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EL SALVADOR

Trends in Health and Nutrition  
Central America Initiative Indicators

1980 to 1987

Prepared for LAC/DR/HN  
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April, 1989

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EL SALVADOR  
Trends in Health and Nutrition  
Central America Initiative Indicators  
1980 to 1987

I. Introduction

The following is a detailed analysis of trends in health and nutrition in El Salvador over the past eight years, based on the Central America Initiative indicators. During the fall of 1988, data for this analysis was collected from all key primary and secondary data sources for El Salvador including the MOH, PAHO/El Salvador, the regional office of UNICEF based in Guatemala, national surveys and other reports (see references in Annex A).

II. Trends in Infant Mortality

There are two primary data sources on infant mortality in El Salvador: vital statistics (reported by the MOH), and national surveys. Secondary sources include the MOH, USAID, other donors including PAHO and UNICEF, and estimates made by the Latin American Demographic Center (CELADE) in Costa Rica.

IMRs which are based on vital statistics tend to underestimate infant mortality as the community may under-report infant deaths and there are often problems with the reporting system itself. Furthermore, the denominator used to estimate IMR from vital statistics often suffers from a lack of good information on the size of the infant population. This has been particularly a problem in the 80's as economic stress and socio-political conflict have caused widespread internal and external migration throughout Central America.

Nevertheless, from 1980 to 1983 the only estimates of IMR for El Salvador were from vital statistics, and both AID and the MOH reported low estimates during this period. It was not until the first national survey was conducted in 1985 that more valid estimates became available.

With the advent of improved information, the MOH, PAHO, UNICEF and USAID all adjusted their estimates of IMR. This has led to some confusion over rates. In an attempt to clarify this issue, Figure 1 below presents the rates reported over the past eight years by all primary and secondary sources and the changes in reporting of IMR which were a result of improved information.

From 1980 to 1982-83, MOH and USAID estimates were low and based on vital statistics. As a result of the first survey in 1985, both UNICEF and AID increased their estimates for 1982-83 to the survey average of 71 (for the 1980-84 period). From 1983-84, AID continued to track this conservative average while UNICEF switched to the lower survey data based on yearly estimates. The MOH and PAHO chose to continue reporting the low IMR's based on vital statistics.

In 1987-88, two more sources of data on IMR became available: the second national survey, and estimates made by CELADE. These provided information on the 1983-87 and 1980-85 periods respectively. As a result of this new information, AID responded by lowering its estimate of IMR for 1985 to again follow the conservative average for 1983-88 of 51. AID has continued to track this survey data through 1987. In contrast, UNICEF, the MOH and PAHO chose to increase their estimated IMR's in 1985 to the estimate put forth by CELADE. However, in 1986 UNICEF responded to the national survey data by lowering its estimate to a rate between that of CELADE and the national survey.

