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Economic Integration and the Environment in El Salvador

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The Working Group on Development and Environment in the Americas, founded in 2004, brings together economic researchers from several countries in the Americas who have carried out empirical studies of the social and environmental impacts of economic liberalization. The Working Group's goal is to contribute empirical research and policy analysis to the ongoing policy debates on national economic development strategies and international trade. The Working Group held its inaugural meeting in Brasilia, March 29-30, 2004. This paper is one of eight written for the Brasilia meetings. They are the basis for "**Globalization and the Environment: Lessons from the Americas**," a policy report published by the Heinrich Böll Foundation in July 2004.

The Policy Report and Discussion Papers produced by the Working Group can be found on the Web at:

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I. Introduction

This paper discusses the new environmental dynamics that have come about in El Salvador as the result of major economic and demographic transformations experienced in the last two decades and explores the implications of further economic integration. The starting point is the recognition of the country's shift from an agro-exporting economy to a remittance-driven urban-based economy. Several factors interacted to produce those changes, including the civil war of the 1980s, large-scale out-migration, expanded access to land through redistribution programs, and the application in the 1990s of an accelerated economic liberalization program.

While the shift of the economy began in the 1980s, during the civil war and under an interventionist economic policy framework, this shift was consolidated by the orthodox economic reform package that began to be applied in 1989 in the context of foreign-exchange abundance generated by the increased flow of remittances. The economic reform consolidated a pattern of economic growth that favors the financial sector, labor-intensive maquila exports, and import intensive urban-based economic activities, while at the same time deepening the crisis in the agricultural sector, which saw a major erosion of its purchasing power *vis-à-vis* other sectors in the economy.

The collapse of the traditional rural economy changed land use patterns and environmental dynamics in rural areas. While further degradation remains a pattern in some areas, in others the result is environmental regeneration. In urban and peri-urban areas, environmental degradation has accelerated.

In the present decade, free trade agreements with Mexico, Chile, and the Dominican Republic were negotiated. Nevertheless, the strategic orientation for further economic integration has been the search for tighter integration with the United States, through the full dollarization of the economy (since 2001) and the Central American Free Trade Agreement with the United States (CAFTA), the negotiations for which were concluded at the end of 2003.

So far, El Salvador has been unable to develop a strong export sector to fill the role that agro-exports played in the past. Nor has it been able to take advantage of the new dynamics in rural areas to develop those areas in ways that revalue the environment and rural communities. The direct export of labor – though migration – has been the most significant feature of the present form of economic integration. It remains an open question whether this is a temporary phenomenon or whether, on the contrary, this will continue to be the dominant feature of economic integration in the years to come.

II. From Agro-Exports to Remittances

Until the end of the 1970s, the agro-exporting sector was the backbone of the Salvadoran economy. Traditional agro-exports generated 80% of foreign exchange in 1978 but lost considerable ground over the 1980s and 1990s. By 2002, traditional exports generated just 6% of foreign exchange. In contrast, remittances came to represent two thirds of foreign exchange in 2002. The maquila industry also became more important than agro-exports, as it generated almost three times more foreign exchange in 2002 (table 1).

Table 1: El Salvador: Changes in the Primary Sources of Foreign Exchange, 1978 and 2002

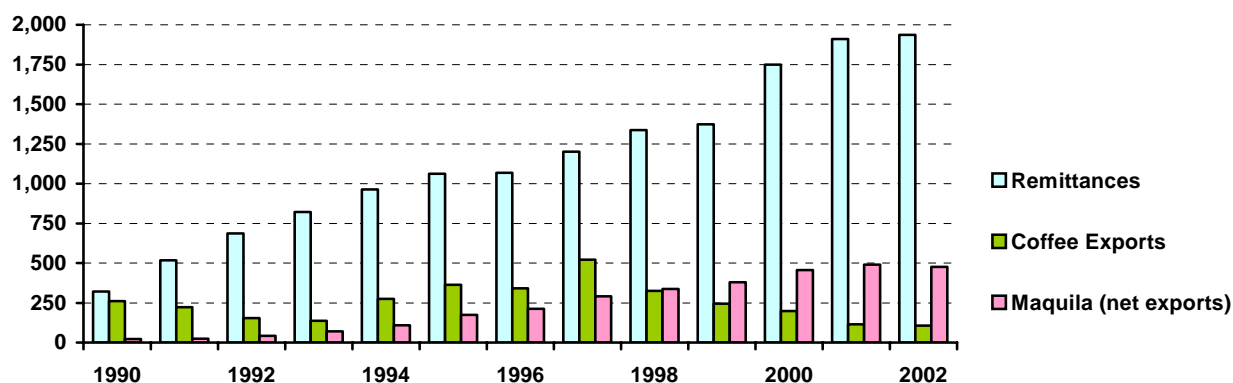
	Millions of Dollars		Percent of Traditional Agro-Exports		Structure (%)	
	1978	2002	1978	2002	1978	2002
Traditional agro-exports*	514	161	100%	100%	81%	6%
Non-traditional exports outside Central America	54	335	11%	208%	8%	12%
Maquila (net income)	21	475	4%	295%	3%	16%
Remittances	51	1,935	10%	1,202%	8%	67%
Total	640	2,906			100%	100%

* Coffee, cotton, sugar, shrimp. Note: The table does not include exports to Central America.

Source: PRISMA, based on data from the Central Reserve Bank of El Salvador

Remittances began to grow during the 1980s – the years of the civil war – when El Salvador experienced a major out-migration. That growth continued unimpeded during the 1990s, when an aggressive economic reform package was unleashed. By 1990, remittances surpassed the value of coffee exports – the single most important export for more than a century – as did the maquila industry by 1998 (figure 1).

