964-68 in Brazil. Project was responsible for a schematic map of the western two-thirds of Brazil identifying agricultural areas, soil and interpretive maps with supporting text, reconnaissance soil surveys of areas promising for agriculture, and 60 to 100 field technicians for the division of pedology and soil fertility (DPFS). On-site evaluation was made.

Progress has been reasonable. Despite stoppages in recruitment and fieldwork due to inadequate funding. The resulting schematic soil map and three interpretive maps with text are expected to have a far-reaching influence on Brazil's development. The four maps were used prior to publication of the text to plan colonization, agricultural development, and locate highways into Brazil's interior. There is still a need to locate high fertility land with adequate access to markets, climate, vegetation, surface water, etc. Unfortunately, budgetary and personnel restrictions have reduced the areas of land available for study. Selected farmers in survey areas have been consulted as to agricultural capacities but they have not freely responded to questions.

Although staffing has been slower than expected due to inadequate funding, Brazil's soil scientists now have adequate competency to handle most problems without U.S. help. DPFS's staff is to be increased and in-service training provided for more staff.

Evaluator recommends that: schematic maps with accompanying interpretive maps for the eastern 1/3 of Brazil be prepared with DPFS responsible for development, maintenance, and coordination of the national system of soil classification and correlation; research results obtained from experimental areas be correlated with soil types; and size, scope and effectiveness of soil staffs be increased within the Ministry of Agriculture.

USAID. Cadastral Loan. Colombia. December 31, 1970.

Colombia established an effective inventory of property and improved the property tax structure. Inventory established: 1) accurate property maps, based on an identification of property boundaries; 2) equitable property evaluation, to form basis for modern tax assessments; and 3) modern property register system based on cadastral information. 97% of properties have been inventoried concurrently in each department and municipio.

Gregg, Alexander and Paul W. Fritz. Review of Cadastral Loan 514-062. USAID, Bur. for Latin America. Bogota, Colombia. March 8, 1974.

Evaluates project performance from 1971-74 in Colombia. Loan was to implement the cadastral improvement program. Evaluation methodology not clearly defined; field office at Bucaramanga visited.

IGAC is an organization responsible for helping the National Cadastre Department (NCD) prepare topographic maps of Colombia and carry-out specific projects requested by the Government of Colombia (GOC) and clients. Although IGAC has now equipped NCD with four well-qualified consultants, their placement was slow due to IGAC's lack of timely decisions and frequent changes in GOC personnel. Organizational improvements and implementations made are: replacement of the ad hoc committee with a permanent division in the Planning Office; redistribution of functions in the cartography department to facilitate production planning; control and strengthening of field offices.

Overall planning is weak and still needs considerable work to be satisfactory. Cadastral policy development has been slow due to great lack of communication between officials and staff, personality conflict with the IGAC, and unwillingness of the Director of Administration (DA) to share his AID procurement responsibilities or knowledge with the NCD.

Evaluator's recommendations to improve communications and administrative practices were to: organize weekly procurement task force meetings; develop a detailed reporting system of information maintained by the DA with recommendations approved by task force; require all AID communications be directed through the director of NCD; increase communication between Bogota and field offices; devise consultant work plans; establish yearly work forecasts; develop field-office reporting forms; revise draft bid documents; establish financial monetary system to control loans procured; require IGAC to produce monthly and quarterly reports; use AID project manager as a catalyst to promote exchange between IGAC and other agencies; facilitate redistribution of cadastral information. Other recommendations were to develop photo indexes, edge tie designations, stereoscopic contract prints to identify property boundaries, and improve detail coordination between maps.

USAID. Costa Rica Cadastral Survey. USAID, Bur. for Latin America. San Jose, Costa Rica. 26p. April 20, 1964.

Project to help the Government of Costa Rica (GOCR) to accelerate tax mapping/appraisal and topographic mapping projects. Property identification maps and valuation

appraisals will be completed for an area which contains 90% of Costa Rica's taxable value. Topographic mapping, when completed, will be used for public works/land use planning. The GOCR's Direct Tax Appraisal Division and its Instituto Geografico will implement the project.

Final Evaluation of the Farm Development Program; 1971-1974. Academia de Centro America, San Jose. 105p. December 26, 1975.

The Farmer Development Program had three objectives: 1) to strengthen existing institutions; 2) to create new institutions; and 3) to coordinate the diverse participating agencies. The Ministry of Agriculture and Livestock, the University of Costa Rica, and six other public institutions had responsibilities for different project tasks which included: 1) reorganization of small farmer services; 2) coordination of the agricultural sector; 3) adoption of evaluation techniques; 4) credit programs; 5) sale of and title to land; 6) seed laboratory; 7) nutrition technology laboratory; and 8) encouraging the cooperation of farmers. Major shortcomings encountered were: 1) the Ministry of Agriculture and Livestock did not give adequate support to program and regionalization activities; 2) correspondent banks did not increase the availability of credit to small farmers; 3) the Ministry of Agriculture and Livestock did not coordinate its activities with other institutions; 4) personnel responsible for developing cooperatives did not have the necessary skills to administer cooperatives or develop satisfactory relations with other institutions; 5) the National Production Council was reluctant to accept administrative reforms and it performed poorly in the grain storage project; and 6) the community development institution was unable to coordinate its activities in the rural communities. Although the primary objective of helping small farmers was accepted by the participating institutions, variations of interpretation sometimes resulted in effective neglect of the program's intended goals. Shortcomings notwithstanding, the evaluators believe the program is relatively successful. Their recommendations include: 1) reduce the number of participating agencies; 2) hire better qualified personnel; and 3) improve coordination between institutions.

Del Bosque et al. Agrarian Settlement and Productivity. USAID, Bur. for Latin America and the Caribbean. San Jose, Costa Rica. 64p. August 9, 1980.

Loan is provided to the Government of Costa Rica (GOCR) to redistribute farm land and increase tenure security in its Atlantic region. GOCR's Institute of Land and Colonization

(ITCO) will implement the project with USAID technical assistance.

ITCO will test an innovative approach to land redistribution on three farms totalling 9,880 ha. Of these, 7,400 ha will be distributed to 935 previously untitled farmers; another 680 ha will be used for community purposes; and the remaining 1,800 ha will be placed in reserves. The three areas will be developed according to detailed plans. Infrastructure such as gravel roads (48 km of new and 46.5 km of improved roads) and locally built, low-cost houses will be constructed, as will community facilities such as schools and nutrition and health centers. New farmers will grow permanent crops, especially cacao and palm, and will be taught methods to reduce tillage and control cacao disease. ITCO will establish a fund to provide subsistence credit to new farmers and will intensify its extension efforts, using audiovisual techniques when needed. Training of new farmers will take place at the Rio Frio training center and will be coordinated with efforts of the Office of Integrated Rural Development to help new farmers undertake community and cooperative development activities.

Titling activities will take place in a 160,000 ha. section of the Atlantic Basin. Title to 4,000 farms (25,000 ha.) will be given to the families (24,000 people) presently occupying them. Another 1,265 families (7,600 people) will receive title to 2,200 ITCO-owned properties (40,000 ha.). The entire 160,000 ha. area will be mapped and surveyed to complete the national cadastre for use in the agrarian reform and in overall GOCR land and resource use planning. ITCO will study the impact of titling on the socioeconomic status of beneficiaries and on land distribution in general.

To strengthen its institutional capability, ITCO will be given modern data management equipment and assistance in creating a credit management system. In addition, foreign training will be given to 108 members of ITCO's Planning Staff.

Cox, P. T. National Cadastre. USAID, Bur. for Latin America. San Salvador, El Salvador. 17p. April 10, 1975.

Preparation of training materials, training of indigenous instructors, and initiation of land valuation courses completed; introductory, refresher, and advanced training now provided by GOES. Date flow, quality, and management investigated; appropriate technical assistance provided. Review of administrative claims procedures and fiscal cadastral office organization performed; appropriate technical assistance provided. Procedural and valuation manuals

provided; overall review of updated cadastral system prior to full transition of program responsibilities to the GOES.

Cox, P. T. National Cadastre. USAID, Bur. for Latin America. San Salvador, El Salvador. 27p. August 15, 1975.

Cotten, Joel Q. and Sidney A. Chernenkoff. National Cadastre. USAID, Bur. for Latin America. San Salvador, El Salvador. 39p. July 27, 1977.

3/76-6/77. Although the fiscal cadastre survey is progressing satisfactorily and tax revenue targets are being met, the project purpose of establishing a national cadastre system will not be met within the remaining eight months of the project. Shortcomings have been 1) the lack of coordination among the various entities involved in the project; 2) the ineffectiveness of the computer center's systems analysis and programing staff; and 3) the failure of the original project design to develop systems to support more effective audit and tax collection functions.

Although the fiscal cadastre department is operating at 112 people below their authorized ceiling, it is performing as planned and is the strongest link in the national cadastre operation. 194 people were trained in valuation processes. The department prepared mass valuation procedure manuals including a) a cost manual, b) instructions for land character classification, c) unit land value investigation procedures, d) calculation processes, and e) archive control and reporting procedures.

Forty percent of the land has been appraised. Appraisal of property is delayed because the national geographic institute, which is responsible for producing the necessary maps, is working too slowly.

Westrick and associates failed in its contract to design a data system which would permit efficient use of cadastral data by the tax office. A new computer was being installed at the time the analyst was trying to describe the existing system. As a result, the programmer provided later was unable to do his job. Due to lack of experience and poor morale of computer personnel, it will take two years to develop efficient programs and effort-free current records essential to the cadastral operation and better tax administration.

Additional advisory assistance will be required to: a) fully convert the fiscal cadastre department into a mass appraisal system capable of rapidly completing the initial cadastre survey; b) change the initial cadastral operation

into a maintenance operation; c) improve the computer operation; and d) develop a viable tax audit system.

USAID. Guatemala: Property Tax Development Loan. USAID, Bur. for Latin America. Guatemala City, Guatemala. 50p. May 25, 1967.

Loan to Government of Guatemala (GOG) will help support improvement of the GOG's system of property tax appraisal, mapping, assessment, and collection. Project will affect a 12,000 sq km area of the Pacific Coast plain, and 27 major urban centers throughout the country. Property identification maps (mosaics) with overlays showing property boundaries, ownership, land use, and general land capability will be produced by the National Geographic Institute (IGN), which will also place a network of survey control monuments throughout the area for subsequent legal cadastre. German technical mission to Central America will train IGN staff in production of 1/100 scale urban mosaics, and will supervise their production. Additional IGN responsibilities during project include assignment of property identification numbers; investigation of property boundaries, registration, and ownership; and maintenance of property records.

USAID-supported consultants will assist the taxation office (RENTAS) of the Ministry of Finance (MOF) in several areas. Consultants will develop organizational/functional chart for rentas and accompanying procedural manual which will detail employee functions. Tax appraisal manual, drawing upon those used elsewhere in Central America, will be developed, as will land value maps, property record cards, assessment notices, and billing forms. RENTAS and consultant field personnel will collect field data and apply manual and value map standards to determine assessment. Assessment rolls will be compiled and later transcribed to an automated system for subsequent billings.

Project will shift tax burden from lower and middle economic echelons to the large property holders of idle land.

Shannon, John. Guatemala-Property Tax Development II. USAID. 124p. January 29, 1973.

Loan, technical advisory assistance and in-country training by contractor and data processing equipment provided to the GOG MOF to develop an efficient cadastral surveying, tax assessment, tax notification and tax collection system. Project activities include expansion of mapping, assessment and collection procedures begun under related project to expand coverage of Guatemala's property tax base from 20% to 90% listing of property. The department of Guatemala and South Coastal department areas not covered by previous

project will be mapped and appraised and the new cadastre listing will be substituted for the obsolete matricula record system.

The fiscal cadastral office of GOG will use aerial photography produced by GOG's National Geographic Institute to appraise property. Appraisals will be made using the appraisal valuation manual with modifications made for urban properties. Property owners will be notified of appraisal values, appeals will be considered and bills sent out.

A computerized total property tax records system will be installed in the data processing department of the MOF. This system will include procedures for property assessments, preparing tax bills, recording collections and delinquency accounts, filing records on tape, and maintaining and updating the program. Records will include such details as a property's boundaries and improvements, soil classifications, and crops for agricultural property.

A supervisory training course will be conducted by contractor in the MOF, and a personnel study will be undertaken to plan for additional training needs. Special study will be done to determine need for legislation reform to apply cadastral record system to all departments by coordination with National Institute of Municipal Development, local municipal governments will be given cadastral record listings, property maps, and advice on property tax administration.

Host country provides staff, data processing equipment, computer facilities and funds. Primary beneficiary will be the MOF, which will have a new computerized property tax record system, while supervisory MOF personnel will also benefit from training.

Mausshammer, Robert J. Cadastre Demonstration Project. USAID, Bur. for Latin America. Tegucigalpa, Honduras. 24p. February 1, 1972.

USAID. Cadastral Demonstration. USAID, Bur. for Latin America. Tegucigalpa, Honduras. 12p. October 4, 1973.

USAID. Cadastral Demonstration. USAID, Bur. for Latin America. Tegucigalpa, Honduras. 4p. July 30, 1974.

USAID. Cadastral Demonstration. USAID, Bur. for Latin America. Kingston, Jamaica. April 25, 1974.

2/72-3/74. Contractor performance evaluated. Staff training, aerial photography, manual preparation, and

national cadastre implementation progress noted. Regional mapping and title registration efforts documented.

USAID. Cadastral Demonstration. USAID, Bur. for Latin America. Kingston, Jamaica. 6p. June 25, 1975.

4/74-EOP. Recommendations on grant funding and information dissemination provided. Project director and consultants evaluated. Progress toward project completion documented. Progress toward implementation of national cadastre indicated. Effect of project on rural development and relation of project to government agencies indicated.

USAID. Honduras-Rural Land Inventory and Agricultural Project Development. USAID, Bur. for Latin America. Kingston, Jamaica. 153p. May 15, 1970.

USAID provides Government of Honduras (GOH) with the commodities and technical assistance necessary to undertake comprehensive cadastral surveys in Choluteca and Valle regions. Integrated teams chosen from superior council of economic panning, National Agrarian Institute, Ministry of Natural Resources and National Geographic Institute. Project aims include aerial, controlled mosaic, and land use mapping; recording/cross-indexing of all titles and lease holds; establishment of set cadastral procedures and installation of automated maintenance system. These two surveys provide the GOH with data and experience required to guide implementation of multipurpose national cadastre.

USAID. Evaluation of the National Cadastre Project. USAID, Bur. for Latin America. Tegucigalpa, Honduras. 26p. August 1, 1977.

USAID. Honduras-National Cadastre Loan. USAID, Bur. for Latin America. Tegucigalpa, Honduras. 184p. June 13, 1974.

National cadastre is established. Project entails following activities: 1) improve property registry to stabilize ownership of private land by more clearly defining boundaries and issuing titles; 2) improve tax administration by establishing a property valuation system and improved billing and collection system; and 3) develop an agricultural resources inventory to provide a data base to be used in agricultural sector planning. The data center of the Ministry of Finance will maintain and disseminate all data relative to property, property owners, property tax and agricultural resources.

Qumwaalt, Fred L. National Cadastre. USAID, Bur. for Latin America. Kingston, Jamaica. 7p. October 20, 1977.

Evaluates national cadastre loan project in Honduras 12/74-10/77. Project was designed to create a technically and legally sound property registry system; establish an efficient property tax administration system; and develop a natural resources information base.

It is noted that funds committed to the project have been insufficient to carry it out as designed. Reasons for inadequacy of funds include use of funds to finance continuing work on the demonstration project, inflation (made more serious by delays in implementation), labor/management problems, and incorrect cost estimation concerning production of delineation maps and valuations.

A revised work plan was received changing the methodology for mapping and the scope of the project. In addition it calls for an extension of one year. Under the new plan much of the rural photocartographic work will now be contracted, and mapping will be done electronically. The plan reduces the project by about two-thirds, from 66,000 to 22,250 sq km. The number of rural properties to be delineated is reduced from 100,000 to 63,000, and the number of urban properties reduced from 27,850 to 18,850.

It is believed that the revised plan is feasible and consistent with available financing. However, there is some doubt that the targets can be achieved without substantial improvement in operations.

It is recommended that individuals, rather than two-person teams, be assigned to rural delineations. It is also recommended that valuators go to most of the improved properties on a unit-by-unit basis to measure buildings and other improvements.

Deinken, Peter and John C. Kelley, et al. National Cadastre Program. USAID, Bur. for Latin America and the Caribbean. Tegucigalpa, Honduras. 19p. November 6, 1981.

Evaluates project (revised 10/77) to help the Government of Honduras (GOH) implement a National Cadastre Program (PCN). Final PES covers the period 1/75-9/80 and is based on document review and interviews with project personnel.

Although all of the required cadastral data were successfully collected and analyzed, none of the three project purposes were achieved. In the first component, 71,277 rural and 31,531 urban properties (both above target) were delineated, permanent registry buildings were built, and the property records system was updated, but the GOH Supreme Court never implemented legislation--a condition precedent to the project--establishing a reorganized property registry

system aimed at furthering agrarian reform by establishing clear titles to land. Consequently, the system remains as before; no titles have been issued under the new system.

In the second component, the PCN valued all delineated properties/improvements, produced a valuation manual, and prepared a plan for municipal property tax billing. Again, however, legislation--also a condition precedent--establishing a national property tax billing system was not implemented, this time by the Ministry of Finance, which is uninterested in municipal tax collection. Consequently, no municipal tax reform was undertaken and municipalities have been unable to collect additional taxes.

In the third component, the PCN--focusing on agricultural and cattle-grazing lands--inventoried soils, water resources, vegetation, agricultural economy, and land use and produced resource maps covering 30,000 sq km. Due to lack of coordination between the PCN and the Ministry of Natural Resources, however, there was no significant analysis of the data by the Agricultural Sector Planning Office.

The project taught that cadastre programs cannot succeed if the political will to implement the needed reforms is lacking. In an effort to ensure that the project's achievements are used for the purposes intended, USAID/Honduras plans to use PCN data and experience in several projects, including Agricultural Sector II, Small Farmer Titling and Services, and Municipal Development II.