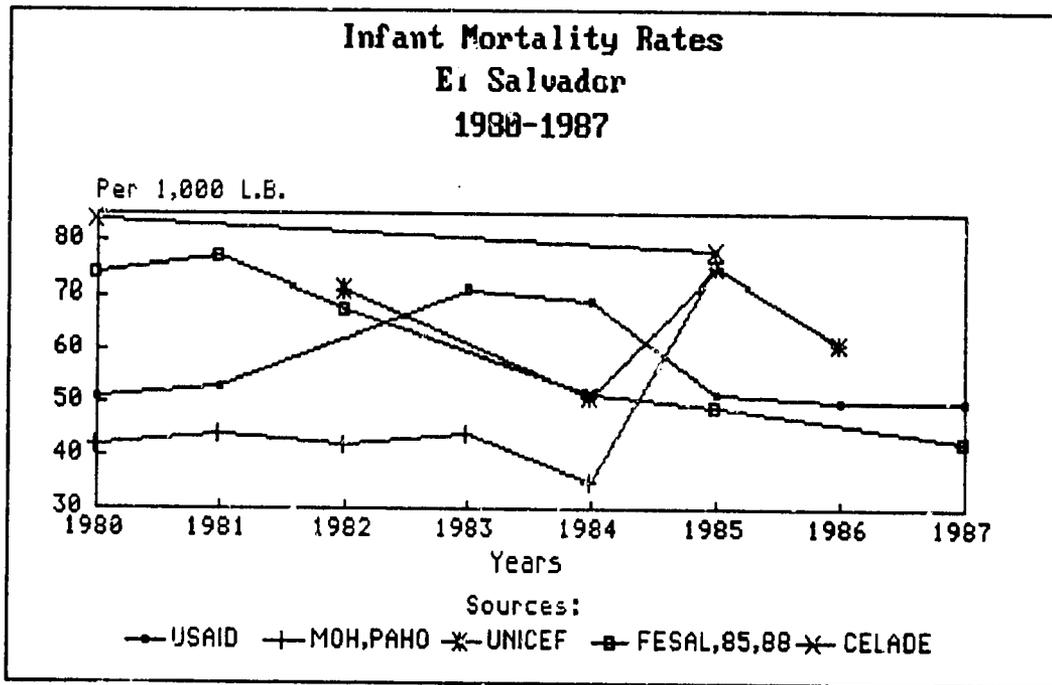


Figure 1

Figure 2 below presents a clearer picture of trends in infant mortality in El Salvador according to the best primary data sources: national surveys conducted in 1985 and 1988. This data shows a dramatic drop in infant mortality from 1980 to 1987. With the exception of the 1984 estimate, the 1988 survey data takes off where the 1985 data ends, illustrating a sharp drop in IMR from 1982 to 1985 and a less steep decline from 1985 through 1987. The increase in IMR from 1980 to 1982 during the height of the economic and socio-political crisis in the region is of particular interest as similar increases have been reported for this period by Costa Rica, Honduras and Guatemala.