Figure 1: El Salvador: Foreign Exchange from Remittances, Coffee Exports and Maquila, 1990-2002 (Millions of dollars)

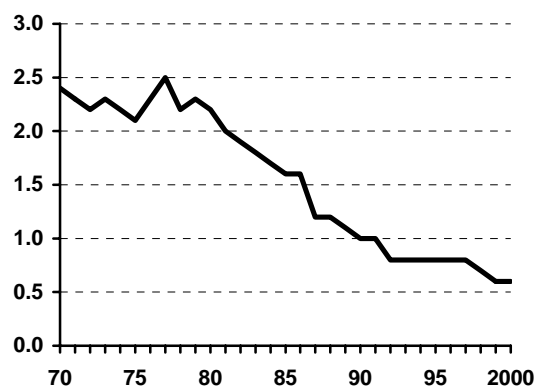


Source: PRISMA, based on data from the Central Reserve Bank of El Salvador

III. Decline and Crisis of the Agriculture

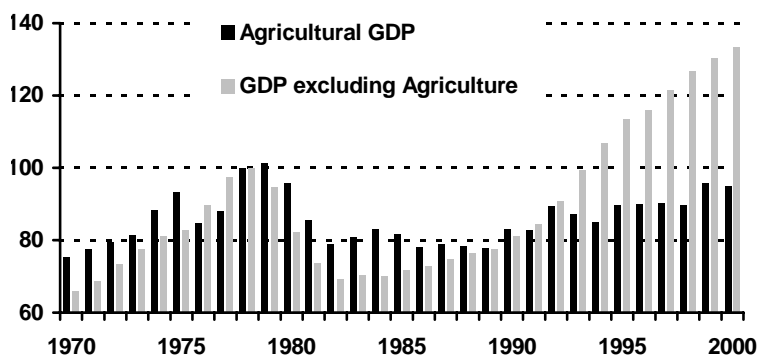
The reduced importance of agro-exports reflects a sharp decline of agriculture, which saw its participation in GDP reduced from 32.6% in 1982 to 14.2% in 1992 and 8.7% in 2002. This decline – beyond any external factors – reflects the profound anti-agricultural bias of the macroeconomic conditions that place this sector in a very unfavorable situation *vis-à-vis* other sectors. As prices in other sectors rose much more rapidly than the prices of agricultural production, the profitability and purchasing power of the agricultural sector was eroded (figure 2). This erosion began during the 1980s, when the interventionist macroeconomic policy framework was seen by economic reform proponents as the cause of this erosion. Structural adjustment policies were predicated to be the solution by removing the anti-agricultural bias and reactivating the sector. However, when they were adopted at the end of the 1980s, they did not remove that bias. Instead they furthered and locked in the structural change of the economy as the prices of the agricultural sector were eroded further relative to those in the rest of the economy.

Figure 2: Evolution of Relative Prices of the Agricultural Sector, 1970-2000 (GDP agricultural price index / GDP price index, 1990=1) (National Accounts Base 1990)



Source: PRISMA, based on data from the Central Reserve Bank of El Salvador

Figure 3: Index of total GDP and Agricultural GDP, 1970 – 2000 (in percentages, 1978=100)



Source: PRISMA, based on data from the Central Reserve Bank of El Salvador

As the agricultural sector stagnated during the 1990s, overall economic performance was basically decoupled from that sector (figure 3). This was a drastic change from the situation up to the 1970s, when the dynamics of the economy closely followed the dynamics of the agro-exporting sector. After the contraction and subsequent stagnation of the economy during the latter years of the 1980s, the economy had a period of rapid growth during the first half of the 1990s, but with a different growth pattern.

IV. Towards an Urban-Based Economy

Given the performance of the agricultural sector, its contribution to GDP growth through the 1990s was of little significance. In contrast, the financial sector – after its reprivatization and liberalization – grew so rapidly in the second half of the 1990s that its contribution to GDP growth, despite its small size, was almost twice that of the agricultural sector (table 4). The influx of remittances and trade liberalization also led to rapid growth of the commercial sector during the first half of the 1990s. In the second half of the 1990s, the economy grew at an average rate of 2.6% and the commercial sector contributed almost 15% to GDP growth in this period. The industrial sector became the largest contributor to GDP growth in that period – almost 38% – reflecting the rapid growth of the maquila industry.

Table 2: El Salvador: Sectoral Growth Rates and Contribution to GDP Growth (percent)