USAID. Municipal Development Bank II. USAID, Bur. for Latin America and the Caribbean. Tegucigalpa, Honduras. 66p. May 8, 1980.

Loan and grant are provided to the Government of Honduras to increase Banco Municipal Autonomo (BANMA) financing of infrastructure improvements in intermediate municipalities, especially poorer ones, and to improve the ability of municipal governments to generate revenue and manage their own projects.

With the help of project funds, BANMA will finance a total of 100 infrastructure subprojects in the following areas and, for the smaller municipalities which will comprise at least 60% of the subprojects, the following order of priority: potable water, slaughter house, markets, electricity, sewage, and transport terminals. Ineligible projects, e.g., cemeteries, will be eliminated. Eligible projects will be chosen on the basis of municipality's per capita income and existing infrastructure conditions. Supplementary grant funds, up to 30% of subproject cost, will be available

to municipalities which otherwise could afford a subproject only by raising taxes. In order to cut subproject costs, BANMA will emphasize labor-intensive projects, standardization of designs and reduction of specifications, direct BANMA supervision, better programming and packaging of contracts, and construction by municipal governments. To increase the latter's self-sufficiency, a total of 24 administrative reform subprojects will be undertaken. Each of these will consist of fiscal modernization of the accounting system. In addition, BANMA will expand its program of municipal training courses and technical assistance to cover the administration of simple projects during the construction phase and will establish a training unit with in its Division of Technical Services to modify the administrative reform content of the training to meet the needs of various classes of municipalities.

The project is expected to benefit a total of 325,000 people in 80 municipalities.

USAID. Natural Resource Management (Project Paper). USAID, Bur. for Latin America and the Caribbean. 62p. May 29, 1980.

Loan and grant to the Government of Honduras (GOH) to strengthen its natural resource (NR) management capabilities and to contain deterioration in the Choluteca watershed.

Under the guidance of GOH's Agricultural Policy Commission, GOH NR agencies will establish a coherent set of land use and NR management policies and regulations, along with institutional mechanisms to implement them. The NR data processing system of the National Cadastre Program (PCN) will be expanded to permit completion of a national data/mapping compilation and extension of work to forest areas; to maintain cadastral and NR surveys; and to extend data use and facilitate user analysis capability. In addition, PCN's soil survey and analysis capability will be doubled, and the data analysis capability of the Department of Hydrology and Climatology (DCH) will be upgraded through improvement of data from existing stations and from 103 new stations to be installed with project funds, as well as by linking DCH to PCN's computer. Finally, the rate of forest delineation will be doubled, especially in priority areas, and PCN's land use program will be expanded to include a land use classification element.

To implement the above activities, equipment, technical assistance (including assistance in aerial photography, orthofoto mapping, and cartography) will be provided, along with training in the areas of soil surveys (short-term) and hydrology (long-term).

An action program will be undertaken in five subwatersheds of the Choluteca watershed. Four appropriate technologies will be provided to area farmers, especially traditional small subsistence farmers, in order to improve their socio-economic condition, to protect the soil, and to increase production. Specific areas of activity will be soil conservation and intensive agricultural practices; agro-forestry and fuelwood production; reforestation; range management and pasture improvement; and the establishment of community nurseries. A credit fund will be established in the national agricultural bank to provide loans to farmers for project activities and inputs.

Nesman, Edgar G. and Mitchell A. Seligson. Baseline Survey of the Honduran Small Farmer Titling Project: Descriptive Analysis of the 1985 Sample. UW-Madison, Land Tenure Center. USAID, Bur. for Latin America and the Caribbean. Tegucigalpa, Honduras. 87p. November 15, 1985.

University of Wisconsin, Madison, Land Tenure Center. Evaluacion de Punto Medio del Proyecto de Titulacion de Tierras en Honduras: Proyecto No. 522-0173. USAID, Bur. for Latin America and the Caribbean. Tegucigalpa, Honduras. 123p. October, 1985.

Stanfield, J. David and Ricardo Zeledon, et al. Land Titling in Honduras: A Midpoint Evaluation of the Small Farmer Titling Project in Honduras. Project No. 522-0173. UW-Madison, Land Tenure Center. USAID, Bur. for Latin America and the Caribbean. Tegucigalpa, Honduras. 65p. April 1986.

USAID. Midterm Evaluation of the Land Titling Project in Honduras. USAID, Bur. for Latin America and the Caribbean. Tegucigalpa, Honduras. 16p. August 30, 1985.

Evaluates project to establish a system for titling rural lands in Honduras. Midterm evaluation covers the period 1982-8/85 and is based on document review, site visits, and interviews with project officials and beneficiaries.

After a slow start, the pace and quality of work improved in 1984. The project has delivered more than the planned number of delineated parcels and nearly the planned number of titles in Santa Barbara, but has issued very few titles in Comayagua, where small parcels predominate and less coffee is grown. (By law, such small parcels are eligible for titling only if coffee is grown on them.) The low rate of titling in Comayagua may be partly due to the lack of an effective public relations and information campaign; the Santa Barbara model of direct communication between promoters and farmers is preferable to the Comayagua method of relying on media advertising and cadastral teams.

In general, as a methodology for delivering titles, the project has achieved significant results. However, many of the titles issued, especially in Santa Barbara, lack reference to the cadastral map and cadastral identification number and are not precisely tied to a geographic grid. The project's complicated management command structure, in which the National Agrarian Institute (INA)--which is responsible for project management--depends for cadastral surveying on the National Cadastre Office (CN), has led to misunderstandings and delays in the titling process. Also the project has been criticized for "institutionalizing minifundia" through the issuance of property titles to smallholdings.

Although farmers generally value the INA titles, they object to paying for land they have considered theirs for years. A further problem is that the low value at which INA assesses the property, while lessening beneficiaries' "debt" to the INA, also serves to reduce its value as collateral for bank loans (access to which, despite the project's promotional claims, is not guaranteed by the title). Finally, although the project is making the acquisition of property titles easier and less expensive, it appears that the future costs of keeping titles in the Property Registry up to date may be prohibitively high, presenting risk that the lands may pass again into an untitled state.

USAID. Small Farmer Titling. USAID, Bur. for Latin America and the Caribbean. Tegucigalpa, Honduras. 59p. August 6, 1982.

Project to expand private property ownership among Honduran small farmers by establishing a viable land titling system. The project, to be implemented by the Instituto Nacional Agrario (INA), will involve a coordinated public/private effort focused on establishing and verifying land claims and registering land titles.

To promote the project, identify potential beneficiaries, and alleviate farmers' fears that INA intends to take away their land, a publicity advisor will help INA and participating producer organizations distribute brochures, air radio spots, and organize municipal meetings describing the project's purpose and process. Field representatives of producerorganizations will be trained to help farmers file for titles.

Teams from the National Cadastre Program (NCP) will use existing aerial photos and orthophoto maps to produce ground plats and to collect owner/occupant and land use data. Results will be used to produce standardized property maps o the entire area via computer. The legal status of the land

delineated will be determined by title searches in Tegucigalpa and verified by examining the municipal property register and individual ownership papers.

INA national headquarters will verify landholdings submitted by the NCP. INA's new Division de Afectacion y Adjudicacion will use new, simplified procedures which will allow titles to be issued within the 20 days prescribed by law. Titles will be registered in the National Agrarian Registry and then transferred to the regional office which will arrange the purchase price and payment terms with farmers. In contrast to the past practice of issuing only provisional titles until payment was completed, INA will, under this project, issue definitive fee simple (dominio pleno) property titles, thus allowing farmers to use their titles as guarantees while completing payment. In return for these titles, INA will receive either cash or promissory notes which will not be registered as encumbrances on the land title. To prevent farmers from neglecting, as in the past, to register their titles due to the traveling distance involved, INA regional offices will register titles for farms under 50 ha.

Over the life of the project, 70,000 titles will be issued. By project end, INA will be able to issue up to 10,000 titles annually.

Straub, Gordon, Peter Lara and Camila Ochoa. Small Farmer Titling Project. USAID, Bur. for Latin America and the Caribbean. Tegucigalpa, Honduras. 19p. May 21, 1986.

Summarizes attached midterm evaluation (XD-AAU-026-8) of a project to establish a mechanism to provide Honduran small farmers with fee simple property titles (PTs). The evaluation covered the period 8/82-6/85 and was based on review of project procedures and interviews with project personnel and beneficiaries.

Despite the problems noted below, the planned cooperative mechanism between the Instituto Nacional Agrario (INA) and the Direccion Ejecutivo del Catastro (DEC) for granting PTs to small farmers has been operationalized and is recognized within the Government of Honduras's (GOH) titling process (no major changes are expected as a result of the new GOH Administration that assumed power in 1/86). To date, ome 21,500 land parcels have been titled. However, because the number of coffee growers in the project area is considerably smaller than anticipated (due to a falling off in the world coffee market an coffee crop pests and diseases), the original target of 70,000 PTs will be reduced in a Project Amendment to 40,000.

Several problems delayed project start-up from 8/82 to 5/83. A fleet of critically needed vehicles for the INA arrived late, and after arrival suffered many debilitating breakdowns. Also, due to an exaggerated delay rooted in AID/W, a digitalized computer system for storing and mapping data was not available until early 1986; this had a negative effect on the production of critical orthophoto maps which the INA requires for the final registration and titling activities.

Although project impact will be evident only after the 1988 final evaluation, an (appended) baseline study of project beneficiaries (XD-AAU-026-A) shows that PTs have not had the desired effect of providing private bankers with guarantees that small farmers are credit worthy. Project beneficiaries have had little access to credit and have received no significant additional TA from the GOH, which has not yet grasped the extent of the new increase in the agricultural reform sector.

In regard to future PT projects, this project teaches: 1) the vital importance of providing critical inputs on time; 2) the importance of polling all interested parties during the design stage, including both reasonable detractors and (especially) potential beneficiaries; 3) that the use of two distinct public institutions can strengthen cooperation and mutual understanding despite inevitable delays; and 4) the need to complement PT with special lines of credit (e.g., using Economic Support Fund program local currency generations) to assure small farmers access to credit.]

USAID. Nicaragua: Tax Improvement and Natural Resources Inventory Loan. USAID, Bur. for Latin America. Managua, Nicaragua. 27p. June 23, 1965.

USAID. Tax and Administrative Reform-Tax Administration--IRS. USAID, Bur. for Latin America. Managua, Nicaragua. 18p. January 9. 1969.

USAID. Integrated Rural Development. USAID, Bur. for Latin America. Panama City, Panama. 109p. August 17, 1977.

Loan is provided to the Government of Panama to establish and overall capability for the planning and implementation of integrated rural development projects with regional impact and to implement a program for the accelerated development of the first of the priority impact areas in the Tonosi District.

At the central government level, key staff in the program for integral development of rural area (Prodiar) and in the

directorate general of sectorial planning (DGPS) will be trained. Training will include the following areas: physical and spatial planning, implementation of rural development projects, institutional and social organization, information systems, evaluation, and financial management. Also, orthophotographic mapping equipment will be procured for the National Geographic Institute, and technicians will be trained in its operation.

In the Tonosi district, the information systems for project implementation will be completed and upgraded through a sociological survey, cadastral mapping, and natural resource surveys. The road system will be improved, and a land redistribution and resettlement program will be implemented. In addition, agricultural inputs such as farm machinery, credit, and storage facilities will be provided to approximately 900 families in the target area. Also, an integrated watershed management and reforestation program will be established. This program will include reforestation of 1,500 acres, introduction of forest conservation measure through diminished slash and burn techniques, and implementation of a soil and water management program.

Pilot projects will be financed to identify and develop additional income producing activities in the project area. Possible pilot projects to be financed include farm pond fish production, portable kilns for charcoal production, and a portable sawmill.

USAID. Integrated Rural Development-Sona: Amendment No.2. USAID, Bur. for Latin America and the Caribbean. Panama City, Panama. 6p. June 18, 1986.

USAID. Cadastral Survey and Property Tax Development. USAID, Bur. for Latin America and the Caribbean. Asuncion, Paraguay. 9p. July 17, 1981.

Evaluates project to establish an efficient property tax assessment and collection system in eastern Paraguay. Final PES covers the period 10/78-12/80 and is based on discussions with the implementing agency,the Rural Property Tax Office (RPTO) and USAID/Paraguay personnel.

Although delays in procuring commodities and in negotiating an aerial photography contract and RTPO's slackness in making administrative improvements have placed the project three years behind schedule, good progress has been made towards end-of-project status. A total of 190,661 urban and 132,028 rural properties have been surveyed (with identification of land improvements an unexpected boon) and 116,207 urban and 48,030 rural properties added to the tax base. An electronic IBM billing system has been installed, but lack

of trained personnel is hindering its full employment. The terminal disbursement date has been extended to 9/81 to provide technical assistance in this area. A major need is for a cost-benefit study to determine whether $35,000 should be spent on equipment needed to allow loan-financed NCR teller machines to operate on-line with the IBM system. Although RTPO has opened only eight of 14 targeted field offices and five of 14 target maintenance offices, these are functioning satisfactorily; tax collection during 1980 was up 27.5% over 1979 and guidelines from a central maintenance office that was opened in Asuncion were instrumental in updating the cadastral records of 96,344 properties. RPTO has made no attempt to increase the number of tax collection officers--who have proven efficient in collecting back taxes--from five to 10. No new laws to maintain cadastral and tax records were needed, although existing laws are not fully enforced in rural areas.

At the goal level, total real estate tax collections in the past five years increased 122%, far exceeding the target, and substantial data were developed on land distribution, tenure and use. A lesson learned is that USAID/Paraguay should monitor closely the progress of projects managed by technical advisors through frequent contacts with the implementing agency, site inspections, end-use checks, and a more informative and comprehensive reporting system.

Miles, Henry L. Cadastral Survey and Property Tax Improvement. USAID, Bur. for Latin America. Asuncion, Paraguay. 7p. November 14, 1975.

The contractor's performance and technical qualifications were outstanding. There have been problems with the lack of leadership of the Government of Paraguay's (GOP) real property tax office (RPTO) and the lack of cooperation of the GOP's military geographic institute (IGM). Because the RPTO director did not delegate authority to the cadastre projectcounterpart office, leadership skills were lacking and inadequate administrative procedures were followed in using local currency funds. Fieldwork has been seriously delayed and the project is one year behind its schedule chiefly due to the IGM's lack of cooperation in negotiating a contract for cartographic and photographic products. Delays in procurement of commodities have also been experienced due to the project office's failure to implement an efficient procurement system and the inability of U.S. suppliers to meet shipping dates. No control records existed (e.g., on travel expenses, time and attendance, control of fuel and lubricants, procurement, warehousing, property control), and the vehicle control system had not been fully implemented.

Although three IGM employees were trained to use photogrammetric instruments with non-project funds, they contributed valuable services to IGM.

20,000 sq km of aerial photo and 365 base topographic maps were to be completed at this stage of the project, but none have been done. 37.5% of the indexing and processing of registered property ownership data have been completed, exceeding the current target. 10% out of a targeted 19% of total gathering and processing of other property data has been completed. Only half of targeted goals for fieldwork, drafting of cadastral plans and preparation of land tenure records have been completed.

Progress was made in the following areas: 1) cadastral records were processed for 4,000 urban properties; 2) data processing equipment was installed and punch card receipts designed; and 3) a regional property tax collection office was established. Five additional field collection officers were appointed and a cadastral maintenance office was planned. It is recommended that RPTO immediately develop adequate administrative procedures for its cadastre office and job descriptions for key personnel.

Miles, Henry L. Cadastral Survey and Property Tax Improvement. USAID, Bur. for Latin America. Asuncion, Paraguay. 6p. November 24, 1976.

10/1/75-9/30/76. The contractor's cadastral program specialist who served as AID program manager did an excellent job with planning and organizing project implementation. The field operation advisor was removed by the contractor without sufficient notice to the GOP and in violation of the PIO/T conditions. As a result, preparation of training materials for field personnel was not completed.

No particular training was conducted. There has been no procurement of spare parts and other project equipment. Although storage facilities have improved and there was satisfactory maintenance of records and controls, procurement delays were still being experienced due to failure of U.S. suppliers to meet shipping dates.

GOP's contributions to project were timely. The GOP's Military Geographic Institute (IGM) was still being uncooperative and caused serious delays in signing the contract for cartographic and photographic products. IGM was trying to take advantage of the fact that it is the only source in Paraguay of aerial photo and topographic maps.

30,000 sq km of aerial photos were to be completed at this stage, but none were done. Due to a delay in arrival of

materials, 580 base topographic maps out of a targeted 660 will be completed by the end of December 1976. The percentage of indexing and processing of registered property ownership data exceeded the target while the percentage of gathering and processing of other property data nearly met its target.

Although the percentage of completion of fieldwork, drafting of cadastral plans and preparation of land tenure records for urban properties was high at this point, it was very low for rural properties.

Progress made included: 1) survey and incorporation into valuation records of over 100,000 urban parcels resulting in an increased annual potential of $150,000; 2) card punching and cross-referencing with cadastral data of over 21,000 existing tax records; and 3) opening of five regional tax collection offices and two maintenance offices.

It is recommended that a new budget be prepared and real property tax office director approve the procurement, warehousing and control of equipment manuals and correctly implement them.

Roshold, Jack D. Cadastral Survey and Property Tax Improvement. USAID, Bur. for Latin America and the Caribbean. Asuncion, Paraguay. 8p. December 27, 1978.

Evaluates project to develop an efficient property tax assessment and collection system in Paraguay. PES covers the period 10/1/76-9/30/78; no methodology is indicated.

Delays in U.S. inputs and lack of cooperation (since improved) from the implementing agency, the Instituto Geografico Militar (IGM), have put the project two years behind schedule. Production of base maps and aerial photographs should be completed by 5/80. Lack of adequate office space led to the complete renovation of the internal tax building, which will greatly assist future tax collection efforts. The number of rural properties to be surveyed was originally underestimated by 70,000 (25%), while urban properties were overestimated by the same amount; this was offset by the increased rate of property identification by field workers. Although the number of survey crews was reduced from 36 to 30, 14 urban crews will soon be transferred to the rural section to enhance the rural data collection effort. The government's decision to include land improvements in the cadastral survey also contributed to project delays, but will increase potential tax revenue--already increased by $350,000 per year--more rapidly than anticipated. Persistent problems in procuring vehicles and other equipment have been resolved.