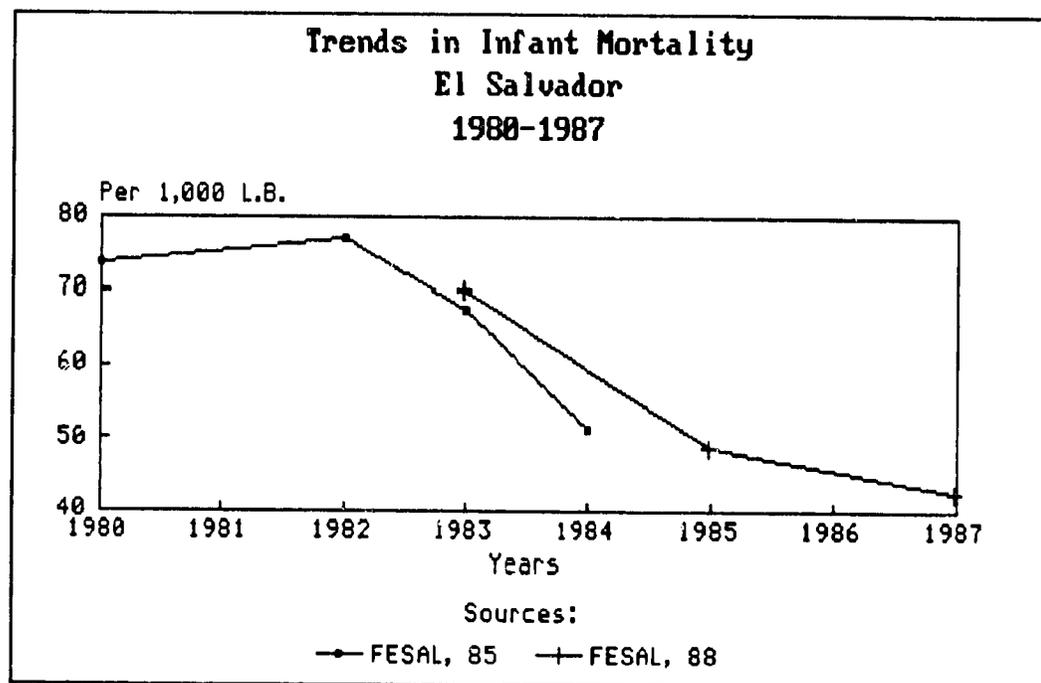


Figure 2

### III. Measures of Vaccination Coverage

There are two sources of information on vaccination coverage in El Salvador: the MOH, which reports doses applied/population estimates; and national surveys. Problems with rates based on outdated population estimates were discussed above. The best information on vaccination coverage is from national surveys, however changes in the definition of coverage of 0-12 month olds from survey to survey makes trend analysis difficult. At least some of the improvement in coverage of this age group in recent years is due to an adjustment of coverage estimates to national immunization norms.

A. Coverage of Children 0-12 Months of Age

When considering vaccination coverage rates for infants it is important to keep in mind that rates are not cumulative over time. Each year more children are born who need to be immunized. With population growth rates over 2 percent, this implies an ever-increasing effort in order to simply maintain coverages each year.

The next four graphs, Figures 3 through 6, present various estimates of vaccination coverage from 1980-1987 for children 0-12 months of age. With the exception of BCG, coverage rates recorded by surveys were lower than those reported by the MOH or major donors. In some instances, non-survey sources also differed from the survey data in their estimate of trends.

According to most non-survey sources, Polio 3, Measles, and DPT 3 coverage rates improved over the past eight years. BCG coverage was reported to have either stagnated or fallen over this time. The MOH, PAHO and AID generally reported slight improvements while UNICEF reported much greater increases in coverage, particularly in Polio 3 and DPT 3.

Survey-based estimates of coverage are only available for a portion of this period, from 1985-87, during which time BCG and Measles coverage were found to have increased while Polio 3 and DPT 3 coverages declined. These survey results were in contrast to non-survey sources which reported an improvement in all vaccines for the same 1985-87 period.