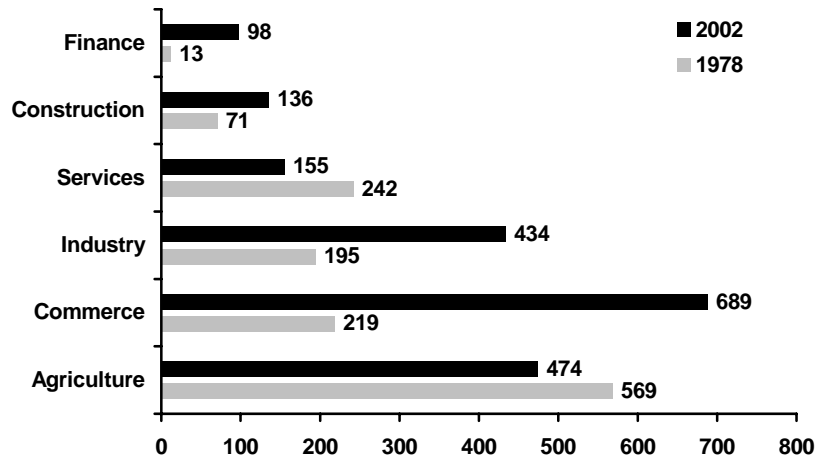
Economic sectors	1970-78	1979-82	1983-89	1990-95	1996-2000
	<i>Average rates of growth</i>				
Agriculture	3.6	-7.9	-0.6	1.4	1.0
Manufacturing Industry	4.5	-14.2	1.4	5.6	4.5
Construction	12.6	-14.4	3.9	7.5	2.5
Commerce	4.7	-14.9	4.3	8.7	1.9
Transportation, storage and communications	7.2	-8.2	1.7	6.4	5.3
Finance	9.3	-2.4	0.0	12.7	8.0
Services	6.9	2.4	3.8	3.9	1.3
Others	4.6	-4.6	-0.9	7.4	1.2
GDP	5.0	-9.5	1.2	6.2	2.6
	<i>Sectoral contribution to growth</i>				
Agriculture	12.8	15.0	-8.7	3.5	5.0
Manufacturing Industry	24.8	36.1	24.4	19.6	37.5
Construction	8.7	6.0	12.1	4.4	3.6
Commerce	18.2	27.2	58.0	26.8	14.6
Transportation, storage and communications	8.7	5.7	9.7	7.7	15.7
Finance	2.9	0.5	-0.1	5.1	9.9
Services	5.1	-1.3	21.2	3.7	2.7
Others	18.9	10.8	-16.6	29.4	11.0
GDP	100.0	100.0	100.0	100.0	100.0

Source: PRISMA, based on data from the Central Reserve Bank of El Salvador

Employment figures also reflect the change in the pattern of economic growth. In 1978, the agricultural sector was the main source of employment, generating more employment than all the other sectors combined, excluding services. By 2002, commerce was the most important source

of employment, and industry generated employment equivalent to 92% of that in the agricultural sector (figure 4). The financial sector alone generated 98,000 jobs, equivalent to 21% of the level of employment in the agricultural sector, surpassing even the level of employment that the maquila industry reached in 2000, when it generated 90,000 jobs.

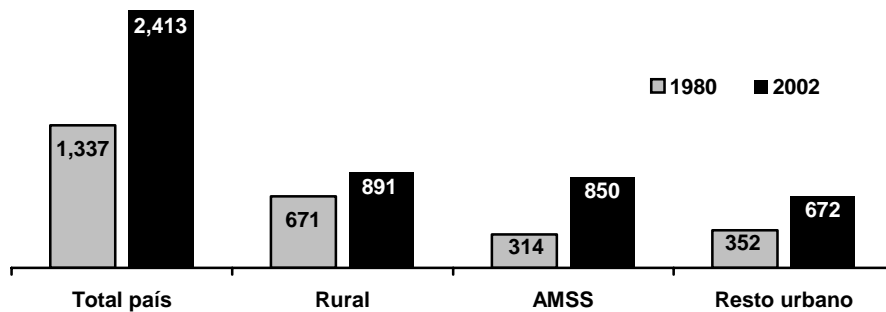
Figure 4: Employment in Selected Economic Sectors, 1978 and 2002 (Thousands of Jobs)



Source: PRISMA based on MIPLAN (1981) and DIGESTYC (2003)

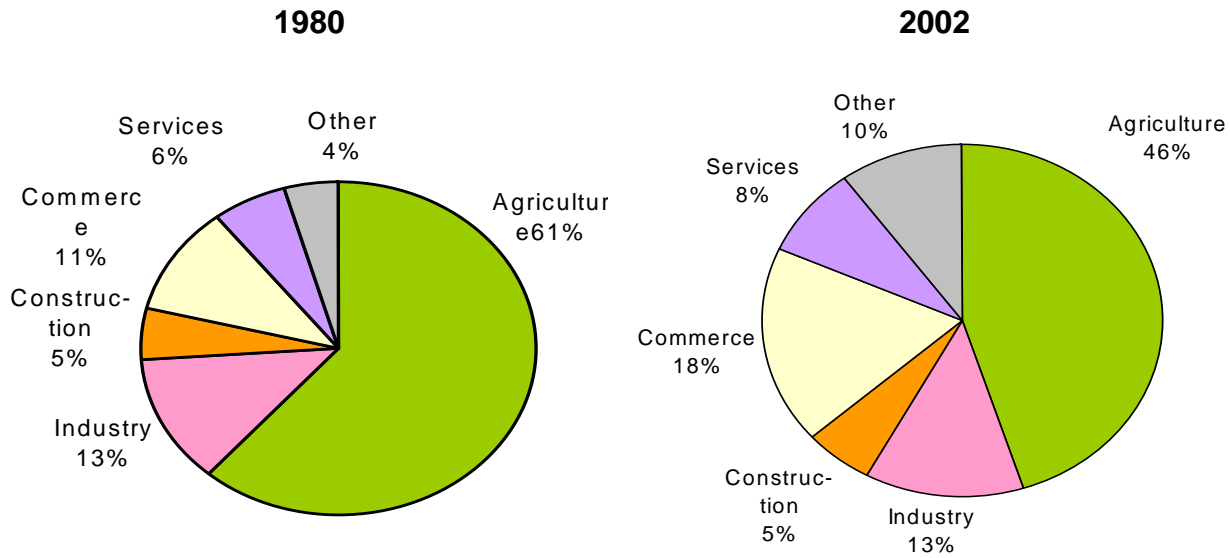
Employment in 2002 was 80% larger than in 1980. In a manner consistent with the new economic growth pattern, the increased employment was concentrated in urban areas, particularly in the Metropolitan Area of San Salvador, which accounted for 35% of total employment (figure 5). Although agricultural employment fell, rural employment increased by 33% as a result of increased generation of non-agricultural employment in rural areas. Thus, the participation of agricultural employment in rural employment fell from 61% in 1980 to 46% in 2002.