To date, 175,000 urban and 89,600 rural properties have been surveyed. Tax collections as a whole are exceeding Project Paper estimates, and the new billing system will enable listing of delinquent taxpayers to be prepared. Ten department tax collection offices have been opened, and three more will be opened; but only two of 14 planned field cadastre offices have been opened. Although only five of 10 planned field collection agents were hired, the amount of taxes collected in the field has increased by 22%. There has been no further action to develop a legal system for maintaining cadastral tax records.

The project has revealed land tenure and registration to be one of Paraguay's most pressing problems; future projects will address that situation. Action decisions include requesting from the Cadastre Office a budget for the remainder of the project.

Montavon, P. Cadastral Survey Property (Memorandum of 9/22/80). USAID, Bureau for Latin America and the Caribbean. Asuncion, Paraguay. 9p. September 22, 1980.

This memorandum is a response to Audit Report No. 1- 526-80-16 of 7/31/80 and describes the actions which USAID/Paraguay will take to meet the auditors' recommendations. The memo corrects errors noted in the audit report and gives the following updated project information: 1) over 90% of the tax-paying properties have been identified; 2) over 500,000 tax records have been updated or corrected; 3) urban cadastral surveys for all 172 districts have been completed and improvements noted, raising the tax base as much as 1,000%; 4) 80-90% of the rural tax base has been cadastered, including some 170,000 rural properties; and 5) a procedure to plot rural properties on topographic maps and to introduce the information directly into the tax system has been developed and used.

The auditor's eight recommendations are discussed. Citing misrepresentations and misinterpretations by the auditors, the mission states that its violations of loan agreement provisions and AID/W procurement regulations are minor and thus disagrees that an investigative panel should be convened to examine its exercise of authority in these areas. To improve maintenance of mission vehicles, it was recommended that a suitable repair facility be completed and that spare parts be adequately stored and controlled. The mission's answer is that its repair facility will be completed and stocked by 10/80. The auditors also recommended that USAID sell the 44 Rokon motorbikes which were found inappropriate for use in the project.

As of 9/80 the Paraguayan Ministry of Finance had been granted permission to sell the bikes. As recommended, a technician from AID/W's Office of Data Management will spent two weeks at the mission in 10/80 to assist in utilizing data processing equipment. USAID also established procedures to ensure effective project monitoring, as recommended. Finally, USAID followed the recommendations for securing necessary technical assistance, controlling grant and counterpart funds, and recording advances made to Special Development Activity grantees.

USAID. Paraguay - Cadastral Survey and Property Tax. USAID, Bur. for Latin America. Asuncion, Paraguay. 220p. December 20, 1973.

Loan and technical advisory assistance provided to GOP to develop an efficient rural property tax assessment and collection system. Project activities include compiling an index of property deed registrants and verifying ownership, establishing an IBM punch card file for land holdings and decentralizing the tax collection system.

The project will inventory and assess 250,160 rural properties in eastern Paraguay, excluding the city of Asuncion. An additional 176,240 urban properties will be revised and updated in the property register. The cadastre will be developed by districts. Using information obtained from GOP's Ministry of Justice, Instituto de Bienestar Rural, SENEPA of the Ministry of Health, and the Ministry of Works, property ownership will be verified before phototography and fieldwork begins.

Rural properties will be defined by aerial mapping photography. Using facilities of GOP's Instituto Geografico Militar and technical advisory assistance and equipment of contractor, rural cadastral plans will be assembled using base topographic maps.

Urban cadastral plans will be compiled from block plates made from field tape and compass measurements of each lot and block. Valuation and tax records for each property, both urban and rural, will be assembled or updated, district by district using cadastral data. IBM cards will be coded and punched to provide tax bills (including delinquent taxes) and tax listings on land tenure, distribution and use to service other GOP agencies.

Additional regional tax offices will be established in departments throughout the region and cadastral representatives will be located there, to decentralize the tax collection function of GOP's real property tax office.

Contractor's long-term field operations advisor and short-term photo lab specialist, property delineation specialist, cartographer and data systems specialist will assist and train host-country personnel. The AID-IRS tax advisor team already there will help set up property tax records. Primary beneficiaries will be the trained GOP personnel, while citizens of Paraguay also benefit from a more equitable property tax assessment and collection system.

Low, Frank. Evaluation Review: Sub-Tropical Lands Development Project. USAID. Bur. for Latin America and the Caribbean. Lima. 37p. Jan. 1984.

Evaluates project to develop subtropical lands in San Martin, Peru. Special evaluation (a summary of an unattached eight-volume, 560-page final evaluation in Spanish) covers the period 6/78-9/82.

The project has achieved some of its objectives. Construction targets have been fully met for new roads, existing road improvements, and grain storage facilities. However, road costs were higher than budgeted and maintenance has been inadequate; grain stores are far from markets, lack a maintenance fund, and have inadequate ventilation and rain protection.

Although no crop yield increases resulted, agricultural extension was initially relatively successful (increasing staff by 76% and equipment by 63%; providing farmer courses/meetings); but with the 10/81 switch from group extension to an approach using contact-farmers to pass on extension messages to other farmers, progress has been limited. Participants have not been well chosen, messages are stereotyped and not locally adapted, and the system has failed to multiply.

While 51% of planned loans to farmers have been disbursed and loan recovery has been around 70%, the credit program has been seriously hampered by an overemphasis on equipment purchases (often for unsuitable land-clearing machinery), lack of extension, and a cumbersome credit mechanism. Most seriously, with inflation at 100% and an interest rate of only 32.5%, the loan fund is rapidly being eroded. The lack of available credit has also limited land clearing (to 18% of the target), land preparation (34%), and threshing (3%).

Topographic surveying/mapping activities have been completed, but the cadastre survey and land titling have lagged; only 35% of adjudication contracts and 77% of reversion resolutions have been issued. Although natural resource studies have been carried out, the overall

environmental protection plan (due in 1981) remains incomplete due in part to a lack of aerial photography.

Numerous recommendations include: extend the loan agreement; add research, agro-industry, forestry and fishery components, and increase coordination among components; and speed up the resource evaluation program.

Hess, David W. USAID. Integrated Regional Development. Bur. for Latin America and the Caribbean. Peru. 8p. April 24, 1986.

Summarizes final evaluation (PD-AAS-200) of an integrated regional development project in Peru. The evaluation covered the period 6/79-6/85.

For evaluation findings, see the abstract of PD-AAS-200.

Major recommendations were to: 1) extend, for 12 months, the project and the TA advisor's contracts to continue National TA and training programs for Departmental Development Corporations (CORDEs) and municipalities and to complete all construction subprojects; 2) complete the Huancayo and Cajamarca Urban Cadastral Surveys; 3) continue policy analysis and institutional development proposals for strengthening decentralization through completion of governments; and 4) follow up initial work on expanding the role of CORDEs and municipalities in the areas of action-oriented planning, revenue implementation. As of 12/31/85, action is complete on recommendation 1; under recommendation 2, the Huancayo survey is complete and the Cajamarca survey projected for completion by 12/86. Also, the 1986 operating plans currently being negotiated take into account the evaluation recommendations, especially number 3 above. Finally, a series of documents was published, 7-12/85, to disseminate various policy studies.

USAID. Central Selva Resource Management. Bur. for Latin America and the Caribbean. Lima. 145p. May 12, 1982.

Project to develop, in Peru's Palcazu Valley, a model for long-term development of Peru's high jungle and natural resources. A Special Project Office (PEPP) will be established and staff trained to implement the project.

Forestry activities will focus on a 30-year plan of systematic clear-cutting for sustained yields, secondarily on managing existing rubber and timber forests. Adjunct activities in log transport, processing, and marketing by entrepreneurs will be supported by loans from the International Bank of Peru. Forestry training will be integrated with research activities.

An adaptive, on-farm research program will determine cropping and livestock systems adaptable to the high jungle, with consideration of farmers' absorptive capacity for new technologies and management practices. Adjunct activities will be in extension, marketing and local crop processing. A training program will stress: materials to help extensionists gather local crop and marketing information; short courses on particular commodities; and having leading producers work with extensionists while commodity experts rotate between research and extension. Credit will be provided through the Agrarian Bank.

Research and extension in livestock development will focus on pasture development and management linked with cattle and swine production and agricultural, forestry and animal health activities.

A total of 225,000 ha in the Palcazu watershed will be designated as a protected forest and national park. Short-term technical assistance (TA) will help implement a park inventory and management plan and tourist and recreational activities.

The current program of cadastral surveying/titling will be applied to new parcels and forest concessions. To establish a permanent land registry system, the Ministry of Agriculture will establish a cadastral field office and the Ministry of Justice a sub-office of Public Register. The PEPP will protect residents, especially those from native Amuesha communities, from invasion of titled lands. Land use capability and use in the Palcazu watershed will be mapped.

In conjunction with Ministry of Health projects, the project will provide training for health personnel and equipment/ supplies for health posts and will help build potable water systems and latrines in 20 communities. The project will support feeder road location studies and provide equipment and training to help build a road maintenance capacity. A design by ENTEL-Peru for an earth satellite system will be reviewed; the network will be used for administration, information exchange, and training and will link project areas to the national telephone system.

Finally, TA and training will help the Secretariat of Regional Affairs develop a resource management methodology for high jungle development. Evaluation and pre-feasibility studies will provide Government of Peru personnel with the experience and data needed for future projects.

Bruce, John W. Family Land Tenure and Agricultural Development in St. Lucia. UW-Madison, Land Tenure Center. USAID, Bur. for Latin America and the Caribbean. Research Paper No. 79. 59p. December, 1983.

USAID. St. Lucia Agriculture Structural Adjustment. USAID, Bur. for Latin America and the Caribbean. Regional Development Office, Washington, DC. 61p. March 9, 1983.

Project to restructure St. Lucia's agricultural sector in order to remove key sector constraints. The project, to be implemented mainly by Government of St. Lucia (GOSL) ministries and St. Lucian private-sector entities, will focus on land registry and ownership, market promotion, and banana replanting.

To overcome current land tenure problems, a survey will be made of all land parcels except the metropolitan Castries area and the central Forest Reserve. and the GOSL will be helped in implementing a new land registry system currently in draft form. To resolve tenure disputes, an experimental Tenure Individualization Program (TIP) will be established to provide a financial mechanism allowing cultivators of family lands to buy out their relatives or partition their land. As part of the TIP, government-owned land will be distributed to private farmers who are claimants to family land. This strategy is expected to significantly increase agricultural investment and sector productivity.

To reduce St. Lucia's overdependence on banana production, the GOSL will be helped in developing a more effective marketing strategy, especially for the private sector, and credit funds and other activities will support current crop diversification programs in the areas of seedling production, and pesticide registration and management. Stress will be placed on crops with the greatest export value--mangoes, citrus, cocoa, bananas (for regional sale), and plantains. Ministry of Agriculture personnel will receive short-term participant training in post-harvest and seedling production techniques, in-country training using existing regional research, and extension programs will also be provided.

To offset declines in banana production and banana export earnings, the project will finance $900,000 worth of fertilizers and other chemicals to replant 2,000 acres of aging banana mats in 1983. The project will also finance a pesticide safety and management program. Technical assistance, safety equipment, and training in pesticide use and handling will be provided for farmers and extensionists, and WINBAN helped in identifying safer, more economical pest control measures.

USAID. Increased Revenue for Development. USAID, Bur. for Africa. Monrovia, Liberia. 53p. No date.

Project to upgrade the tax administration capability, especially in direct taxation, of Liberia's Ministry of Finance (MOF). USAID/Liberia and the U.S. Internal Revenue Service (IRS) will implement the project.

All major functions of the MOF tax departments will be upgraded. In the Income Tax and Auditing divisions, the project will improve taxpayer registers, auditing, collections, and taxpayer education. In the Miscellaneous and Motor Vehicle License divisions, procedures for processing returns and licenses will be improved and files upgraded and secured. Tax return and payment processing procedures will be upgraded for 23 MOF regional collectorates and the Monrovia central office. In the Real Estate Tax division, a basis for an urban fiscal cadastre system will be created and a block and parcel numbering system developed; a cross-reference parcel/owner tax roll for real estate taxes also will be created, property identification and evaluation procedures described in manuals, and a tax mapping system completed. As a result, Monrovia will be completely mapped, all properties within the city appraised, and accounts on the real property tax rolls increased by at least 100%. An Internal Audit and Inspection Unit will be established. The Income Tax, Audit, and other MOF divisions will be incorporated into a Central Bureau of Internal Revenue under a single commissioner. Five procedural manuals will be prepared on auditing and income and property taxes.

Some 90% of MOF's managerial and technical employees will be trained in functional areas. Specific training will include: IRS management training for four tax officials; a University of Southern California course in tax administration for a high-level official; orientation visits to the IRS for four policy officials; and on-site training in communication and office practices for 35 persons and in intermediate accounting and advanced auditing for 10 persons.

Amendment of 9/28/82 extends the project three years and redirects it toward developing measures to generate the most additional income in the shortest possible time. Long- and short-term TA and participant and in-country training will upgrade the MOF Bureau of Customs and Excise's ability to collect import and export duties and consular fees and will upgrade the MOF Department of Revenue's ability to collect taxes and fees. Management of both agencies will be

strengthened; both will develop self-sustaining internal training programs.

Amendment of 8/31/86 extends the project one year, primarily to provide an audit/training advisor and to computerize manual revenue tracking systems and link them to expenditure and budget control systems being installed in coordination with the Economic and Financial Management and Training Project (6690184) (PD-AAV-394).

USAID. Senegal: African Economic Policy Reform Program, Project Assistance Approval Document. USAID, Bur. for Africa. Dakar, Senegal. 102p. August 15, 1986.

Grant to the Government of Senegal (GOS) to support a series of tax reforms being undertaken as part of a structural adjustment process to which the GOS and the major international donors are committed. Funds will be disbursed in three branches, each contingent on implementation of specific GOS reforms related tocustoms and tariffs, direct taxes, investment codes, and establishment of a real estate cadastre in and around Dakar.

Program-supported tax reforms are intended to: 1) remove disincentives to savings and productive investment by reducing custom tariffs and direct tax rates; 2) increase the equity of the tax system by widening the tax base and reducing evasion; and 3) reinforce the overall GOS economic reform effort which aims at reducing government intervention and providing incentives for private-sector growth.

Local currency generation will be managed by USAID/Senegal and the GOS Ministry of Economy and Finance, and will be used for activities that reduce Senegal's arrearages and contribute to productivity and job creation. A portion of the grant funds will be reserved for studies and TA.

USAID. Contribution of the Informal Housing Sector to the Construction of Housing. USAID, Bur. for Private Enterprise. Cooperative Housing Foundation, Washington, DC. 28p. August 2, 1984.

USAID. Access to Land, Water, and Natural Resources. USAID, Bur. for Development Support. Office of Science and Technology, Washington, DC. 4p. May 7, 1981.

Evaluates project to develop manpower resources for increasing access to productive resources (i.e., land and water) for the rural poor in developing countries. Evaluation covers the period 9/79-10/80 and is based on visits to sites and interviews with project personnel.

Overall progress of the project during the first year has been excellent. The Land Tenure Center (LTC) of the University of Wisconsin has assisted missions in providing consulting services to 17 countries in three of AID's four regions. Consultation has been in such areas as agrarian reform, land titling, and pastoral tenure policies. LTC, along with developing-country professionals, has initiated in-depth applied research in Botswana and Nicaragua on land reform. Additional in depth research is planned in Ecuador, Costa Rica and Mauritania. LTC has completed a draft of a Land Market Intervention State-of-the-Art Paper (SOAP) and is preparing two more SOAPs on Group Farming and Land Tenure Aspects of Pastoralism. LTC is also considering collaborating with the Institute of Philippine Culture to edit and compile a collection of studies on Philippine Agrarian Reform.

A conference was conducted in Managua, Nicaragua, on land reform experiences in several different countries. This helped the Government of Nicaragua to review land reform problems they had encountered. A roster was compiled of 160 consultants experienced in improved access of the rural poor to production assets.

The project taught that much effort is required to establish in-depth relationships with developing countries and mutually beneficial agreements between USAID and developing countries.

APPENDIX C

Bibliography

Aaron, Henry J. Who Pays the Property Tax? A New View. Washington, DC: The Brookings Institution. 1975.

Abercrombie. Fiscal Policy and Agricultural Development in Developing Countries. Rome: FAO Monthly Bulletin of Agricultural Economics and Statistics 20(3). 1971.

Agency for International Development. Spring Review of Land Reform. Washington, DC: Department of State. 1970.

Aggrarwal, K. and S. D. Chamola. An Analysis of Tax Burden on Agriculture in Haryana. Prajnan 12(1):77-84. 1983.

Ahene, Rexford A. Farm Management and Input Utilization: Case Study of Small Rice Farmers in Northern Ghana. Petersburg, VA: USAID. 1977.

_____. Land Registration and Property Taxation in Africa. Easton, PA: Lafayette College.

_____. Problems of Urban Redevelopment: Nima-Mamobi Case Study. Kumasi, Ghana: Department of Land Economy and Estate Management. 1975.

Ahsant, E. Fertilizer Pricing, Subsidy and Taxation in Surveyed Countries. Dacca, Bangladesh: Bangladesh Agricultural Research Council. 1981.

Aizenstat, Aron J. Structure and Taxation of Agriculture in Mexico. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954a.

_____. Structure and Taxation of Agriculture in Peru. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954b.

Aliraahman. Alternative Approaches to Farmer Cost Sharing of Irrigation Development in Indonesia. Colorado State University. 1981.