Figure 5: Employment Levels: Rural, Urban, and in Metropolitan Region of San Salvador, 1980 and 2002 (Thousands of Jobs)



Source: PRISMA based on MIPLAN (1981) and DIGESTYC (2003)

Figure 6: Sources of Rural Employment, 1980 and 2002



Source: PRISMA based on MIPLAN (1981) and DIGESTYC (2003)

V. Population Dynamics

Migration increased sharply during the 1980s, when war ravaged the countryside. It continued through the 1990s and into the present decade, stimulated by the new pattern of economic growth. Although the first wave of massive migration began with the outbreak of the civil war of the 1980s, rural residents continue to migrate for economic reasons (Andrade-Eekhoff 2001). It is estimated that almost one fifth of the Salvadoran national population has emigrated abroad. In recent years, most rural migrants bypassed urban centers and migrated directly to the United States and Canada (72%), with only 24% choosing to migrate internally to other areas of El Salvador, and only small percentages going to the rest of Central America or other countries (table 3).

Table 3: El Salvador: Destination of Rural Migrants, 2000 (percent)

Destination	%
United States and Canada	72%
Metropolitan Region of San Salvador	13%
Other Regions of El Salvador	11%
Other Countries of Central America	2%
Other Countries	2%

Source: Andrade-Eekhoff (2001)

At the household level, income from remittances is becoming increasingly important, not only in terms of the number of households that receive remittances, but also in terms of the amounts sent (table 4). In 1992-93, the percentage of households receiving remittances was greater in urban areas (15.5%) than in rural areas (13.1%). A decade later, remittances had become slightly more

important in rural areas (23.4%) than in urban areas (21.5%). From the perspective of rural livelihood strategies, the 10.3% increase of households receiving remittances in 2002 in comparison with 1992-93 is of particular interest. Income from remittances represents a sizable portion of total income for recipients' families, ranging from more than 42.5% for non-poor households in 2002 to 58.5% for households in extreme poverty (UNDP, 2003).

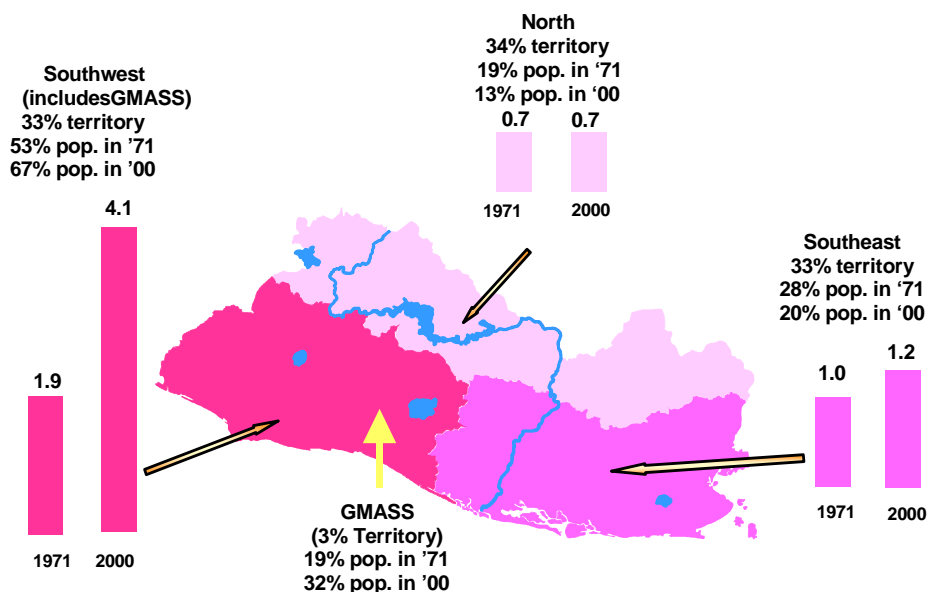
Table 4: El Salvador: Households Receiving Remittances

	1992-93			2002		
	Number of recipient households	% of total households	Average monthly remittance/household	Number of recipient households	% of total households	Average monthly remittance/household
Urban	89	15.5%	\$ 88	205	21.5%	\$ 160
Rural	68	13.1%	\$ 60	132	23.4%	\$ 137
National	157	14.4%	\$ 76	338	22.2%	\$ 151

Source: General Direction of Statistics and Census, Multiple-purpose household surveys, 1992-93 and 2002.

Internal migration has been also significant. By 2000, almost one third of the population resided in the greater metropolitan area of San Salvador (GMASS), an area making up only 3% of the territory (map 1). In the southwestern zone, which includes the GMASS, the population more than doubled, due to peri-urban development around San Salvador and the location of the maquila industry. The population in the northern third of the country remained stagnant and in southeastern part the population increased by 20%, but largely in the more urban southern cities.

Map 1: El Salvador: Population Distribution by Zones, 1971 and 2000 (Millions of Inhabitants)



Source: PRISMA, based on population census.