Irrigation is capital-intensive, for Indonesia since both farmer and consumer groups benefit. Both groups should share cost in proportion to the benefits they receive. Therefore, this study measures the impact of irrigation development on both beneficiary groups by developing models

for a framework for considering alternative methods of cost sharing to see which are appropriate for Indonesia. This dissertation employs two separate models: a project model and a program model. The former uses partial equilibrium analysis and demand is assumed to be infinitely elastic. In the latter, general equilibrium analysis assumes demand to be downward sloping. In terms of total income of farmers, tax on total variable cost and tax on total revenue are better than land tax. But in terms of output, land tax is better. And tax plus income tax is best if government seeks to maximize both food production and farmers' income. Generally, the more inelastic the demand for food, the less need farmers share in irrigation development costs. Government should move from a rice policy to general food policy. Development costs for irrigation should be recovered proportionately from those who benefit, both farmers and consumers.

Allen, Douglas W. Evidence of Tax Farming: Tests Using Differential Land Assessments for BC Farms. Canadian Public Policy 11:659-64. 1985.

Allen, Richard G. Optimizing Irrigation System Design. 45(11). University of Idaho. 1984 Thesis.

Allen, Roy E. Recent Protectionism in Agriculture: The United States Beef and Sugar Cases. V45(3). Berkeley, CA: University of California. 1983 Thesis.

Alm, James and Larry Schroeder. The Land Development Tax in Bangladesh." Occasional Paper No. 84. Syracuse, NY: Syracuse University. 1984.

Alston, Julian M. An Analysis of International Land Prices (Inflation, Taxes). Raleigh, NC: North Carolina State University-Raleigh. 1984.

Real growth in farmland prices has not been confined to the United States. The Factor Price Equalization Theorem suggests a tendency towards equalization of land rental income between different regions of a country and between countries. If interest rates were equalized along with land rents, land prices would be equalized as well. The main empirical problems are to convert acres of land and currencies to comparable units. To control for differences in land quality, growth rates rather than levels of land prices are compared among states of the United States, and among the United States, Canada, Australia and New Zealand. Two types of currency conversions are used: market exchange rates and a notional purchasing power parity exchange rate, the ratio of Consumer Price Indexes between countries. For the measures based on market exchange rates, but not the

national rates, the growth rates of land prices were very similar among the four countries, 1961-80 and 1968-80.

Angrish, A. C. Direct Taxation of Agriculture in India. Bombay: Somatya Publications. 1972.

Apple, Daniel K. An Analysis of the New York State Property Tax System Emphasizing the Differential Assessment Issue for Open Space Land. DAI 41(12). 1980.

Aralar, R. B. Agrarian Reform, Cooperatives, and Taxation (with Code of Agrarian Reform of the Philippines. Manila, Philippines: Rex Book Store. 1982.

Armas, A. J. and D. J. Cryde. Economic Incentives, Wage Policy and Comparative Advantage in Philippine Agriculture. Discussion Paper Series, Council for Asian Manpower Studies 81-03. 1981.

Arowolo, Edward A. The Taxation of Low Incomes in African Countries. IMF Staff Papers 15:322-341. 1968.

Askari, Hussein and John Cummings. Agricultural Supply Response: A Survey of the Econometric Evidence. New York, NY: Praeger Publishers. 1976.

Bahl, Roy W., editor. The Taxation of Urban Property in Less Developed Countries. Madison, WI: University of Wisconsin Press. 1976.

Bahl, Roy W. and Johannes F. Linn. Urban Public Finance and Administration in Developing Countries. 1982.

Bahl, Roy, Ved Gandhi, Malcolm Gillis, Charles E. McLure, Jr. and Larry Schroeder. Tax Reform and Private Sector Growth: Proceedings of a Conference held July 10, 1986, in Washington, DC. Syracuse, NY: Local Revenue Administration Project, Metropolitan Studies Program, The Maxwell School of Citizenship and Public Affairs, Syracuse University. February 1987.

Baiges, Planas, J. General Equilibrium with Local Public Goods: The Role of Land, Property Taxation and Zoning Laws. V45(09). Los Angeles, CA: University of California. 1984 Thesis.

Bandini, Mario. Politica Agraria. Bologna: Edizioni Agricole. 1946.

Chapter 12 gives valuable overview of history of agricultural taxation in Italy from before unification to the end of WWII, including explanation of various income definitions.

Banerjee, Anil Chandra. The Agrarian System of Bengal. Calcutta, India: K. P. Bagchi. 1980.

Banerji, A. Taxation of Agricultural Inputs, Output and Income for Optimum Choice of Technique. Indian Journal of Economics 59(233):225-249. 1978.

Bapat, N. L. Why Farm Taxation Must be Raised. Eastern Economics 78(17):1039-1042. 1982.

Barbero, Giuseppe. Agriculture's Contribution to Economic Development, the Italian Experience. In Raanan Weitz (ed) Rural Development in a Changing World. Cambridge, MA: The MIT Press. 1971.

Pages 474 to 477 give overview of agricultural taxation in Italy, showing, inter alia, that direct taxes paid by agriculture declined from 2.3% of GNP in 1866 to 0.3% in 1966.

Barbosa, Tulio and John D. Strasma. Land Tenure and Productivity in Maranhao: Some Empirical Evidence. Bahia, Brazil. 1984. Paper presented to Conference on Land Management and Economic Development, INCRA.

Barnes, Grenville. The Cadastre-Based Land Information System in Honduras. Unpublished paper, Land Tenure Center, University of Wisconsin. March 1987.

Barranclough, Solon L. Agrarian Reform in Latin America: Actual Situation and Problems. Land Reform, Land Settlement and Cooperatives 2:1-21. 1969.

Batra, M. M. Inter-Sectoral Linkages--Flow of Surplus for Financing Investment. Indian Journal of Agricultural Economics 34(4):113-119. 1979.

Becker, Arthur P., editor. Land and Building Taxes: Their Effect on Economic Development. Madison, WI: University of Wisconsin Press. 1969.

_____. The Property Tax and Economic Development. Madison, WI: University of Wisconsin Press. 1966.

Benedic, Philippe. Fiscalite et Politique de Developpement Agricole: Note Introductive. Revue Francais D'Administration Publique 13:113-38. January/March 1980.

Bension, Alberto. Evaluacion Economica de la Imposicion a la Renta Agropecuaria. Revista Tributaria. Montevideo 12:173-83. May/June 1985.

Berglas, Eitan. User Charges, Local Public Services and Taxation of Land Rents. Public Finance. Hague. 1982.

Bernard, Michael M. Constitutions, Taxation and Land Policy. Lexington, MA: Lexington Books. 1979.

_____. Selected Bibliography on Taxation as an Instrument of Land Planning Policy. Cambridge, MA: Lincoln Institute of Land Policy.

Bernard, Michael M. and the Lincoln Institute of Land Policy. Lincoln Institute Monograph, No. 80-8. March, 1980. Cambridge, MA: Lincoln Institute of Land Policy. 1980.

Bernstein, Janis D. Review of World Bank Lending for Land Registration and Property Tax Improvements in Urban Projects. Washington, DC: World Bank. 1983.

_____. The Costs of Land Information Systems. 1985 Seminar on Land Information Systems. St. Michaels, MD: Water Supply and Urban Development Department. March 19-22, 1985.

Berry, R. Albert. Presumptive Income Tax on Agricultural Land: The Case of Colombia. National Tax Journal 25:169-182. 1972.

Berry, R. Albert and William R. Cline. Agrarian Structure and Productivity in Developing Countries. Baltimore, MD: The Johns Hopkins Press. 1979. Prepared for the International Labour Office within the World Employment Program.

Bhargava, P. K. Taxation of Agriculture in India. Bombay, India: Vora. 1976.

Bills, Nelson L. Real Property Taxes Related to Land Value and Use. In Land--Something of Value, Part II, Tax and Policy Issues. Wunderlich, Gene, editor. Lincoln Institute of Public Policy/Department of Agriculture, Economic Research Service. 1982, pp. 19-29.

Binswanger, Hans. Fiscal and Legal Incentives with Environmental Effects on the Brazilian Amazon. Washington, DC: The World Bank, Agriculture and Rural Development Department, Research Unit Report No. ARU-69. 1987.

A pioneering, policy-oriented study showing how poorly designed and applied land and income taxes, and especially exemptions therefrom, can lead to highly undesirable equity and environmental effects by encouraging land grabbing as well as ecologically and economically unsound forest clearing and land use. Includes specific recommendations and bibliography.

Bird, Richard M. Agricultural Taxation in Developing Countries. Finance and Development. Washington: 11(3):34-47, 42-43. September 1984.

_____. Taxation and Development Lessons from Colombian Experience. Cambridge, MA: Harvard University Press. 1970.

_____. Taxing Agricultural Land in Developing Countries. Cambridge, MA: Harvard University Press. 1974.

Bird, Richard and Oliver Oldman. Readings on Taxation in Developing Countries. Baltimore, MD: Johns Hopkins University Press. 1964.

Bonaparte, T. H. Henry George: His Impact and an Evaluation of His Relevance Today. Pace University. 1985.

Boserup, Ester. The Conditions of Agricultural Growth. Chicago, IL: Aldine Publishing Co. 1965.

Bravo-Ureta, B. E. The Impact of Selected Tax Provisions on Farm Growth and Structure. DAI 41(11). 1981.

The objective of this study was to evaluate the effect of selected tax provisions on farm growth and the structure of production agriculture. It was postulated that farm growth rates are the major factor in determining structural changes in production agriculture. The hypothesis of this research was that tax policies have a direct impact on farm growth and that this impact varies with farm size.

A mixed integer polyperiod linear programming model was constructed to trace out the growth patterns of two cash grain farms differing in size. The starting size of each model farm was 240 and 1,920 acres. The objective function was the maximization of after-tax wealth over a 20-year planning horizon assuming all assets were liquidated at the end of this period. Two scenarios were analyzed, one

assuming progressive and the second constant (25%) income tax rates. Two alternative policies were tested for each scenario--a non-restrictive policy, and a restrictive policy. The non-restrictive tax policy included: 1) accelerated depreciation; 2) investment credit; 3) interest payment write-offs on land mortgages; and 4) capital gains preferential treatment. The restrictive tax policy consisted of: 1) straight-line depreciation; 2) excluded investment credit; 3) interest payment on land mortgages were not tax deductible; and 4) capital gains were treated as ordinary income.

This research indicates that tax provisions differentially affect farms varying in size, confirming the hypothesis of the study. Under progressive income tax rates and the non-restrictive option the large farm showed greater growth in owned acreage, but lower growth in net worth than the small farm. By contrast, a combination of progressive income tax rates with the restrictive alternative showed that the small farm grew faster than the larger farm in both net worth and acreage. The results reveal that a shift from progressive to constant tax rates led to greater net worth and acreage growth for the large farm compared to the small farm under both tax alternatives.

A major conclusion of this research is that a taxation system including progressive income tax rates and a restrictive tax alternative (as defined above) may tend to promote a cash-grain production sector composed of numerous "small" farm units. A combination of progressive tax rates with a restrictive tax policy would tend to favor larger and fewer farms. If a constant income tax rate is implemented, the results indicate that under both tax policy alternatives included in this study, a rural economy based on larger and fewer farms would be promoted.

Brown, Harry Gunnison. Land-Value Taxation Around the World: Reports on Current and Historical Efforts to Apply the Principle of Collecting the Community-Created Value of Land for Community Benefit. New York: Robert Schalkenbach Foundation. 1955.

Brown, James R. and Sein Lin, editors. Land Reform in Developing Countries. Hartford, CT: The University of Hartford. 1967.

Brownschidle, Terry N. An Evaluation of the Economic Incentives of Water Use Charges for Producers Under Uncertainty. University of Minnesota. 1985.

Recent droughts in Minnesota have demonstrated that severe sub-surface water supply problems can appear even in states with abundant water resources. The present study reviews the conceptual basis for a tax on sub-surface water use and related policy considerations. Microeconomic analysis explains the response of producers to the economic incentives in a proposed tax on irrigation water use. A method of generalized stochastic dominance is used to identify efficient irrigation strategies for a representative crop enterprise.

More risk-averse decision-makers apply more irrigation water than the less risk averse. Water use decreases with an increase in the price of irrigation water. At tax rates in the range of two to three dollars per acre-inch of water, producers who do not realize substantial tax savings by purchasing an irrigation system would forego irrigation investment. The tax falls most heavily on risk averse producers, who tend to apply more irrigation water over the entire range of tax rates.

Brueckner, Jan K. Modern Analysis of the Effects of Site Value Taxation. National Tax Journal. Columbus, OH. 39:49-58. March 1987.

Formal analysis is generally absent from the previous literature on the effects of site value taxation. This paper analyzes the impacts of such a system (under which the property tax on improvements is eliminated, with the tax burden shifted toward land-using standard modern methods. Specifically, the analysis derives the long-run impacts on the level of improvements, the value of land and the price of housing of a shift to a graded tax system (where the improvements tax rate is lowered and the land tax rate is raised). The paper also analyzes the incidence of the short-run windfall gains and losses which result from gradation of the tax system.

Buiter, W. H. Measuring Aspects of Fiscal and Financial Policy. London: Center for Economic Policy Research. 1984.

The paper develops a forward-looking, comprehensive accounting framework for the public sector. By integrating the public sector budget constraint forward in time the government's present value budget constraint (PVBC) is obtained. In addition to the familiar financial assets and liabilities, comprehensive public sector net worth contains the following items: the value of the public sector capital

stock; the value of public sector property rights in land and natural resources; the present value of future seigniorage; the present value of future taxes net of transfers and subsidies; and the present value of future planned public sector capital formation, privatization or nationalization programs. From the "stock" PVBC, a number of different "flow" deficit concepts are derived; each one emphasizes a different aspect of the "sustainability" of current and/or prospective fiscal and financial plans. Together they provide a framework for organizing facts and plans about fiscal financial and monetary policy and for evaluating the consistency of spending and revenue projections for scenarios, public sector debt objectives and monetary targets.

Bulutoglu, Kenan. Incentive and Welfare Effects of Tax Structure Change: The Case of Turkey. Paper presented at the International Seminar on Fiscal Incentives to Promote Agricultural Development. Istanbul, Turkey. 1968.

Though hardly living up to its title and ostensible objectives, gives a succinct overview of the history of agricultural taxation in Turkey since 1923. Tries to deal with subsidies ("negative taxation") as well. At end of Ottoman Empire, title (abusively administered and harmful for development), land tax and livestock tax accounted for 50% of government revenues. Tax base was gross value of production. Land tax was introduced in 1858, title abolished in 1885.

New land tax was introduced in 1931. Rate was 10% on 1936 valuation, based on self-declaration vetted by neighbors and mayor, and on sales or rental values (the latter capitalized at 10%). Assessment unchanged until 1960s. By 1960, land values had risen about 50 times, land tax revenues only 2.7 times, dropping from 3% to 0.3% of total revenues. After much political maneuvering, Constitutional Assembly and military agreed in 1961 to triple assessments. Road tax and livestock tax are also levied. Income tax introduced in 1949; agriculture was exempt until 1960, but after that exemption levels were set quite high.

Kaldor proposal in 1960s was aimed at substitute for land tax based on average net product per hectare (calculated for national accounts purposes) for major types of land. Was not implemented, ostensibly because "too complicated" to administer, which author denies.

Burckel, Daryl V. and Zoel W. Daughtrey. Embryo Transplants: A New Frontier in Agricultural Taxation. Chicago: Taxes--The Tax Magazine 64:117-22. February 1986.

Burns, Bob L. An Analysis of the Cost of Property Tax Administration in Selected Arkansas Counties: Its Impact on Public School Finance. V45(08). University of Arkansas. 1984.

Carmean, Patricia A. Site Value Taxation. Chicago, IL: International Association of Assessing Officers. 1980.

Ceylon, Desiya Adayam Departamentuva. Tax Concessions for Agriculture. Colombo: Department of Inland Revenue. 1966.

Chamley, Christophe and Brian D. Wright. Fiscal Incidence in a Dynamic Life-Cycle Model with Land. Cowles Foundation for Research in Economics. Yale University. 1983.

Chibber, A. and J. Wilton. Macroeconomic Policies and Agricultural Performance in Developing Countries. How Macropolicies Can Produce a Bias Against Agriculture. Finance and Development 23(3):6-9. 1986.

Chijindu, Patrick, N. C. Alternative Approach to Personal Income Tax Administration in Nigeria. University of La Verne. 1985.

This was a descriptive study that utilized the Delphi Technique to sample the opinion of experts and reach consensus. The experts agreed that Nigeria should have a centralized personal income tax administration. The states should develop the sales tax and property tax to provide more revenue for infrastructural programs. Citizens should be well informed about the importance of taxation and its contribution to the socioeconomic growth of the nation. That way, socio-political resistance will be minimized.

CIDA (Comite Interamericano de Desarrollo Agricola). Tenencia de la Tierra y Desarrollo Socio-Economico. Country reports for Argentina, Brazil, Chile, Colombia, Ecuador, Guatemala, Peru. Washington, DC: Pan American Union. 1965.

Clark, Colin. The Value of Agricultural Land. Elmsford, NY: Pergamon Press. 1973.

An interesting intellectual effort combining theory and empirical analysis with some normative suggestions.

Clark, Colin and Margaret Haswell. The Economics of Subsistence Agriculture. 4th Edition. London: MacMillan, St. Martin's Press. 1970.

Clark, John. Milking Whom?: A Study of Europe's Leading Agricultural Sector, and its Effects on European and Third World Food Systems. 2nd Ed. London: International Coalition for Development Action. 1979.

Comcorde. Secretaria Tecnica. La Imposicion Sobre la Actividad Agropecuaria. Montevideo: Comcorde. 59. 1975.

Computer Application on Land Taxation in the Philippines. Tax Monthly 26:1-13. 1985.

Conference on Problems of Resource Mobilisation in the States. Problems of Resource Mobilisation in the States. Conference proceedings. April 21, 1969. New Delhi: Indian Institute of Public Administration. 1970.

Connell, Charles James. Land Revenue Policy, Northern India. Delhi: Neera Publishing House. 1983.

Coopers & Lybrand International Tax Network.

Cornes, Richard and Todd Sandler. The Theory of Externalities, Public Goods, and Club Goods. Cambridge, MA: Cambridge University Press. 1986.

Cura, Lilian and Luis H. Montenegro. Medidas de Promocion del Comercio Exterior: Exportaciones--Neutralidad o Incentivo del Sistema Tributario. Argentina: Impuestos 44-B:909-928. July 1986.