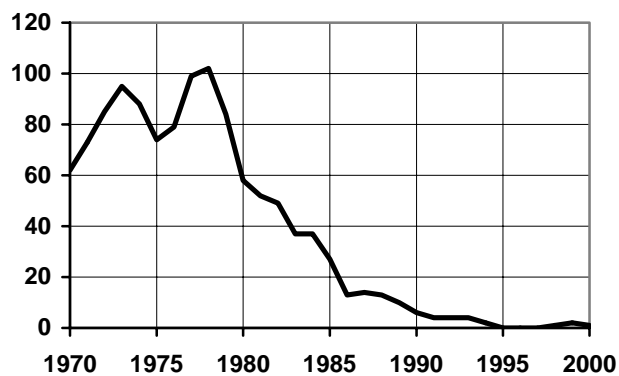
VI. Environmental Dynamics

The changes experienced in El Salvador in the sources of income and in the patterns of economic growth and settlement of the population have altered the environmental dynamics of the country. In the 1970s, rural environmental problems – deforestation, land degradation and pollution from agro-chemicals – were the most pressing issues.

Currently, with increasing urbanization and concentration of the population and economic activities, urban environmental problems have become more critical. Urban environmental problems that were previously unheard of, such as air pollution, have begun to emerge. With increased availability of foreign exchange, reduced tariffs, and many small-scale entrepreneurs importing crashed or scrapped motor vehicles from the United States to be repaired and resold in the local market, the number of vehicles almost doubled from 242,000 in 1994 to 468,000 in 1999. With that tendency, the number of vehicles probably borders on 600,000 at the present time (2004), or almost one motor vehicle for every 10 people residing within the country. Since most of the vehicles circulate in the Metropolitan region, it comes as no surprise that air quality has deteriorated in the Metropolitan region and respiratory diseases are on the rise.

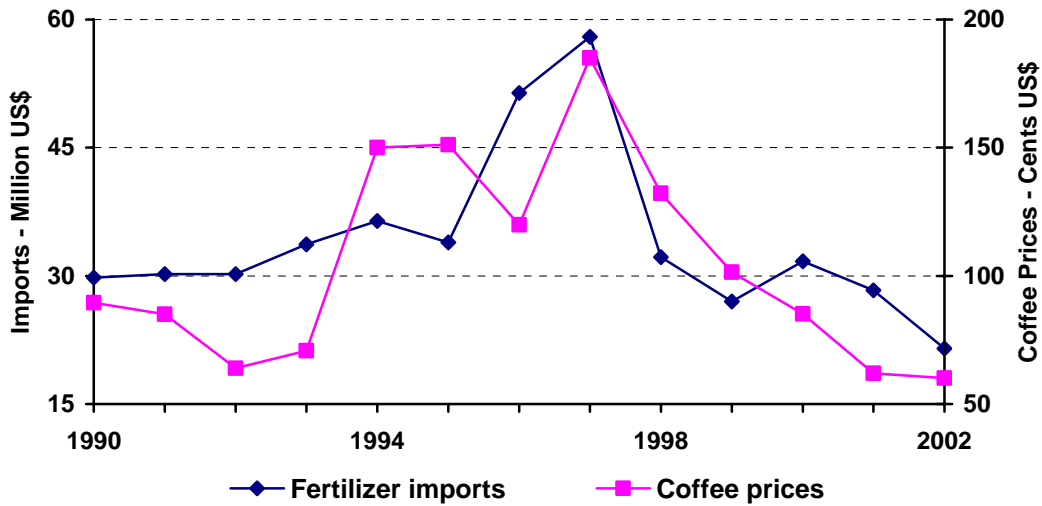
While the stock of vehicles has increased and become an important source of pollution in urban areas, in rural areas pollution related to the use of chemical agricultural inputs has decreased. Cotton production, the land use most responsible for chemical pollution of the landscape and waters since the 1960s, practically collapsed in the 1980s (figure 6). The civil war and the crop's decreased profitability – due to the increasing demands of pesticides and the overall unfavorable macroeconomic environment – contributed to the demise of this highly polluting crop. With its extremely high use of agrochemicals, cotton was central in contaminating local water bodies and in the pollution of mangroves. The elimination of this land use was very positive ecologically as it allowed a gradual decontamination of the land. Organized ex-combatants who received land in previously cotton-producing areas as part of the 1992 Peace Accords took advantage of this fact to introduce organic production and tap niche international markets for some products, such as cashews.

Figure 7: El Salvador: Surface in Cotton, 1970-2000 (Thousand Ha)



With the demise of cotton, fertilizer imports in the 1990s have followed international coffee prices, exhibiting a sharp decrease in recent years due to the coffee crisis (figure 8).

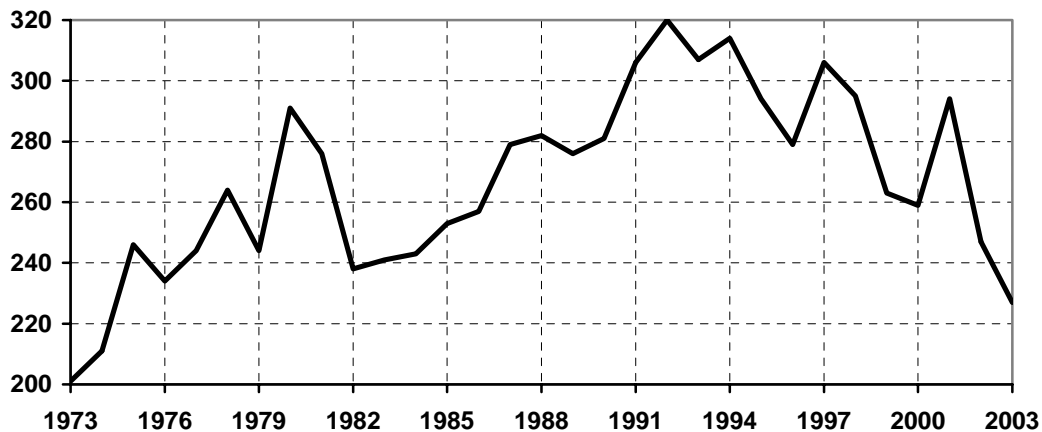
Figure 8: Fertilizer Imports and International Coffee Prices, 1990-2002