D'Alessandro, Raul L. Sector Agropecuario: Participacion en el PBI y Presion Fiscal. Revista Tributaria. Montevideo 12:201-214. May/June 1985.

Dahal, M. K. Built-in Flexibility and Sensitivity of the Tax Yields in Nepal's Tax System: A Case of Negative Elasticity of Land Tax. Economic Journal of Nepal 7:1-31. April/June 1984.

Daniels, Thomas L. and Robert H. Daniels. Vermont Land Gains Tax; Experience with it Provides a Useful Lesson in the Design of Modern Land Policy. New York: American Journal of Economics and Sociology 45:441-56. October 1986.

Das, N. R. and M. L. Rahman. Agricultural Taxation in Bangladesh: Its Efficiency and Adequacy. Bangladesh: Bangladesh Journal of Agricultural Economics 4(2):63-78. 1981.

The paper deals with the role of land development tax before April 1982. It was found that the fiscal significance of land revenue to the overall budget revenue of the Government is very small. The share of land revenue has fallen in

relation to other taxes in recent years. The ratio of land tax to agricultural income also registered a decline during the last few years. Empirical evidence showed that all the farm size groups had arrears of land tax due and the highest per acre arrears was due to the larger farms. Lack of funds and readily available cash were reported as important reasons for non-payment of land development tax by farmers. The inequitability of the land tax structure calls for a thorough improvement in the overall land tax system, its structure, collection and administration.

David, C. C. Credit and Price Policies in Philippine Agriculture. 82(2). Philippine Institute for Development Studies. 1982a.

_____. Government Policies and Farm Mechanization in the Philippines. 82(3). Philippine Institute for Development Studies. 1982b.

David, C. C. and A. M. Baliscan. An Analysis of Fertilizer Policies in the Philippines. 82(1). Philippine Institute for Development Studies. 1982.

Davies, David G. United States Taxes and Tax Policy. Cambridge, MA: Cambridge University Press. 1986.

Davis, L. Harlan. Economics of the Property Tax in Rural Areas of Colombia. Research Publication 25. Madison, WI: Land Tenure Center. 1967.

_____. Summary and Conclusions from Economics of the Property Tax in Rural Areas of Colombia. 68 LTC-5. Madison, WI: Land Tenure Center. 1968.

Department of Economic and Social Affairs. Manual of Land Tax Administration Including Valuation of Urban and Rural Land and Improvements. New York, NY: United Nations. 1968.

De Wulf, Luc. Financial Reform in China. Finance and Development 22:4, 19-22. Washington, DC: World Bank and International Monetary Fund. 1985.

Doebele, William A. The Provision of Land for the Urban Poor: Concepts, Instruments and Prospects. Schomol, A., R. W. Archer, S. Tanphipha, editors. Bangkok, Thailand: Select Books. 1983a.

_____. Valorization Charges as a Method for Financing Public Works in Bogota, Colombia. Urban and Regional Report No. 77-10. Washington, DC: The World Bank. 1975.

_____. Why Cadastral Records are Important for Less Developed Countries (Draft). Cambridge, MA: Urban Development Department. 1983b.

Doebele, William A., Orville F. Grimes, Jr. and Johannes F. Linn. Participation of Beneficiaries in Financing Urban Services: Valorization Charges in Bogota, Colombia. Land Economics 55:73-92. 1979.

Doebele, William A., editor. Land Readjustment: A Different Approach to Financing Urbanization. Lexington, MA: D.C. Heath and Co. 1982.

Domike, Arthur L. and Eric B. Shearer. Studies on Financing Agrarian Reform in Latin America. Research Publication 56. Madison, WI: Land Tenure Center. 1973.

Domike, Arthur L. and Victor Tokman. The Role of Agricultural Taxation in Financing Agricultural Development in Latin America. In Keith Griffin (ed.), Financing Latin American Development. New York, NY: McMillan. 1971.

Classifies Latin American countries into three groups according to developmental stage and analyzes agricultural taxation structures, systems, revenues and needs for each. Ten original tables and bibliography.

Dorner, Peter and Bonnie Saliba. Interventions in Land Markets to Benefit the Rural Poor. Research Publication 74. Madison, WI: Land Tenure Center. 1981.

Due, John F. Taxation and Economic Development in Tropical Africa. Cambridge, MA: Massachusetts Institute of Technology. 1963.

Dunne, James F. Estimating the Use Value of Agricultural Land For Farm Assessments in New York State. DAI 41(12). 1981.

Conversion of agricultural land to non-farm uses has generated increasing public concern over the past 25 years. Much conversion is seen as undesirable--as the result of land-intensive residential development patterns. Many agree that it causes assessed values on farmland to rise markedly as assessors react to the high land prices usually associated with conversion, and that this results in the premature withdrawal of land from agriculture. Nearly all states have enacted laws which seek to maintain agricultural use of land through property tax incentives. These laws generally allow farmland to be assessed at its use value rather than according to the traditional ad valorem standard.

Like the laws of most other states, New York's law fails to define operationally the concept of "use value." In this study, the concept is defined in a manner consistent with economic theory, and two methods of estimating use values from the business records of New York dairy farms are investigated. Both methods estimate the use value of farmland as the capitalized value of its expected income accruals. The "residual income" method estimates this income by subtraction of production expenses from total farm receipts, and the "marginal value product" method estimates it from the parameters of a production function.

Several functional forms, including the traditional Cobb-Douglas and two versions of the log-quadratic, were estimated from pooled time-series and cross-sectional data. Various specifications of input categories were investigated, as were regional and farm-specific effects. A procedure was developed by which land quality may be measured from information contained in soil survey reports. A variation of the log-quadratic was chosen as the function most representative of the production relationships. This model included dummy variables representing the five years in the time series and the state's agricultural regions. The use values it produced were compared on a regional and statewide basis with those estimated through the residual income method, and the conditions under which these might agree or diverge were reviewed.

Use values estimated by the marginal value product method were then compared with the market-based use values currently applied in New York. In general, the market and income-based values were very similar, although some evidence of non-farm influence on the sales-based values for one urbanized region was uncovered. Analysis of property tax liability for each of the sample farms--under both market-value and use-value assessment--demonstrated that approximately one-half of them would have saved at least $200 in property taxes through use-value assessment. Some correlation existed between the size of tax benefits and the degree of urbanization in regions of the state, but benefits were not confined solely to the urbanized regions. Many farms in urbanized regions appear to have been already assessed at less than use value.

Three major results emerged from this study. First, it was demonstrated that use values can be estimated with two income-based methods of very differing complexity. However, both methods require data which are not currently available for most farming enterprises, and are likely to produce values which are very similar to those estimated from careful analysis of market sales. Second, significant regional variations in the use value of dairy farmland were

uncovered; these differences indicate the need to establish values on a regional basis. Third, wide inter-farm variations in potential tax benefits were found, and these benefits were not limited to urbanized regions. This suggests that existing assessment practices vary widely, but that use-value assessment may provide farmers with a means of avoiding any adverse effects resulting from such variation.

Edelman, Marc. Land and Labor in an Expanding Economy: Agrarian Capitalism and the Hacienda System in Guanacaste Province, Costa Rica, 1880-1982. New York, NY: Columbia University. 1985.

Until the early twentieth century, Guanacaste was a frontier zone, with a minimal state presence, little infrastructure and limited economic importance. Rustling and peasant squatting often prevented landlords from exploiting their properties. New economic opportunities, including a boom in wood exports and technological changes in ranching, sparked enclosures. The consolidation of haciendas produced agrarian conflicts, but many disputes were, after 1900, resolved by land reforms. These, plus favorable state credit policies and legislation taxing cattle imports contributed to strengthening a sector of smallholding producers and to the attainment in 1950 of national self-sufficiency in beef production.

In the 1950s Guanacaste underwent integration into the world beef market, leading to higher unemployment and out-migration, ecological changes and lower beef consumption. The extensive resource use characteristic of the traditional hacienda persists in the modern export economy. Various ecological difficulties and institutional obstacles prevented a transition to profitable, but higher risk crop agriculture. Also important are the policies of international lenders, and credit, tax, pricing and agrarian policies that favor cattlemen.

Edwards, Mary E. Site Value Taxation in Australia: Where Land is Taxed More and Improvements Less, Average Housing Values and Stocks are Higher. American Journal of Economics and Sociology 43:481-95. October 1984.

Ely, Richard T. and George S. Wehrwein. Land Economics. Madison, WI: The University of Wisconsin Press. 1940.

Export Duties: A Review of the Past 10-20 Years. Manila: Tax Monthly 27:1-24 May 1986.

Faget, Alberto A. Impuesto a la Enajenacion de Productos Agropecuarios. Revista Tributaria. Montevideo 11:449-80. November/December 1984.

Falloux, Francois. Land Management, Tilting and Tenancy. Paper prepared for the World Bank Agricultural Sector Symposium. January 1987.

FAO. The Role of Agricultural Land Taxes in Japanese Development. Bird, Richard and Oliver Oldman editors. Readings on Taxation in Developing Countries. Baltimore, MD: Johns Hopkins University Press. 1964.

Farer, Tom J., editor. Financing African Development. Cambridge, MA: The Massachusetts Institute of Technology. 1965.

Fernandez Junquera, Manuela. La Tributacion de las Rentas Agricolas y Ganaderas en el Impuesto Sobre la Renta de las Personas Fisicas. Madrid: Hacienda Publica Espanola 68:199-212. 1984.

Ferry, Don Maliwat. Land Tax Reform and Philippine Agricultural Development. Dissertation. Yale University. 1962.

Follain, James R. and Tamar Emi Miyake. Land Versus Capital Value Taxation: A General Equilibrium Analysis. National Tax Journal 39:3789-405. 1986.

Forsythe, Dall W. Taxation and Political Change in the Young Nation 1781-1833. New York, NY: Columbia University Press. 1977.

Frankel, Marvin. Taxes, Pollution and Optimal Abatement in an Urban Economy. University of Illinois. 1984.

A closed urban spatial model is used to examine the impact on consumer-renters and on absentee property owners of pollution abatement and alternative means of financing it. An explicit utility function and an explicit pollution or amenity-distribution function are used, and all results are accordingly explicit. The incidence effects are developed for exogenously financed abatement and for its finance through an income tax and an excise tax. Note also is taken of the outcome with a property tax. The model also is used to consider optimal abatement from various advantage points. The results of consumer utility maximization under an income tax regimen are compared with those under an excise regimen, and both results are in turn compared with the outcome when a cost-benefit approach is applied.

Froomkin, Joseph N. Structure and Taxation of Agriculture in China. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954.

Fukutate, Tadashi. Japanese Rural Society. Ithaca, NY: Cornell University Press. 1972.

Gabir, Dafiea A. Assessing Organizational Effectiveness: Two Sudanese Agribusiness Cases (Gum Arabic, Oilseeds). V45(11). Columbus, Ohio: The Ohio State University. 1983.

Company (GAC) and the Sudan Oilseeds Company (SOC) are Sudanese monopoly export marketing companies dealing in gum arabic and oilseeds (mainly groundnuts and sesame). Implicitly, gum arabic, groundnuts and sesame were taxed to the tune of 34, 33 and 26 percent of their world market prices, respectively. When the overvaluation of the Sudanese currency was taken into consideration these implicit taxes rose to 77, 71 and 64 percent respectively, producers receiving only 23, 29 and 36 percent of the world market price of gum arabic, groundnut and sesame respectively. The actual tax revenues that were received by the Government from GAC and SOC represented 26 to 54 percent of the annual sales of the former and 12 to 32 percent of the annual sales of the latter.

Gaffney, Mason. Why Research Farmland Ownership and Values? Majchrowicz. 1985.

Gandhi, Ved P. Agricultural Taxation Policy: Search for a Direction. Aritha-Vikass. July 1969. pp. 3-49.

_____. Taxes, Subsidies and Agricultural Production (India). Seminar on Fiscal Incentives to Promote Agricultural Development. Istanbul, Turkey. 1968.

_____. The Tax Burden on Indian Agriculture. Cambridge, MA: Harvard University Press. 1966.

Garland, J. M. Economic Aspects of Australian Taxation. Melbourne, Australia: Melbourne University Press. 1934.

Gimeno Sanz, Jose Maria. Tributacion Sobre la Renta Agropecuaria: Base Real o Base Ficta. Revista Tributaria. Montevideo 12:185-200. May/June 1985.

Gloudemans, Robert J. Use-Value Farmland Assessments: Theory, Practice and Impact. Chicago: International Association of Assessing Officers, Research and Technical Services Department. 1974.

Gold, Ronald B. and Edward Foster. Measuring Equity in the Taxation of Agricultural Land: A Case Study of Nepal. Land Economics 48:277-280. 1972.

Goldstein, Bernice. Intercountry Evaluation of Cadastral Programs. Washington, DC: USAID, Bureau for Latin America. June 1974.

Gonzales, L. A., R. W. Herdt and J. P. Webster. Evaluating the Sectoral Impact of Mechanization on Employment and Rice Production in the Philippines: A Situational Analysis. Los Banos, Philippines: International Rice Research Institute. 1981.

Goode, Richard. Government Finance in Developing Countries. Washington, DC: The Brookings Institution. 1984.

Goode, Richard, George E. Lent and P. D. Ohja. Role of Export Taxation in Developing Countries. IMF Staff Papers 14:453-501. 1966.

Grimes, Orville F., Jr. Urban Land Taxes and Land Planning. IMF/World Bank. Finance and Development 12:1:16-20. March 1975.

Attempts to determine how effective urban land taxes are in achieving policy objectives.

Grossman, Philip J. Property Tax Assessment Bias: A Study of the Property Tax as a User Charge. V45(12). University of Virginia. 1984 Thesis.

Gupta, J. R. Burden of Tax in Punjab: An Inter-Sectoral and Inter-Class Analysis. New Delhi, India: Concept Publishing Company. 1983.

Hagmaan, Donald G. and Dean J. Misczynski. Windfalls for Wipeouts: Land Value Capture and Compensation. Chicago: American Society of Planning Officials. 1978.

Haji, Salleh B. Malay Rubber Smallholding and British Policy: A Case Study of the Batang Padang District in Perak (1876-1952). New York: Columbia University. 1985.

Various reasons motivated Malays in Batang Padang who were traditionally padi cultivators, forest produce gatherers, petty traders and miners to adopt rubber. The expanding tin mines in the district polluted padi areas, while financial and technical aids promised by the British for their padi cultivation were not delivered. Land regulations and various taxes and fees further curtailed the Malays' activities in other occupations. But large profits in rubber as demonstrated by large European estates had the

strongest impact on the Malays, causing the spread of rubber cultivation on Malay land. This upset the government's policy to make them padi growers to supply food for the burgeoning labor population on estates and in mines. Various regulations and enactments failed to circumscribe the Malays' activities in rubber and to encourage them in padi planting. These schemes discriminated against the smallholders in terms of production and export. A Rubber Licensing Board further limited the smallholders' freedom in marketing their products. After independence, because Malays now held the voting majority, future development programs favored them.

Halia, Anne. Effects of Land Value Tax on Land Use. Land Use Policy 2:240-43. July 1985.

Hallett, Graham. The Economics of Agricultural Land Tenure. London: Land Books. 1960.

Harberger, Arnold C. Consideraciones en Torno al IMPROME. Montevideo, Uruguay: USAID. 1975. Spanish.

_____. Issues of Tax Reform for Latin America, in the Organization of American States Joint Tax Program, Fiscal Policy for Economic Growth. Santiago, Chile. 1960, p.120.

Harriss, C. Lowell. Taxation: Today's Lessons from Henry George. Pace University. Monography. No. 6:1-27. 1985.

_____. Tax Policy for Economic Progress--Developing-Countries as Well as Developed Ones Should Tax to Promote Production and Jobs. American Journal of Economics and Sociology. 1986.

_____. Jamaica and Barbados.

Harvard Law School, International Program in Taxation. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development, January/February 1954. Cambridge, MA: Harvard University Press. 1954.

Hays, Samuel S. Agricultural Taxation and Development in Iran. Tehran, Iran: USAID. 1964.

Hazell, Peter B. R. and Roger D. Norton. Mathematical Programming for Economic Analysis in Agriculture. New York, NY: MacMillan Publishing Company. 1986.

Heller, Walter W. A Survey of Agricultural Taxation and Economic Development. In Agricultural Taxation and Economic Development. Wald, Haskell P., editor. Cambridge, MA: Harvard University Printing Office. 1954a.

_____. The Adaptation of Income Taxation to Agriculture in Underdeveloped Countries. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954b.

_____ The Use of Agricultural Taxation for Incentive Purposes. Wald, Haskell P. and J. N. Froomkin, editors. Agricultural Taxation and Economic Development pp. 222-244. Cambridge, MA: Harvard University Press. 1954c.

Hendershott, Patrick H. and David C. Ling. Prospective Changes in Tax Law and the Value of Depreciable Real Estate. Columbus, OH: Ohio State University. 1984.

The Economic Recovery Tax Act of 1981 significantly reduced the taxation of income-producing properties by accelerating tax depreciation on both new and, especially, existing properties. A partial reversal of the 1981 legislation appears likely. To provide some insight into the possible effects of a decrease in tax depreciation of income-producing properties, two potential tax changes are analyzed; an increase from 15 to 20 years in the tax service lives of both new and existing properties and an increase for existing properties only. Both residential and commercial/industrial properties are considered.

Herring, Ronald Jackson. Redistributive Agrarian Policy: Land and Credit in South Asia. Dissertation. Madison, WI. 1976.

Hicks, J. R. and U. K. Hicks. The Taxation of the Unimproved Countries. Bird, Richard and Oliver Oldman, editors. Readings on Taxation in Developing Countries pp. 402-412. Baltimore, MD: Johns Hopkins University Press. 1964.

Hinrichs, Harley H., Raj Krishna and Richard J. Ward, eds. Fiscal Incentives to Promote Agricultural Development.

Hipgrave, C. C. H. Feasibility of Land Value Taxation: Experience in Commonwealth Countries. International Seminar on Land Taxation, Land Tenure and Land Reform in developing Countries, University of Hartford, 1966. Archibald M. Woodruff, James R. Brown and Sein Lin, editors. West Hartford, CT: John C. Lincoln Institute. 1967.