Source: Data from the Central Reserve Bank of El Salvador

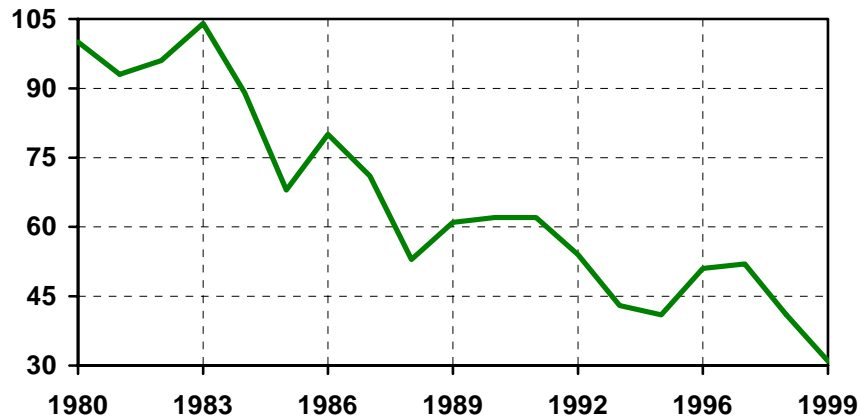
During the 1970s, both agro-export production and peasant agriculture expanded, but the latter was pushed onto increasingly marginal lands on steep slopes. Thus, the expansion of peasant agriculture – centered on the cultivation of corn – was seen for many years as the main cause of deforestation, erosion and land degradation. The disruption from the civil war at the beginning of the 1980s produced a reduction in the surface in corn, but as the land reform program unfolded in the 1980s, expanding access to land, there was also a steady increase in surface under corn (figure 9), despite plummeting real prices fetched by producers (figure 10).

Figure 9: El Salvador: Surface in Corn, 1973-2003 (Hectares)



Source: Data from the Central Reserve Bank of El Salvador

Figure 10: El Salvador: Index of Real Producer Prices for Corn, 1980-1999 (1980 = 100)



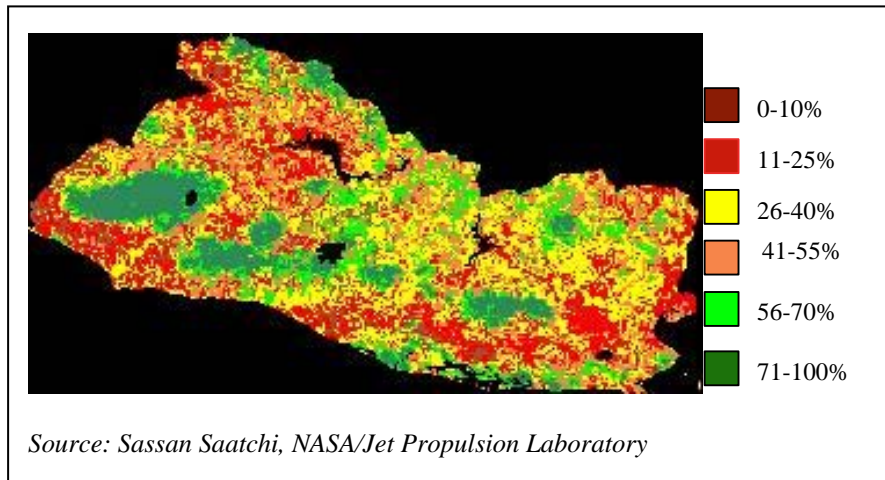
Source: PRISMA, based on official data and the Consumer Price Index

The surface under corn production peaked in 1992, the year of the Peace Accords. Since then and into this decade, there has been a downward tendency in the surface dedicated to corn, falling by almost 30% between 1992 and 2003. The increased flow of remittances, male rural labor scarcity due to out-migration, and the continued erosion in the profitability of traditional peasant agricultural production could be the driving factors of this reduction, which may also be fostering natural regeneration processes that increase shrub and tree cover.