Hirschman, Albert O. Journeys Toward Progress: Studies of Economic Policy-Making in Latin America. New York, NY: Twentieth Century Fund. 1963.

_____. Land Taxes and Land Reform in Colombia. Bird, Richard and Oliver Oldman, editors. Readings on Taxation in Developing Countries, pp. 416-435. Baltimore, MD: Johns Hopkins University Press. 1964.

Hirsh, Max. Land Values Taxation in Practice: A Record of the Progress in Legislation of the Principles of Land Values Taxation. Hartford, CT: University of Hartford, John C. Lincoln Institute. 1968.

Holland, Daniel M. A Report on the Taxation of Unimproved Value in Jamaica. Cambridge, MA: Regional and Urban Planning Implementation, Inc. 1966.

_____. A Study of Land Taxation in Jamaica. Becker, Arthur, editor. Land and Building Taxes: Their Effect on Economic Development pp. 239-286. Madison, WI: University of Wisconsin Press. 1969.

Holland, Daniel M. and James R. Follain. Property Taxation in Jamaica. Staff Working Paper No. 16. Syracuse, NY: Syracuse University. 1985.

Holland, Daniel M., James R. Follain and Tamar Emi Miyake. Analysis of Tax Base and Alternative Plans. Syracuse, NY: Syracuse University. 1984.

Holland, Daniel M. and W. N. Vaughn, "An Evaluation of Self-Assessment Under Property Tax," in A. D. Lynn, Jr., editor, The Property Tax and its Administration. Madison, WI: The University of Wisconsin Press, 1969, pp. 112-113.

Holland, Daniel M., Michael Wasylenko and Roy Bahl. The Real Property Tax Administration Project. Syracuse, NY: Metropolitan Studies Program, International Series, The Maxwell School of Citizenship and Public Affairs, Syracuse University, Monograph No. 9. 1980.

Holland, Daniel M., editor. The Assessment of Land Value. Madison, WI: University of Wisconsin Press. 1970.

Hossain, Mahabub, Atiur Rahman and M. M. Akash. Agricultural Taxation in Bangladesh: Potential and Policies. Research Publication 42. Dakha, Bangladesh: Bangladesh Institute of Development Studies. 1985.

Hunter, Guy. Modernizing Peasant Societies: A Comparative Study in Asia and Africa. New York, NY: Oxford University Press. 1969.

Idachaba, Francis Sulemanu. The Effects of Taxes and Subsidies on Land and Labour Utilization in Nigerian Agriculture. AREP 7. East Lansing, MI: Michigan State University. 1973.

India, Committee on Taxation of Agricultural Wealth and Income. New Delhi: Ministry of Finance. 1982.

Indian Merchants' Chamber Economic Research and Training Foundation, Taxation of Agriculture in India: A Critical Survey of Agricultural Taxes on Land, Income and Wealth. Bombay. 1970.

International Association of Assessing Officers. Analyzing Assessment Equity. Chicago: The Association. 1977.

_____. Improving Real Property Assessment: A Reference Manual. Chicago: The Association. 1978.

International Bank for Reconstruction and Development. A Graduated Land Tax. Bird, Richard and Oliver Oldman, editors. Readings on Taxation in Developing Countries pp. 413-415. Baltimore, MD: Johns Hopkins University Press. 1964.

International Seminar on Land Taxation, Land Tenure and Land Reform in Developing Countries. West Hartford, CT: John Lincoln Institute, University of Hartford. 1967.

International Tax Summaries A Guide for Planning and Decisions. New York, NY: John Wiley & Sons, Inc. 1986.

Irani, Phiroze. Structure and Taxation of Agriculture in India and Pakistan. Paper and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954.

Issariyanukula, Apisith. An Econometric Analysis of the Supply and Demand for Soybeans in Thailand. DAI 41(8). 1980.

Jain, P. C. Agricultural Taxation in Haryana, Kurukshatra: Kurukshatra University. 1974.

Jap, Kim Siong. Indonesia: Overhaul of an Inherited Tax System--New Tax on Land, Buildings and New Stamp Duties. Bulletin for International Fiscal Documentation 40:165-167. April/May 1986.

Jamaica Tax Structure Examination Project. Property Tax Reform in Jamaica. Syracuse, NY: Metropolitan Studies Program, The Maxwell School, Syracuse University, Revenews 2(2). Summer 1986.

Jayasundera N. S. de S. A Comparative Study of the Tea Industries in Sri Lanka, India and Kenya. Journal of the National Institute of Plantation Management 2(1):42-88. 1982.

This comparative study of the tea industries of Sri Lanka, India and Kenya discusses the following: climatic and soil conditions; yield and crop; plucking; nursery techniques; replanting and new planting; shade; ground cover; irrigation; weeding; pruning; use of fertilizers; pests and diseases; manufacturing activities association with tea; marketing; duties/levies/taxes and subsidies; cost of production; labor; welfare measures for estate workers; plantation organization and management; and salary structure of management personnel. The Kenya Tea Development Authority is compared with the Tea Small Holders Association Scheme in Sri Lanka.

Johl, S. S. Agricultural Taxation in a Developing Economy: A Case Study in India. ESOP 39. Columbus, Ohio: Department of Agricultural Economics & Rural Sociology, Ohio State University. 1972.

Johnson, Erwin H. Land Tax and its Impact on Use and Ownership in Rural Japan. Economic Development and Cultural Change 19(1):49-70. October 1970.

Johnson, Webster and Raleigh Barlowe. Land Problems and Policies. New York: McGraw-Hill. 1954.

Johnston, Bruce F. Food, Health and Population in Development. Journal of Economic Literature 15:879-907. 1977.

Johnston, Bruce F. and John Mellor. The Nature of Agriculture's Contribution to Economic Development. Stanford Food Research Institute Studies 1(3). 1960.

Joshi, Tryambak Mahadfo. Studies in the Taxation of Agricultural Land and Income in India. Kalyani Publishers. 1979.

Kaufman, George G. and K. R. Rosen, editors. The Property Tax Revolt: The Case of Proposition 13. Cambridge, MA: Ballinger Publishing Co. 1981.

Kazuchi, Okhawa and Henry Rosovsky. The Role of Agriculture in Modern Japanese Economic Development. Economic Development and Culture Change (9):43-67. 1960.

Kelim, Sdn. Bhd. Review of Agricultural Prices Taxes and Subsidies: Final Report. Malaysia, in Association with Economic Consultants Limited. 1980.

Khan, Mahmood Hasan. Agricultural Income Tax: Untapped Potential for Development Resources. Karachi: Pakistan & Gulf Economics 4:36-39. December 21, 1985.

Khot, Sidharth Malagouda. The Development of Agricultural Taxation in India. Ann Arbor, MI. University Microfilms. 1958.

Kone, Bacari. The Impact of Direct Taxation and Government Price Policies on Agricultural Production in a Developing African Country: An Empirical Study of Mali. V44(07). Albany, NY: State University of New York. 1983.

In the literature of development finance, some say heavier direct taxation would stimulate agricultural production. This thesis assesses quantitatively the impact of government direct taxation and price policies on production in the agricultural sector of Mali. The study covers 1962-1979; all major taxes in the agricultural sector were inherited or inspired from colonial practices and administration. Producer prices of the major agricultural products were set far below their free market prices. The probable effects of direct taxes and price policies on production were estimated with a dynamic expectation and adjustment model.

The results do not confirm the stimulating effects of direct taxation on agricultural production. They provide some evidence of a negative impact on production in three of the four sectors. The substitution effect of the taxes leads to migration and resource reallocation. Farmers respond to price incentives in all but the cotton sector (where a backward bending supply curve is present).

Koo, Anthony. The Theory of Land Tenure. n.d.

Krishna R. Some Aspects of Agricultural Growth, Price Policy and Equity in Developing Countries. Food Research Institute Studies 18(3):219-260. 1982 .

Krishnan, S. N. Agricultural Taxation and States' Resources. New Delhi: USAID. 1972.

Krzyzaniak, Marian and Suleyman Ozmucur. The Short-Run Burden of Taxes on the Turkish Agriculture of the Sixties. Paper #52. Houston, TX: Program of Development Studies, Rice University. 1974.

Kumar, D. The Taxation of Agriculture in British India and Dutch Indonesia. Discussion Paper, Development Economics Research Centre, University of Warwick. 23. 1982.

Lansdell, Henry. The Sacred Tenth Studies in Tithe-Giving Ancient and Modern. 1. London, England: Sampson Low, Marston and Co., London. 1906a.

_____. The Sacred Tenth Studies in Tithe-Giving Ancient and Modern. 2. London, England: Sampson Low, Marston & Co., London. 1906b.

Lefcoe, George, editor. Tax Policies to Achieve Land-Use Goals: Proceedings of a Conference. Cambridge, MA: Lincoln Institute for Land Policy. 1978.

Lent, G. E. Property Taxes in the Caribbean Community. Bulletin for International Fiscal Documentation. 1982.

Leonard, David K. African Practice and the Theory of User Fees. Barking, Essex. Agricultural Administration 3:137-57. 1985.

Lewis, Stephen R., Jr. Agricultural Taxation in Developing Countries. Agricultural Development and Economic Growth. Herman M. Southworth and Bruce F. Johnston, editors. Ithaca, NY: Cornell University Press. 1967.

_____. Agricultural Taxation and Intersectoral Resource Transfers. Nairobi, Kenya: Nairobi Institute for International Development Studies, University of Nairobi. 1971.

_____. Taxation for Development: Principles and Applications. New York: Oxford University Press. 1984.

Lin, Chuan. The Incidence of the Property Tax. V45(11). Urbana-Champaign, IL: University of Illinois. 1984.

Lincoln Institute of Land Policy. Land Taxation and Land Use. Laconte, Pierre and Ann L. Strong, editors. 1981.

_____. Land Valuation Methods, Rural and Transitionary Land. Cambridge, MA: Lincoln Institute of Land Policy. 1980b.

_____. State Taxation of Forest and Land Resources: Symposium Proceedings. Cambridge, MA: Lincoln Institute of Land Policy. 1980a.

Lindauer, John and Sarjit Singh. Land Taxation and Indian Economic Development. New Delhi: Kalyani Publishers. 1979.

Lindholm, Richard W., editor. Land Taxation in Taiwan: Selected Aspects.

_____. Proceedings of a Symposium Sponsored by the Committee on Taxation, Resources and Economic Development (TRED), UW-Milwaukee. Madison, WI: The University of Wisconsin Press. 1965.

_____. Property Tax Reform: Foreign and United States Experience with Site Value Taxation. Cambridge, MA: Lincoln Institute of Land Policy. 1977.

Lindholm, Richard W. and Arthur D. Lynn, editors. Land Value Taxation: The Progress and Poverty Centenary. Madison, WI: University of Wisconsin Press. 1982.

Linn, Johannes F. The Incidence of Urban Property Taxation in Colombia. The Taxation of Urban Property in Less Developed Countries. Roy W. Bahl, editor. Madison, WI: University of Wisconsin Press. 1979.

Lissner, Will. Brunei's Superior Tax System. American Journal of Economics and Sociology 43:340. July 1984.

Describes how Brunei has applied the Principle of Land Value Taxation to its oil Resource Land.

Lopez Aguado, Antonio. Los Impuestos y la Realidad Social de America Latina. Santo Domingo: Tributacion 10:1-123. July/December 1984.

Low, Murtra, Jorge Enrique and Gomez Ricardo. Impuestos al Comercio Exterior. Bogota: Impuestos 16:12-15. July/August 1986.

Ludwig, Armin K. and Harry W. Taylor. Brazil's New Agrarian Reform: An Evaluation of Its Property Classification and Tax Systems. New York: Praeger. 1969.

Lynn, Arthur D., Jr., editor. Property Taxation Land Use & Public Policy. Committee on Taxation, Resources and Economic Development (TRED). Madison, WI: University of Wisconsin Press. 1973.

_____. Property Taxation Land Use & Public Policy. Committee on Taxation, Resources and Economic Development (TRED). Madison, WI: University of Wisconsin Press. 1977.

_____. The Property Tax and Its Administration. Madison, WI: University of Wisconsin Press. 1969.

Majchrowicz, T. Alexander & R. R. Almy, editors. Property Tax Assessment: Processes, Records and Land Values, Proceedings of a Workshop on Property Assessment. Washington, DC: USDA-ERS & The International Association of Assessing Officers. 1985.

Manig, Winfried. Steuern und Rurale Entwicklung. Socioeconomic Studies in Rural Development. No. 38. Saarbruecken and Fort Lauderdale: Breitenbach Publishers. 1981a.

_____. The Tax Reform Discussion in India. Quarterly Journal of International Agriculture 20(1):88-100. 1981b.

Massey, David R. Labor Migration and Rural Development in Botswana. V41(12). Boston, MA: Boston University Graduate School. 1981.

Mathew, Elangikal Thomas. Agricultural Taxation and Economic Development in India. Bombay, India: Asia Publishing House. 1968.

Mayshar, Joram. Taxation with Costly Administration. WS 8616. Madison, WI: University of Wisconsin Press. 1986. Social Systems Research Institute Workshop Series.

Presented here is a simple model of taxation, which emphasizes the role of administration by the tax authorities and sheltering activity by taxpayers. This model is used to derive policy implications concerning the proper measurement of the cost of public funds and the criterion for optimal administration. The presentation of the payment and collection of taxes as a game is used here to argue the possibility of an inferior Nash equilibrium with excessive taxation. Finally, by focusing on changes in the technology of taxation, the model is used to provide an integrated demand and supply explanation of the growth of taxation over time and of tax differences between countries.

McCullough, James S. Financing Local Government Services in Developing Countries: Case Studies of Implementing Innovation Chapel Hill, NC: University of North Carolina. 1983.

The purpose of the study was to develop and test models of successful financial management practices in developing country municipalities. The study employs a set of four case studies in which innovative financial management practices were introduced in either local tax collection improvements or cost recovery in municipal services. The four case studies include: Brazil--cost recovery in self-help housing programs; Philippines--cost recovery in municipal water systems; Ghana--improvements in head tax

collection system; Tunisia--improvements in local property tax collection system.

McLure, Charles E. The Relevance of the New View of the Incidence of the Property Tax in Development Countries. Paper #75. Houston, TX: Program of Development Studies, Rice University. 1976.

McMahon, Gary and Raymond Joseph. International Commodity Agreements and a Small Developing Country: The Case of Kenya and the International Coffee AGreement. DAI 45(9). 1984.

Mellor, John W. The Economics of Agricultural Development. Ithaca, NY: Cornell University Press. 1966.

Mellor, John W. and Bruce F. Johnston. The World Food Equation. Journal of Economic Literature 22:531-574. 1984.

Mieszkowski, Peter M. Tax Incidence Theory: The Effects of Taxes on the Distribution of Income. Journal of Economic Literature 7:1103-1124. 1969.

_____. The Property Tax: An Excise Tax or a Profits Tax? Journal of Public Economics 1:73-96. 1972.

Miller, Barbara. Benefit Financing in Bangladesh: A review of the possibilities for rural public works. Asian Journal of Public Administration 6(2). 1984.

Miller Barbara D. and James A. Wozny. Land Tenure Patterns in Bangladesh: Implications for the Revenue and Distributional Effects of Changes in Land Taxation. Macomb, IL: Journal of Developing Areas 19:459-82. July 1985.

_____. The Land Development Tax in Bangladesh: Insights from the 1978 Land Occupancy Survey. Syracuse, NY: Maxwell School of Citizenship and Public Affairs. 1984.

Mills, David E. The Non-Neutrality of Land Taxation. National Tax Journal 34:125-130. 1981.

Minana, H. N. Present-Day Validity of the Land Revenue Tax in Argentina. Desarrollo Economico. 1985.

Moral-Lopez, Pedro. Tax Legislation as an Instrument to Assist in Achieving the Economic and Social Objectives of Land Reform. Information on Land Reform, Land Settlement and Cooperatives (2):2-11. 1965.

Murray, J. F. N. Report to the Government of Jamaica on Valuation, Land Taxation and Rating. Kingston: Government Printer. 1957.

Musgrave, Richard. Fiscal Reform for Colombia. Cambridge, MA: Law School of Harvard University. 1971.

Mvunga, Mphanza P. Land Law and Policy in Zambia. Gweru, Zimbabwe: Published on behalf of the Institute for African Studies, University of Zambia, Mambo Press. 1982.

Nadkarni, M. V. Socialist Agricultural Price Policy: A Case Study of GDR. New Delhi, India: People's Publishing House. 1979.

Nanvati and Anjara. The Indian Rural Problem. Bombay: The Indian Society of Agricultural Economics. 1951.

Narayanan, Suresh. Sectoral Tax Incidence in an Open Economy: A Study of Peninsular Malaysia. Boston University, 1986.

This study estimates sectoral tax burdens including the burden of "extra-budgetary" taxes that do not show up in government accounts. These include income losses borne by groups forced to subsidize others by trade levies that depreciate the exchange rate and lower the domestic currency value of export earnings. Several hypotheses were formulated to determine whether the tax system narrowed existing sectoral income differences; whether agriculture was indeed undertaxed (as observed elsewhere); and if agricultural taxation was consciously used to foster industrialization. The tax system widened sectoral income differences. The hypothesis of an undertaxed agricultural sector is not valid in Malaysia. Consequently, instead of raising existing taxes on agriculture, the tax system should be re-evaluated. Although agricultural taxation was never used consciously to encourage industrialization, agriculture remained overburdened because of extra-budgetary taxes. Neglecting these implicit taxes understates the burden on poor farmers cultivating export crops, burdened by both explicit and implicit taxes in their dual roles as consumers and producers. Finally, the study suggests areas where redistribution through the tax system would not undermine economy.

Nath, S. Impact of Rent Control on Property-Tax Base in India---An Empirical Analysis. Economic and POlitical Weekly 19(19):805-810. 1984.

Navarrete, Ifigenia M. Agricultural and Land Taxation. In Peackco, Alan T. and Gerald Hauser, editors. Government Finance and Economic Development. Paris: Organization for Economic Cooperation and Development. 1965. pp. 195-210.