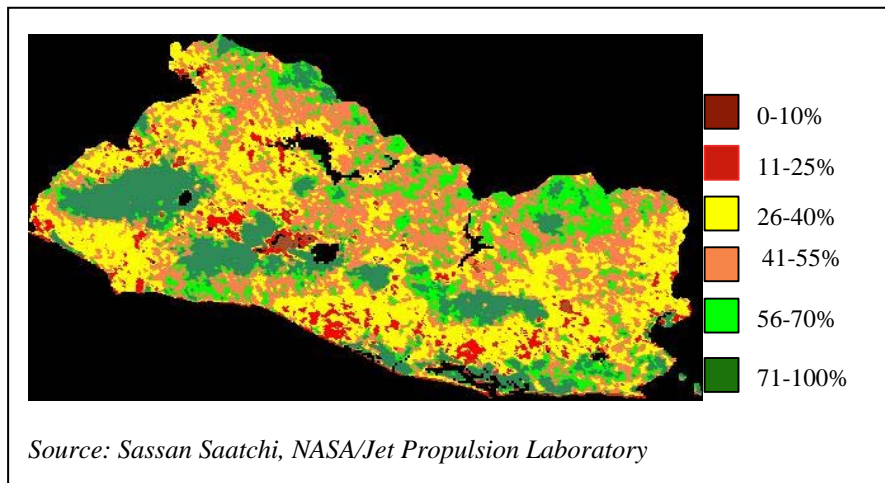
A recent study on changes in tree density gives an approximation of these dynamics. Maps 2 and 3, below, produced by Sassan Saatchi (NASA/Jet Propulsion Laboratory) from satellite sensor data, show tree densities for the specified years, and map 4 shows the change. Black areas in maps 2 and 3 correspond to water bodies (i.e. lakes and reservoirs) while in map 4 they also include areas with no significant change. Red areas in map 4 show reduced tree density, that is areas with increased deforestation, while the other colors correspond to areas of increased tree density. Gross estimates derived from map 4, still unverified in the field, appear to show that in one third of the territory, deforestation increased, while in 55% of the country, there was some form of regeneration.

Areas under shaded coffee merit special consideration, since they have been the largest areas under tree cover and still remain so (most of the dark green areas in maps 2 and 3). Although under siege due to the coffee crisis and the general low profitability of agriculture, coffee has been quite resilient. Note that the nuclei of the coffee areas remain unchanged as reflected in the black areas in map 4). Nevertheless, the surrounding areas, near urban centers and main roads, show significant deforestation. Since coffee is cultivated in volcanic soils with high infiltration capacity, these changes are affecting groundwater recharge. In the Metropolitan Region and the San Andrés Valley to the west of San Salvador, the risk of groundwater contamination is also increasing. On the other hand, the higher demands for land around urban centers for housing, industrial, commercial and urban uses demanded by the urban-based economy and the concentration of population is a major factor pushing for land uses with reduced tree cover.

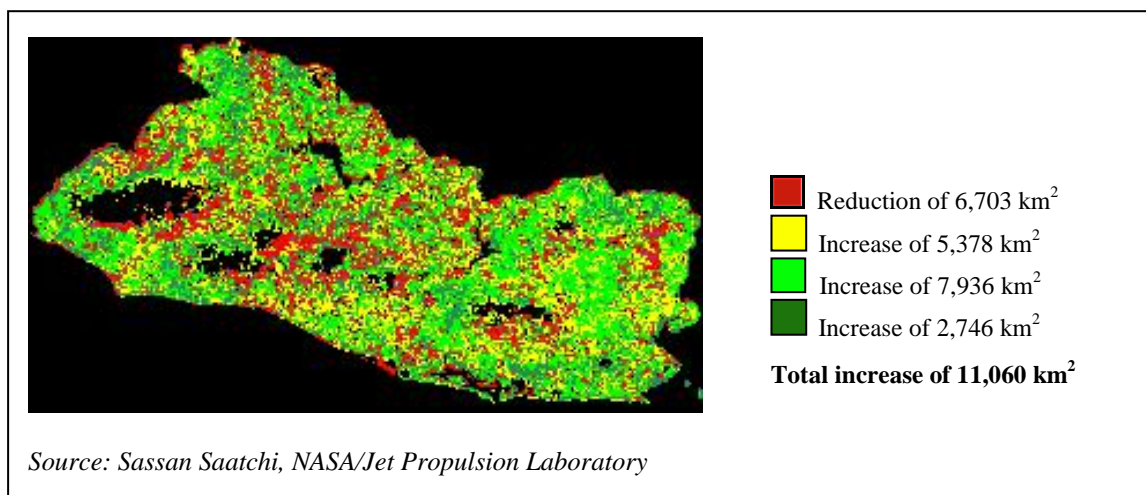
Map 2: Tree Density, 1992-93 (AVHRR)



Map 3: Tree Density, 2000-01 (MODIS)

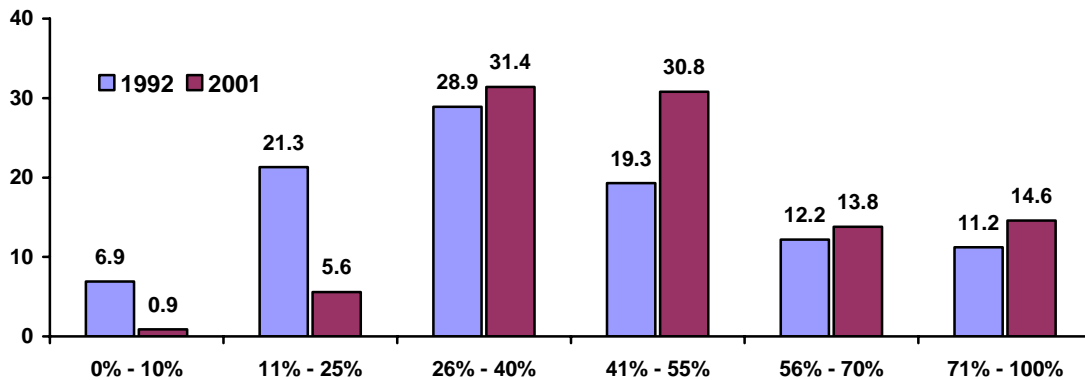


Map 4: Change in Tree Density, 1992-93 / 2000-01



Overall, as shown in figure 10, there was a large reduction in areas with tree density of less than 25% and a large increase in areas with tree densities between 41% and 55%. In map 4, we can also distinguish specific locations that are experiencing large changes. For instance, the largest contiguous areas with reduced tree cover correspond to areas of greater concentration of population, industry, and commerce, such as the Metropolitan Region of San Salvador, the San Andres Valley west of San Salvador, and other urban centers.