Nelson, G. G. and M. Agcaoili. Impact of Government Policies on Philippine Sugar. WP 83-04. Philippine Institute for Development Studies. 1983.

Netzer, Dick. Economics of the Property Tax. Washington, DC: The Brookings Institution. 1966.

New Zealand: Agricultural Tax Changes. World Tax Report 14-15. January 1986.

New Zealand. Consultative Committee on Primary Sector Taxation. Report of the Consultative Committee on Primary Sector Taxation to the Ministers of Finance, Agriculture and Forests. Wellington, NZ: V.R. Ward, Government Printer. 1986.

Nolledo, Jose N. Principles of Land Reform and Taxation, with Land Reform Code. Manila: Rex Book Store. 1971.

Nowak, Norman D. Tax Administration in Theory and Practice with Special Reference to Chile. New York, NY: Praeger Publishers. 1970.

Ntoko, Alfred N. Government Policies and Agricultural Growth: The Case of Cameroon From 1960-1981. Birmingham, NY: State University of New York. 1986.

It has been argued that infrastructural bottlenecks are, sometimes more constraining to agricultural growth than low farm prices. Thus in agriculture to provide infrastructural services might be more efficient than raising prices at the early stages of development. Previous attempts to test this hypothesis compared the aggregate supply response to higher prices and to levels of infrastructure. Because these studies are in partial equilibrium, they cannot analyze the effects of government policies on the intersectoral allocation of resources.

Nunez Minana, Horacio. Validez Actual Del Impuesto A La Renta Neta Potencial de la Tierra en la Argentina. Buenos Aires: Desarrollo Economico 25(98). 1985.

An important (lamentably, posthumous) contribution to a better understanding of the theoretical advantages of a tax on presumed land rent as compared with other forms of agricultural taxation, in the Argentine context. Nunez also gives a brief history of attempts to introduce such a tax

nationally in Argentina and cites the reasons for their failure. Some outstanding conclusions:

--If a tax on potential land rent is accompanied by equivalent income tax relief, the latter's progressivity is lost.

--Experience indicates that attempts to attain multiple objectives with a tax on potential rent "have resulted in...creation of great expectations that were not fulfilled, complicated the discussions and approval of the tax and obstructed its realistic implementation," (p. 287).

--The tax on potential land rent should not be expected to "yield substantial additional tax revenue from the agricultural sector or important immediate effects in terms of redistribution of landownership...or income in the agricultural sector," (ibid).

--Increasing the importance of the tax on land value or introduction of a presumptive land rent tax "must be adequately linked to the operation of other existing taxes," (p. 288).

For the specific Argentine situation, Nunez points out that failure to apply the tax on presumptive land rent approved by the National Congress in 1973 (Law 20538) was due to the non-implementation of the requisite cadastral surveys and land appraisals, but that the new political situation favored a reconsideration for medium-term application.

Includes a brief but valuable bibliography.

Oates, Wallace E. The Effects of Property Taxes and Local Public Spending on Property Values: An Empirical Study of Tax Capitalization and the Tiebout Hypothesis. Journal of Political Economy 77:957-971. 1969.

Obeyesekere, Gananath. Land Tenure in Village Ceylon: A Sociological and Historical Study. London: Cambridge University Press. 1967.

Ogura, Takekazu, ed. Agricultural Development in Modern Japan. Tokyo, Japan: FAO Association. 1963.

Olson, Kenneth Ray. Soils and Climate Effects on Yields for Assessment Evaluations. V44(06). Cornell University. 1983.

Opena, C. L. Export Behavior and Incentives of the Agribusiness Firms in the Philippines. 44(1). Dissertation Abstracts International. A. 1983.

Pakistan Department of Marketing Intelligence and Agricultural Statistics. Report on Influence of Price and Fiscal Policies on Production of Major Crops in Pakistan and Recommendations for Future Policies. Rawalpindi. 1964.

Papanek, Gustav F. Development Problems Relevant to Agricultural Tax Policy. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954.

Pathak, Mahesh T. Agricultural Taxation in Gujerat by Mahesh T. Pathak and Arun S. Patel. New York, NY: Asia Publishing House. 1970.

Pechman, Joseph A. Who Paid the Taxes, 1966-85? Washington, DC: The Brookings Institution. 1985.

Pistono Alvarez, Jose Luis. Proyecto de Ley: Impuesto Unico a los Bienes Raices Agricolas. Santiago, Chile: Ministerio de Agricultura, Consejo Superior de Fomento Agropecuario, 1964.

Portugal. Codigo da Contribuicao Predail e Imposto Sober a Industria Agricola. 3rd Ed. Lisboa, Portugal. 1985.

Prest, A. R. The Taxation of Urban Land. Manchester: Manchester University Press. 1981.

Qureshi, Anwar Iqbal. Methods of Assessment of the Land Tax in the Indo-Pakistan Subcontinent. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954a.

_____. Structure and Taxation of Agriculture in Tunisia. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954b.

Qureshi, Sarfraz Khan. Some Aspects of Agricultural Price and Taxation Policies in Pakistan. Pakistan: Pakistan Institute of Development Economics. 1985.

Rabushka, Alvin and Bruce Bartlett. Tax Policy and Economic Growth in Developing Nations. Washington, DC: USAID. 1985.

Rao, J. Mohan. Agriculture in Recent Development Theory. North-Holland Publishing Company, Journal of Development Economics, Vol. 22. 1986.

Raup, Philip M. Agricultural Taxation and Land Tenure Reform in Underdeveloped Countries. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954.

Reca, Lucio G. Argentina, Country Case Study of Agricultural Prices, Taxes, and Subsidies. Washington, DC: World Bank. 1980.

Reeb, D. J. and L. R. Tomson. Challenges to the Ideal Property Tax--Proposals of Administrative Measure for Property Tax Reform. American Journal of Economics and Sociology 44(4):463-478. 1985.

Regmi, Mahesh Chandra. Land Tenure and Taxation in Nepal. 2nd Edition. Kathmandu: Ratna Pustak Bhandar. 1978.

Rhoads, William G. and Richard M. Bird. The Valorization Tax in Colombia: An Example for Other Developing Countries. Land and Building Taxes. Arthur P. Becker, editor. Madison, WI: University of Wisconsin Press. 1969.

Roberts, Neil A. and H. James Brown. Property Tax Preferences for Agricultural Land. The Lincoln Institute of Land Policy, Landmark Studies. 1980.

Roberts, Neal A. and H. James Brown, editors. Property Tax Preferences for Agricultural Land. Montclair, NJ: Allanheld, Osmun & Co. Publishers, Inc. 1980.

Rose, Louis A. Taxation of Land Value Increments Attributable to Rezoning. Honolulu: Economic Research Center, University of Hawaii. 3:76. 1971.

Ross, Jaime. Instrumentos Tributarios de Financiamientos Coadyuvantes a la Produccion Agraria de Alimentos. Santo Domingo, Dominican Republic: Instituto de Capacitacion Tributaria de al Secretaria de Estado de Finanzas. 1983.

Rybeck, W. The Property-Tax as a Super User Charge. Proceedings of the Academy of Political Science 35(1):133-147. 1983.

Sah Raaj Kumar and Stiglitz, Joseph E. Taxation and Pricing of Agricultural and Industrial Goods. National Bureau of Economic Research. Working Paper 85-23. University of Pennsylvania. 1985.

A basic problem faced by most economies at early stages of their development is how best to raise the investable surplus for rapid accumulation: to what extent should the burden be placed on those in the agricultural sector (by

lowering the price of their output relative to the industrial products), and to what extent should the burden be borne by industrial workers. This question was central to the early Soviet state (where it was debated as the problem of price scissors) and it is central to many of today's LDCs, whether socialist or not. The answer depends in an important way on the salient features of the economy; among the features of the economy which we emphasize here are: the trade environment faced by the economy, the mechanisms which determine wages and earnings, and the effects of wages and prices on the productivity of workers. Under alternative representations of these features, we analyze the consequences of changing the terms of trade (on peasants, on industrial workers, and on the investable surplus) and identify several intuitive properties of the optimal terms of trade.

We examine two other issues which have remained controversial. The first issue concerns the effect of changes in the terms of trade on the intersectoral distribution within agriculture (for example, on the welfare of landless workers versus that of landlords). We delineate simple conditions to determine who gains and who loses. The second issue concerns which agricultural inputs and outputs should be taxed, and which should be subsidized. We present powerful rules for reform in the prices of cash crops and production inputs. These rules are Pareto improving (that is, everyone parsimonious with respect to the information required to implement them). We also use the insights obtained on our analysis to interpret certain aspects of the Soviet industrialization debate (1924-28), and the subsequent collectivization of agriculture.

Sain, K. Issues in Agricultural Price Determination. Indian Journal of Agricultural Economics 36(4):66-72. 1981.

Salazar, Mario. A Multicommodity Equilibrium Approach to Welfare Analysis of Market Intervention in the Costa Rican Agricultural Sector. Ames, IA: Ph.D. Thesis, University Microfilms ADG85-05870. 8507. 1984.

Analysis of government policies on corn, rice, sugarcane, coffee and beef, 1960-80. Multicommodity equilibrium model shows redistribution effect on welfare of groups involved in market transactions. Factor supplies taken as a given. Results differ from those of a partial equilibrium approach. All interventions analyzed led to significant adjustment effects in government revenues and in the welfare of private groups.

Salter, Leonard A., Jr. A Critical Review of Research in Land Economics. Madison, WI: The University of Wisconsin Press. 1967.

Sanchez Galiana, Jose Antonio. Consideraciones Acerca Del Impuesto Municipal Sobre el Incremento de Valor de los Terrenos. Civitas/Revista Espanola de Derecho Financiero 42:209-38. April/June 1984.

Sanwal, M. The Social Forestry Design Framework: The Hill Areas of Uttar Pradesh. Network Paper, Social Forestry Network, Overseas Development Institute, UK. 1986.

The paper addresses itself to India's Hill areas, illustrating the different perspectives of national and local levels, and of the actors themselves: those who influence policy, and the poor. Since nearly three-quarters of the land in Hill areas is under Government owned forest, it is chiefly through forestry programs that Hill tribes are offered participation in the Indian State. The paper points out how problems spring from the fact that the forests are treated by Government as sources of revenue rather than sources of livelihood.

Sazama, Geraldo and Harlan L. Davis. Land Taxation and Land Reform. Economic Development and Culture Change pp. 641-653. 1973.

_____. Land Taxes-Prerequisites and Obstacles: Bolivia. National Tax Journal. 23:315-324. September 1970.

Scheftel, Vetta. The Taxation of Land Value, A Study of Certain Discriminatory Taxes on Land. Boston & New York: Houghton Mifflin Co. 1916.

Schroeder, Larry. Upazila Parishads: Their Structure and Revenues. Occasional Paper 86. Syracuse, NY: Syracuse University. 1984.

Schuh, G. Edward and Wesley C. Scharlach. Land Taxes and Land Values. RB 821. Lafayette, IN: Cooperative Extension Service, Purdue University. 1966.

Schwab, Peter. Decision-Making in Ethiopia; A study of the Political Process. Rutherford, NJ: Fairleigh Dickinson University Press. 1972.

Scotchmer, Suzanne. Property Values and Economic Efficiency in a Model of Overlapping Jurisdictions. Cambridge, MA: Harvard Institute of Economic Research Discussion Paper, 1044. 1984.

Equilibrium often fails to exist in models of jurisdictional behavior. Sometimes the jurisdiction (inefficiently) wants unlimited population. In other models, the failure is that there is always an incentive for some group of people to create a new jurisdiction. These models do not incorporate geographic space. Geographic space mitigates both problems. Entry and exit is not an issue because space is limited and jurisdictional boundaries are fixed. If the residents of a jurisdiction must share geographic space, there is inevitably crowding, and there may be an optimal population size. This paper studies the hypothesis that an efficient allocation will be achieved by jurisdictions which individually choose expenditure/tax policies to maximize property values. With policies in place, there is a competitive equilibrium allocating the land in the jurisdictions. Thus, populations of the jurisdictions are endogenous. Whether or not an equilibrium exists depends on the severity of spatial crowding.

Semboja, Joseph J. Income Distribution in Tanzania: An Analysis of Trends. V45(01) Urbana, IL: University of Illinois-Urbana. 1983.

The study attempts to explain changes in the level of income inequality in Tanzania. Urban household income inequality was higher with property income than without. Moreover, urban household income inequality rose faster over time with property income than without. In the rural areas, partly due to the small proportion of property owners and also due to the inability of this group to earn significantly higher incomes than the rest of the rural population, the impact of property income to household income distribution was fairly minimal.

Shah, C. H. Taxation and Agricultural Development in India. Bombay: Himalaya Publishing House. 1986.

Shearer, Eric, B. Some Notes on Land Tenure, Titling and Land Taxation in Madagascar. Madison, WI: University of Wisconsin, Land Tenure Center. 1984. Madagascar.

Shoup, Carl S., Douglas Dosser, Rudolph G. Penner and W. S. Vickrey. The Tax System in Liberia: Report of the Tax Mission. New York, NY: Columbia University Press. 1970.

Sinha, K. P. Property Taxation in a Developing Country. 1st edition. New Delhi: Puja Publications. 1981.

Sisson, Charles Adair. Tax Burdens in American Agriculture: An Intersectoral Comparison. Ames,IA: Iowa State University Press. 1982.

Soetrisno, Loekman. The Sugar Industry and Rural Development: The Impact of Cane Cultivation for Export on Rural Java, 1830-1934. DAI 41(8). 1980.

Solana Villamor, Francisco. Analysis Cuantitativo de la Desgravacion Fiscal a la Exportacion. Madrid: Hacienda Publica 92:163-85. 1985.

Solomon, D. Site Value Tax: An Evaluation. South African Journal of Economics. 53:248-57. 1985.

Stam, Jerome and Ann G. Sibold. Agriculture and the Property Tax, a Forward Look Based on a Historical Perspective. Washington, DC: USDA, ERS, Agricultural Economic Report No. 392. 1977.

An evaluation in a historical setting of agricultural property taxation in the U.S. is made of: 1) the importance of the property tax to the agricultural sector, 2) the horizontal equity of the property tax for the agricultural sector in terms of both income and wealth, and 3) some of the internal changes in the agricultural sector. Horizontal equity of the farm property tax is investigated under various assumptions. Twelve tables and bibliography.

Stanfield, J. David. Land Registration, Tenure Security and Agricultural Development. St. Lucia. 1986. Presentation to the International Symposium on Land Registration, Tenure Reform and Land Information in the Caribbean.

Sternberg, Alfredo Ricardo. La Devolucion Tributaria Para Exportaciones. Argentina: Impuestos 44:1723-1728. November 1986.

Stier, J. C. and S. J. Chang. Land-Use Implications of the Ad Valorem Property-Tax. The Role of Tax Incidence. Forest Science 29(4):702-712. 1983.

St. Claire, Risden O. A History of Jamaica's Experience with Site Value Taxation. The Taxation of Urban Property in Less Developed Countries. Roy W. Bahl, editor. Madison, WI: University of Wisconsin Press. 1979.

Strang, Arthur I., III. A Regional Relative Productivity Land Tax Proposed by the Government of Bolivia to Replace all Domestic Taxes on Agriculture. 1970. Thesis.

Strasma, John D. Assessment of the Status and Problems of Cadastral Survey, Land Titling, Property Registration and Land Taxation in the Dominican Republic. 1979a.

_____ (commentary). Financing by the Inter-American Development Bank of Land Titling Projects. 1984a. International Workshop on Land Tenure Administration.

_____. Land Registry and Land Taxation in Grenada. Madison, WI: Director-General of Finance. 1984b. Grenada.

_____. Land Tenure Security: Does it Actually Enhance Productivity in a Turbulent and Uncertain World? International Association of Agricultural Economists. 1985. Paper presented in Malaga, Spain.

_____. La Situacion Actual del Catastro Nacional, de la Titulacion y Registro de Predios, y de la Titulacion de la Tierra en la Republica Dominicana, 1979. Santo Domingo, Dominican Republic: Direccion General de Catastro Nacional. 1979b. Spanish.

_____. Market-Enforced Self-Assessment for Real Estate Taxes. Bulletin for International Fiscal Documentation 19. September/October 1965.

_____. Market-Enforced Self-Assessment for Real Estate Taxes. Reprint 13. Madison, WI: Land Tenure Center, University of Wisconsin.

_____. Property Taxation in Chile. Becker, Arthur P., editor. Land and Building Taxes: Their Effect on Economic Development. 187-200. Madison, WI: University of Wisconsin Press. 1969.

_____. Taxation: Reform and General Accomplishments. Madison, WI: Land Tenure Center.

_____. Tecnicas de Evaluacion y Planificacion Fiscal Estudios Catastrales vs. 'Declaracion en Venta' en Chile: 1961-1964. In Garcia and Griffin, Esayos sobre Planificacion. 185-213. Santiago, Chile: University of Chile. 1967. Spanish.

Strasma, John D. and Rexford A. Ahene. Uses, Relevance and Pitfalls of Registration for Taxation. International Symposium on Land Registration, Tenure Reform and Land Information Systems in the Caribbean, Castries, St. Lucia. Madison, WI: Land Tenure Center. 1986.

Sujanov, Victor. Impuesto a las Rentas Agropecuarias (IRA). Revista Tributaria. Montevideo. 12:215-35. 1985a.

_____. Rentas Gravadas Por el IRA. Revista Tributaria. Montevideo. 12:5-26. 1985b.

Taeuber, K. A Century of Australian Experience with Land Value Taxation. International Seminar in Land Taxation, Land Tenure and Land Reform in Developing Countries. Archibald M. Woodruff, James R. Brown and Sein Lin, editors. West Hartford, CT: John C. Lincoln Institute. 1967.

Tait, Alan A. The Taxation of Personal Wealth. Urbana, IL: University of Illinois Press. 1967.

Taylor, Milton C. The Taxation of Real Property in Viet Nam. Michigan State University, Viet Nam Advisory Group. 1959.