Figure 11: El Salvador: Change in Tree Density, 1992 and 2001 (Percent)



Source: Hecht and Saatchi (forthcoming)

VII. Towards Further Economic Integration

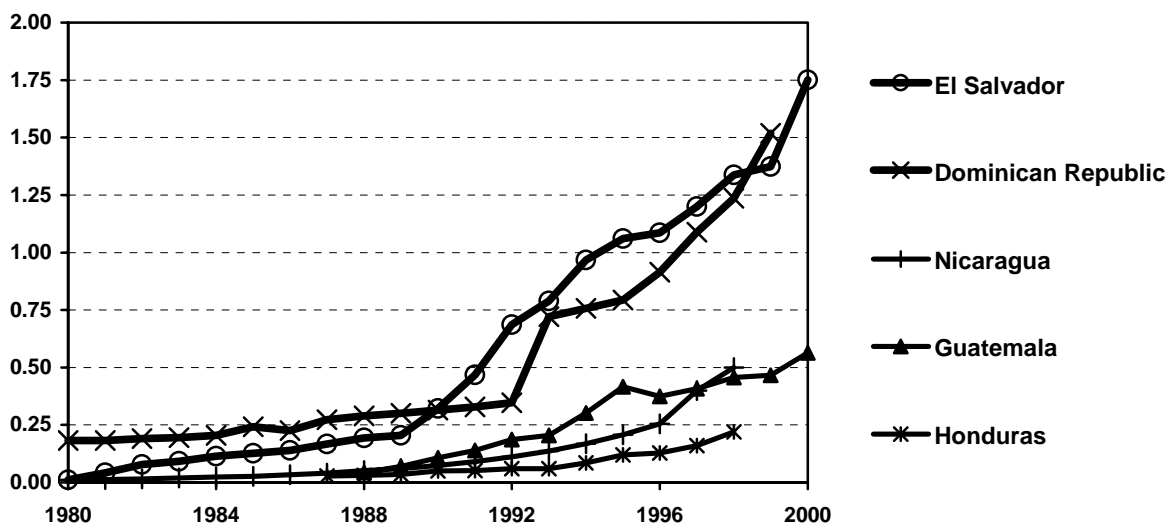
The dynamism of the Salvadoran economy has depended on its strong links to the world economy. Until the late 1970s, the agro-export sector provided the most important links and largely determined land uses and environmental dynamics. That form of economic integration began to break up during the civil war of the 1980s and finally snapped during the 1990s through the application of economic liberalization policies and the shift in the export profile.

With the end of the civil war in 1992, El Salvador was finally able to take advantage of preferential arrangements, such as the Caribbean Basin Initiative. The result was a significant expansion of labor-intensive maquila exports to the United States, which quickly overtook agro-exports in terms of economic importance. Nevertheless, the most significant shift in the form of economic integration is not the change in the nature of its labor-intensive export goods – from agricultural products to assembled products in the maquila industry. Instead, it has been the massive direct export of labor that has profoundly altered the form of economic integration. As was the case with agro-exports, migration and remittances have come to determine to a large extent economic dynamism, pattern of growth, and environmental dynamics.

In that context, the role and additional impact of trade agreements probably is not that significant. Already, several free trade agreements are in force: with Mexico (March 2001), the Dominican Republic (October 2001) and Chile (June 2002). While great expectations have been created with the end of the negotiations of the free trade agreement with the United States (CAFTA), in the years ahead it is likely that continued migration to the United States will be the privileged form of further economic integration.

While El Salvador may be an extreme case in pursuing this form of integration, this is a trend that seems to be present in other small countries of Central America and the Caribbean, as exemplified by the growing importance of remittances (figure 11). Remittances to Mexico – the leading recipient of remittances in the Americas – show a similar pattern, but they do not have the same macroeconomic significance and impact. While in Mexico remittances represented 1.5% of GDP in 2002 and in Brazil – the second most important recipient – 0.9% of GDP, for most Caribbean and Central American countries, the ratios are much higher, reflecting a form of integration through unidirectional labor movements rather than through trade and investment (table 5). As remittances grow in importance for these countries, in the short term, seeking more favorable conditions for its illegal migrants in the United States (and in Costa Rica in the case of Nicaragua) may be a more important consideration than achieving more balanced and favorable trade conditions.

Figure 12: Flow of Remittances to Selected Countries, 1980-2000 (Percent)



Source: Orozco

Table 5: Remittances Relative to GDP in Selected Countries, 2002

	Remittances	GDP	Remittances /GDP
Nicaragua	660	2.6	25.4%
Haiti	810	3.6	22.5%
Jamaica	1,200	8.0	15.0%
Guyana	100	0.7	14.3%
El Salvador	1,935	14.3	13.5%
Honduras	720	6.6	10.9%
Dominican Republic	1,939	21.3	9.1%
Guatemala	1,579	23.3	6.8%
Ecuador	1,432	24.3	5.9%
Peru	1,100	56.9	1.9%
Mexico	9,815	637.2	1.5%
Brazil	4,000	452.4	0.9%

Source: Orozco (Remittances) and World Bank (GDP)