Thome, Joseph, Santiago Moquete, Mitchell Seligson, John Strasma, Ricardo Zeledon, Virginia Lambert and David Atwood. Republic of Panama Agrarian Land Titling, 1986. Collaboration of the National Direction of Agrarian Reform for USAID and the Ministry of Agricultural Development, Republic of Panama.

Tideman, T. Nicolaus. A Tax on Land Value is Neutral. National Tax Journal 35:109-111. 1982.

Titus, Varkey, K. Agricultural Taxation in a Developing Economy. A Case Study of India. Bombay. 1984.

_____. India--Revenue Performance of Agricultural Taxes During the Plan Periods. Bulletin for International Fiscal Documentation 37(12):541-545. 1983.

Toungara, Jeanne M. The Pre-Colonial Economy of Northwestern Ivory Coast and its Transformation under French Colonialism, 1827-1920. DAI 41(8). 1980.

United Nations. Manual of Land Tax Administration: Including Valuation of Urban and Rural Land and Improvements. New York, NY. 1968.

_____. Structure and Taxation of Agriculture in Chile by the Fiscal Division, Department of Economic Affairs. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954a.

_____. Survey of Principal Methods of Taxing Agriculture in Underdeveloped Countries by the Fiscal Division, Department of Economic Affairs. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Law School of Harvard University. 1954b.

_____. Taxation and Development of Agriculture in Underdeveloped Countries, with a Special Reference to Asia and the Far East. Economic Bulletin for Asia and the Far East 9:2-16. June 1958.

Van Ness, Kathy and Jane Cetlin. Tax Incentives and Industrial Location: An Annotated Bibliography. Los Angeles: UCLA. 1979.

Vera, Luis. Agricultural Land Inventory Techniques Experience of the OAS/Chile Aerophotogrammetric Project, Washington, DC. Pan American Union, General Secretariat of OAS. 1964.

Victorero, Nestor Mariano and Juan Jose Passarella. Revaluo Ganadero. Boletin de la Direccion General Impositiva. Buenos Aires 65:241-77. March, 1986.

Villamizar, Fernando. Financing by the Inter-American Development Bank of Land Titling Projects 1984 International Workshop on Land Tenure Administration.

Wadhwa, D. C. Agrarian Legislation in India, 1793-1966. Poona, Gokhale Institute of Politics and Economics. 1973.

Wald, Haskell P. Taxation of Agricultural Land in Underdeveloped Economics, A Survey and Guide to Policy. Cambridge, MA: Harvard University Press. 1959.

_____. The Recent Experience of the Republic of Korea with Tax Collections in Kind. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Harvard University Printing Office. 1954.

Wald, Haskell P. & Joseph Froomkin, editors. Papers and Proceedings of the Conference on Agricultural Taxation and Economic Development. Cambridge, MA: Harvard University Printing Office. 1954.

Walden, Earl T., Jr. An Analysis of Costs of Property Tax Appraisal in Texas (Budget). Houston, TX: University of Houston. 1985.

The property tax in Texas has been a long-time source of revenue for governmental agencies. Tax inequity, ratio assessments of under appraisals, and over three thousand taxing entities with appraisal responsibilities fostered a continuing call for tax reform. In 1979, the 66th Legislature enacted several revisions to the tax code, the major change being the establishment of the county-wide single appraisal tax districts. Without regulatory

standards for budgeting and and audit requirements, the 253 county appraisal districts in Texas have demonstrated a wide range in appraisal costs. The cost of appraisal per parcel runs from zero to $40.16. Appraisal ratios in Texas school districts range from 6.4% in San Vicente ISD to 99.2% in Lazbuddie ISD. The calls for tax equity and uniformity of appraisal demand efficiency in appraisal costs.

Walinsky, Louis J., editor. Agrarian Reform as Unfinished Business: The Selected Papers of Wolf Ladejinsky. London: Oxford University Press. 1977.

Warriner, Doreen. Land Reform in Principle and Practice. Oxford: Clarendon Press. 1969.

Wasserman, U. Bananas in World Trade. Journal of World Trade Law 13(5):466-472. 1979.

Waters, William Fairbank. Access to Land and the Form of Production in the Central Ecuadorian Highlands. Ithaca, NY: Cornell University. Thesis University Microfilms ADG85-04477. 8507. 1985. Ecuador.

Minifundia survive near compact, specialized haciendas. A free, landed peasantry largely supports itself with subsistence production on land marginal and not useful for large-scale agriculture. This enables the peasantry to produce food, fiber and labor power for less than the full cost of reproduction. Result, competitive producers of subsistence crops, and sources of labor of a semi-proletarianized persuasion.

Webber, Carolyn and Aaron Wildavsky. A History of Taxation and Expenditure in the Western World. New York, NY: Simon and Schuster. 1986.

Wells, Robert C. Rural Land Taxation in Costa Rica, A Legal and Economic Analysis. San Jose, Costa Rica: School of Law, University of Costa Rica. 1972.

Well-meaning but conceptually somewhat confused as well as methodologically oversimplified and difficult to follow. This review is limited to the section entitled "Economic Data from the Field Study," pp. 151-170, based on a survey of 211 owner-operated family farms in six areas of Costa Rica. About one-half of them paid the land taxes and the others did not, even though their average official assessment was above the minimum exemption; all paid substantial road maintenance taxes or "private contributions," nearly equivalent to the land tax paid by the tax-paying farms. Several measures of income are tested against three levels of assessment (tax office, landowner

and project) for each area in an effort to determine returns to fixed capital and hence the incidence of the land tax (at its minimum three per mill rate) and road fees on returns to fixed capital and on farm and family income. The author concludes that "for anyone suggesting new land taxes or modifications of existing ones . . . existing land taxes (including private payments for maintenance of public roads), compared with existing assessments and a liberal farm income [estimate] indicate that the rural farmer is paying almost 55% of his present farm income for land taxes," considering that the average net farm income, including labor earnings, for tax payers was only about 8,600 colones (about US $1,280 in 1972).

Wildasin, David E. More on the Neutrality of Land Taxation. National Tax Journal 35:105-108. 1972.

Willoughby, P. G. Taxation: Stamp Duty on Sale of Land and Stamp Duty on Loan Documents. Hong Kong Law Journal 4:280-301. 1974.

Wolfson, Mark A. Tax, Incentive, and Risk-Sharing Issues in the Allocation of Property Rights: The Generalized Lease-or-Buy Problems. Stanford University. 1984.

This study is designed to augment the buy-versus-lease literature by incorporating 1) risk-sharing motives, 2) moral hazard-related incentive problems and their mitigation, and 3) tax considerations in the choice of how to allocate an asset's property rights. A game-theoretic framework is used to characterize the equilibrium shared ownership arrangement. Buying and leasing emerge as special cases of the analysis. Real estate investments are emphasized as an illustrative context, where it is shown that 1) the efficiency of shared home ownership contracts can be improved by using local housing price indices and 2) taxes encourage investors to bear risk, resulting in reduced asset maintenance unless the actions of the resident are directly monitored.

Woodruff, A. M. and L. L. Ecker-Racz. Property Taxes and Land-Use Patterns in Australia and New Zealand. Becker, Arthur P., editor. Land and Building Taxes: Their Effect on Economic Development pp. 147-186. Madison, WI: University of Wisconsin Press. 1969.

Woodruff, A. M., J. R. Brown and S. Lin, editors. International Seminar on Land Taxation, Land Tenure, and Land Reform in Developing Countries. Hartford, CT: The University of Hartford, 1967.

World Bank. Agriculture and Rural Sector Report-Madagascar 4209-Mag. June 30, 1983.

_____. World Development Report 1986. New York, NY: Oxford University Press. 1986.

World Congress on Land Policy (1st, 1980, Harvard Law School) Proceedings. Lexington, MA: Lexington Books. 1982.

Wunderlich, Gene. Land--Something of Value, Part II: Tax and Policy Issues. 19-29. Washington, DC: Lincoln Institute of Public Policy, USDA-ERS. 1982.

Yamauchi, H. Use-Value Land Taxation and Conservation Economics--An Assessment of Tax-Zoning, with Implications for Conservation Easements. Environment and Planning Government & Policy 2(2):199-210. 1984.

Yandle, Bruce. Groundwater and the Land Value Tax: Some Dimensions of the Problems Facing Fiscal Specialists in Applying Rent Taxation to Underground Resources. American Journal of Economics and Sociology 43:323-32. July 1984.

Yoingco, A. Q. Land Taxation in the Philippines: Policies and Principles. Philippine Journal of Public Administration 23(2). 1979.

Zepeda, Julio Cesar. Informacion Sobre la Situacion del Catastro en Guatemala. Guatemala City, Guatemala: Rural Development Office, USAID, Informe No. 10. October 1985.

APPENDIX D

Mass Valuation Methods

Mapping and Listing

To begin this process, the assessment office determines the area, soil types, slope, access to markets, and other characteristics of each parcel--often from the study of aerial photographs. In the Chilean case, a staff of 240 employed during two years did the job, under the name of the Aerophotogrammetric Project. It went well beyond a simple tax cadastral survey, amounting to a virtual inventory of the land and water resources of Chile. Among other products, the government received maps based on air photos, with overlaps that recorded the present land use, potential land use, irrigation systems, road access, soil types, and much more.

With such a cadastral survey, the Chileans were able to calculate the tax assessment of each parcel by multiplying the area of land held by each owner, in each soil type, by a unit value for that type of soil in that province. These unit values had already been determined and, with adjustments for access, they were applied to all landowners with that type of soil in that area.

The key to success, of course, lies in the accurate setting of the unit values--and to a political consensus in which most people agree that the unit values for each kind of soil and access are fair with respect to the market value of land, and with respect to the unit values of other types of land, access road, etc.

Gathering Price Data

The mass valuation exercise thus begins with compilation of any available data in each region, valley, zone or province--whatever seems to be the relevant area--in which informed farm owners are likely to have clear notions of the relative values of land. Available data will usually include land sale prices reported for transfer tax purposes, though they may be falsely understated. They will include farm land valuations made for estate tax purposes, or under court orders, or for land used as collateral for bank loans, the results of farm land auctions, and even asking prices where farm land is listed with brokers for sale. While none of these sources alone is likely to be adequate or accurate for all purposes, each of them is helpful--especially in seeking an idea of the relative value of land of different quality and different location.

For example, while land prices may be underreported to evade the transfer tax, there may well be some pattern of the reported prices such that soils of Class I go for 1.5 times the reported prices of farms that are mostly Class II soils, etc. Likewise, farms along a paved road may be reported as selling for twice the price of farms reached only by dirt paths, for similar soils and farm size. In another province, the ratio might be only 1.5 times as high for farms on paved roads.

The availability of irrigation water will lead to significant differences in reported sale prices. Again, the ratio may be useful even if the prices themselves are understated.

Income and Rental Data

At the same time, staff members will be gathering data on the net income generated by the cultivation of various qualities of land. If there is rent control, there may be some data on actual rents reportedly collected--and those for a sample can be correlated against information on the soil types and location of the sample farms. In the unlikely case that farmers actually admit and pay a tax on personal income generated from farming, this data will be available in the tax service.

Even when there is nothing else, however, most developing countries have studies of the cost of production of staple crops, which are used as the basis for extending production loans to small farmers. These studies usually include an estimated cost of renting the land, where the borrower is not the landowner. This estimate is likely to be fairly accurate, since the bank agents and Ministry of Agriculture staff preparing these studies have no incentive to under- or overstate the rent, and rent levels for common types of farm land are likely to be fairly similar among landlords, and widely known among the rural population.

In some developing countries, there will also be experimental stations run by universities or the Ministry of Agriculture, at which there may be reliable data on the potential output and profitability of soils of various types in the area of the station. While one must be careful not to assume that the average campesino will obtain the same yields as the scientists at the experimental station, the ratio of yields according to soil types will be accurate, and the researchers and extension agents should know, from their day-to-day contacts, what the yields are when the same crops are raised by average farmers.

Public Meetings

All of these data, summarized and averaged for different sources, are then laid before any and all interested people, at public meetings called for this purpose. Local "notables"--such as the larger landowners, village merchants, real estate brokers, attorneys, bankers and elected officials--are especially invited, but ample publicity tries to be sure that small and medium landowners know of the meeting and are welcomed as participants.

The meetings open with an explanation that cadastral studies and tax assessments seek more than revenue with which to build roads and do other good things--they must also be sure that the tax paid by each person fairly reflects the quality and value of his or her land, compared to that of others in the area. Thus, the presiding person states, the functionaries "come humbly to the public," to ask for comments and guidance as to both the absolute levels of land values and, above all, the relative levels for different qualities of land and for different locations.

We recognize that some developing-country functionaries are quite arrogant and overbearing. This exercise in consensus-building might expose both staff and villagers to an alternative form of interaction with government, and that in itself might be a good thing. Somewhat similar methods are used in designing the betterment levies in Colombia (see Rhoads and Bird). In that case, there is the advantage that if the property owners do not agree to the assessments, staff can say, "Then obviously the proposed public investment is not worthwhile, and so should not be carried out."

Developing Consensus

To get things started, the staff distribute or project onto a screen tables showing what the data gathered so far appear to indicate as the absolute and relative values of land in that valley, zone or province. Those present are invited to comment, and the assessment project staff take careful notes, seeking to adjust suggested relative values of types of land and location. In so far as possible, the discussion should center on relative values, not absolute values. Discussion of absolute values tends to be distorted, as those present seek to lower their own future taxes by "talking down" all land values in the province.

Eventually, often after several meetings of this type in the major population centers of the region, the project presents what appear to be the consensus views as to the land values in the area. Again, comments are invited, verbally and in writing. Once it appears that a proposed set of values is as close to a consensus view as is attainable, that set, plus written comments

from dissenters and local assessment project staff, go forward to the central office of the agency.

The National Level

The same procedure is then followed at the national level, seeking to reach a uniform ratio of assessment to market value from province to province. Finally, the government promulgates a unified table of values for all provinces, by types of soil, availability of irrigation water, and access to markets. In the Chilean case, those still dissatisfied were invited to write the President of the Republic, who, in the end, made a few minor adjustments in the scale. Once he approved the final tables, by decree, no further adjustments were made except for an index applied nationally to keep values up with inflation, from the time the values were determined, until the first year in which they would actually be applied.

The Chilean experience showed clearly that there was great merit in separating the decision on unit values from the time that each landowner faced an actual property tax bill. In fact, because the relative values were set for one year at a time when inflation (and market values) were already a year higher, the participants found it easier to concentrate on the relative values than on the true current market values. However, before application, the unit values were updated with the general consumer price index, applied across the board for the entire country.

Once a cadastral survey has identified the holdings, estimated the area of each soil type, and determined the access to markets for that parcel, application of the unit values is simple. It is precisely the kind of procedure at which computers excel, and mass assessments lend themselves very well to computer-assisted processing.

AGENCY FOR INTERNATIONAL DEVELOPMENT
WASHINGTON D C 20523

January 13, 1988

MEMORANDUM

TO: See Distribution

FROM: PPC/PDPR, Donald G. McClelland

SUBJECT: Agricultural Land Taxation

Attached is the final report of a study funded by PPC/PDPR on the "Impact of Agricultural Land Revenue Systems on Agricultural Land Usage." It was written by John Strasma (University of Wisconsin); James Alm (University of Colorado); Eric Shearer (consultant); and Abe Waldstein (Associates in Rural Development, Inc.).

The purpose of the study was to address four questions, relying solely on secondary sources, as follows:

1. Is there a significant relationship between agricultural land taxation and agricultural land productivity?

2. What are the obstacles and constraints to implementing an agricultural land tax in the developing countries?

3. What are the alternative methods of estimating the value of agricultural land for tax purposes?

4. What are the effects of an agricultural land tax compared to alternative fiscal policies, as they are applied in the developing countries, in terms of (a) revenue generation, (b) land utilization, and (c) distributional impact?

The principal conclusions of the study are summarized below.

1. In spite of the apparent theoretical attractiveness of taxing agricultural land, the empirical literature, though mostly 10 to 20 years old, is highly critical. The criticism boils down to four main points.

   -- Land taxes produce relatively little revenue.

   -- Land taxes seldom achieve their non-fiscal goals.

-- Land taxes sometimes are counterproductive, discouraging production.

-- Land taxes are unpopular, costly to administer, and plagued with corruption.

2. With the exception of Chile and Uruguay in the 1960s, the use of agricultural land taxes to achieve better land utilization has not been successful in any aid-recipient country. On the other hand, there is no evidence that taxes on agricultural land have discouraged investment, effort, or productivity, as have taxes on agricultural products or agricultural exports.

3. The use of fiscal policy to achieve better land utilization has been successful in only a few countries because:

   -- Agricultural land taxes, although they have some potential to promote greater productivity, are imposed at too low a rate to affect incentives.

   -- Other taxes, such as export taxes, although they are imposed at significant rates and produce substantial revenues, can have extremely negative effects on agricultural productivity.

4. The agricultural land tax is an instrument of limited effect at best. The most formidable obstacle or constraint to the effective application of agricultural land taxes is political, associated with (a) enactment of the system, and (b) determination of (i) the assessment base and (ii) the tax rate.

5. The historical record suggests that at least two conditions must be satisfied if agricultural land taxation is to encourage better land use.

   -- The most important condition is the existence of political support to enact such a system and to apply rates high enough to have an impact on landowner behavior.

   -- The second condition is the existence of an administrative system capable of implementing the legislation as established by the political authorities.

6. The impact of agricultural land taxes on the distribution of income has been minimal, again because of the low rates imposed.

7. Governments should use taxes to generate revenues in the simplest way possible, without giving much consideration to better land utilization or more equitable distribution of income. These latter goals are more appropriately achieved by (a) removing the penalties and obstacles to greater production that now exist in many developing countries, and (b) imposing personalized taxes in other parts of the fiscal system.

8. There is a growing consensus that property taxes are best administered at the local level. Tax payments that are tied to government expenditures are more likely to achieve the political support that is necessary for greater revenue mobilization. Central governments should be encouraged to let local governments utilize more fully agricultural land taxes.

A few additional copies of the study are available from my office. I would appreciate your advice as to mission personnel that may wish to recieve a copy. After the supply has been exhausted, copies can be obtained from the A.I.D. Document Handling Facility.

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