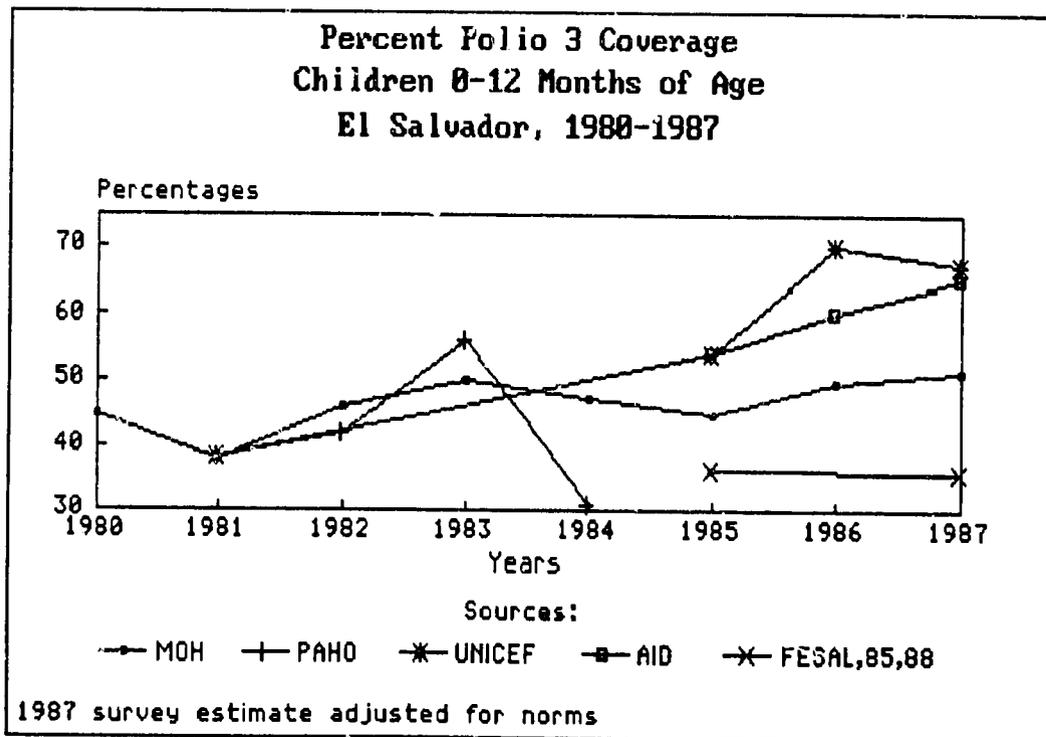


Figure 3

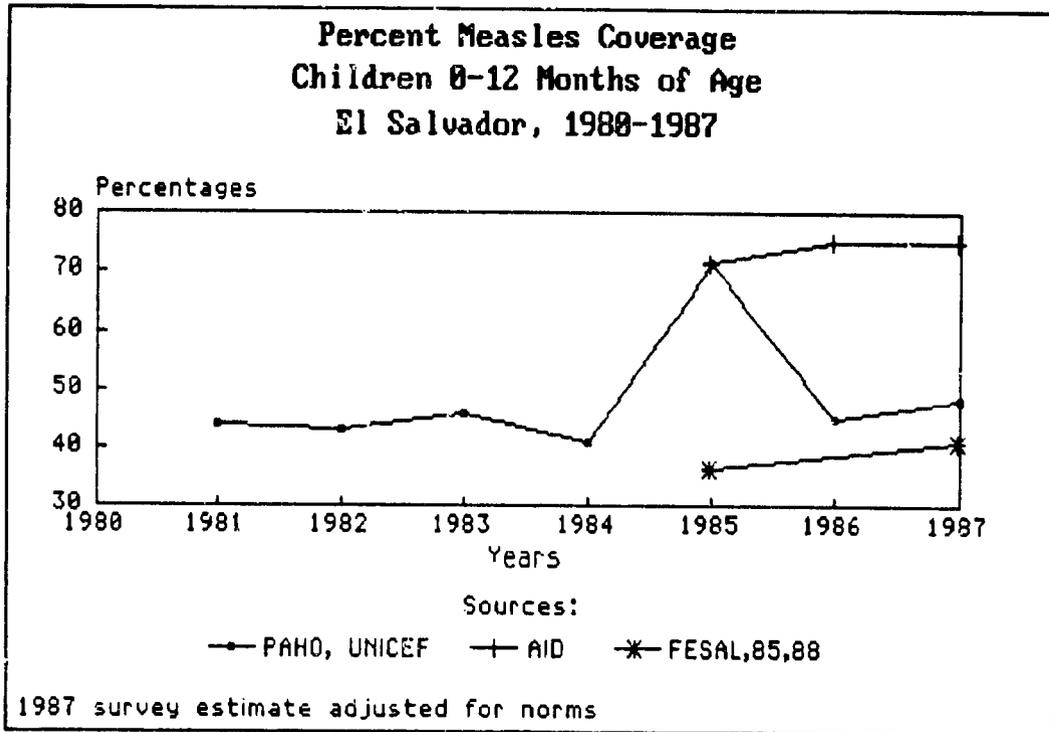


Figure 4

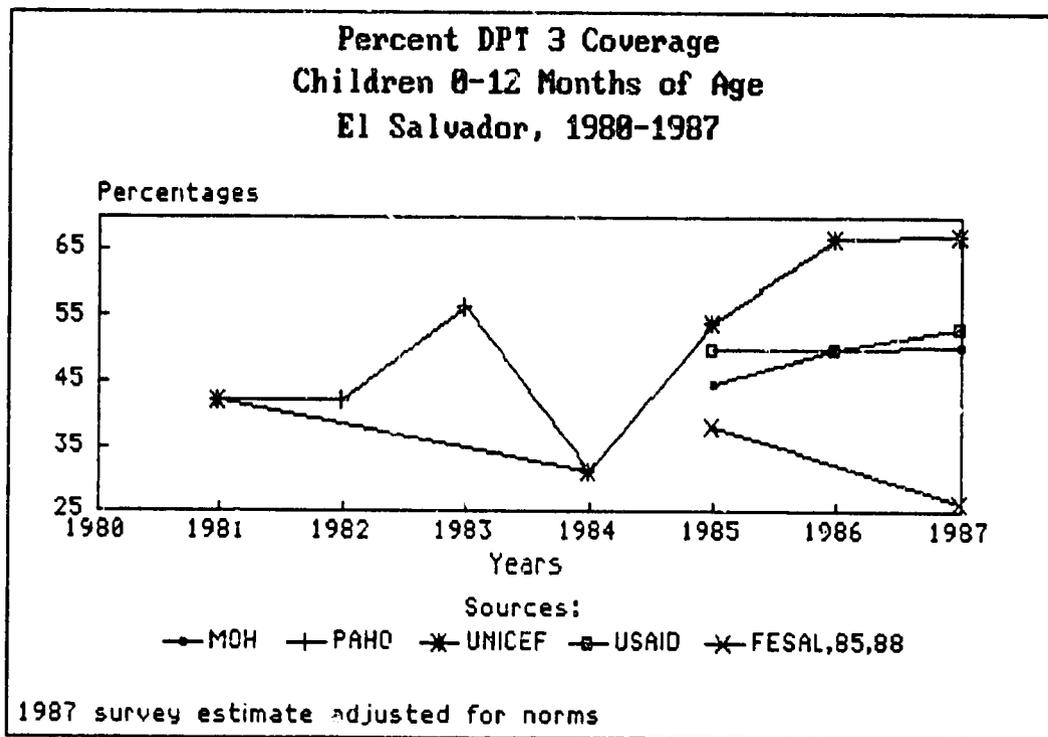


Figure 5

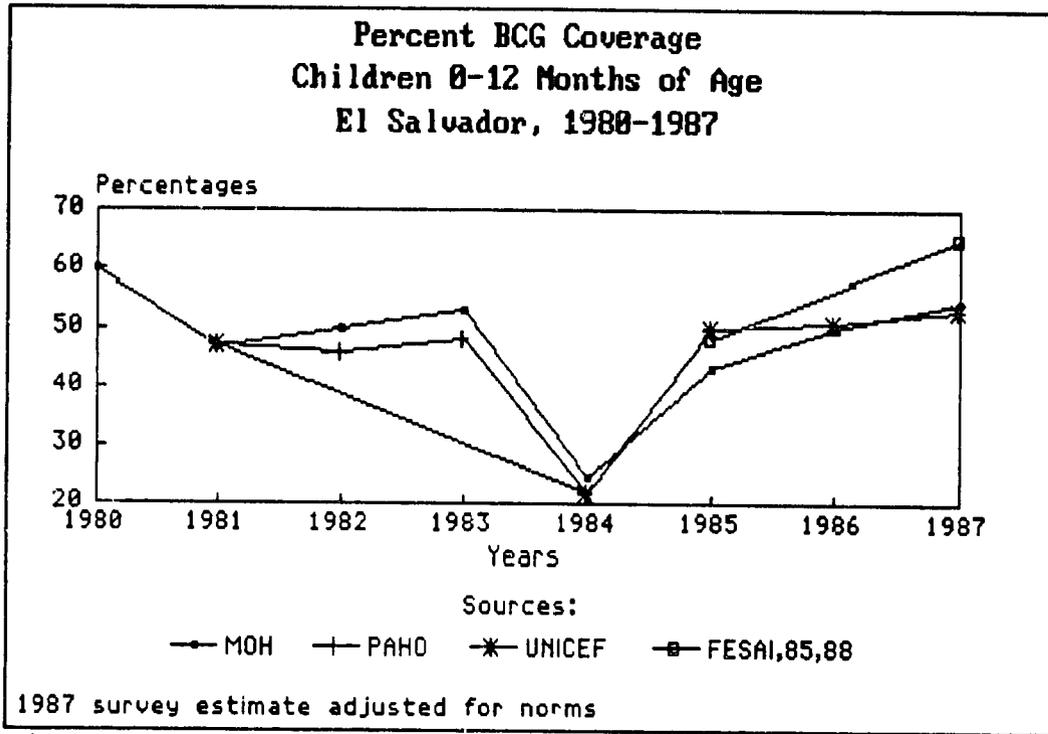


Figure 6

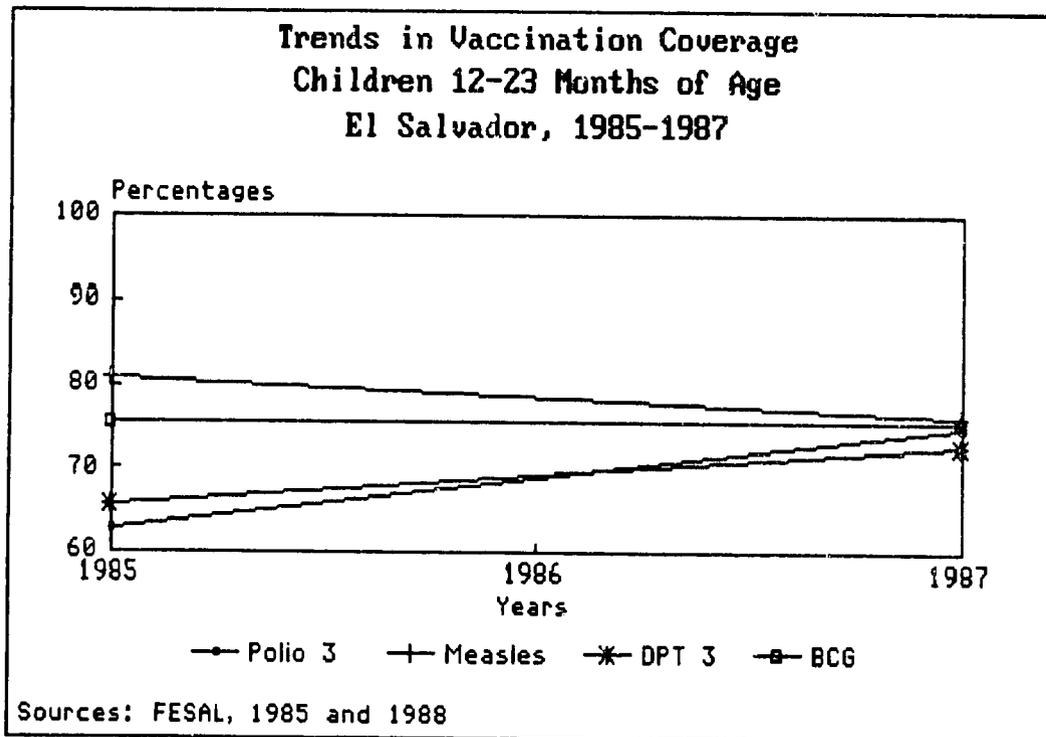


Figure 7

B. Coverage of Children 12-23 Months of Age

Unlike coverage of infants, estimates of immunization coverage for one-year-olds reflect the cumulative effect of two years of participation in vaccination programs and therefore the cumulative effect of two years of vaccination efforts nation-wide.

National surveys conducted in 1985 and 1988 are the only sources of information on vaccination coverage of children 12-23 months of age in El Salvador. According to the survey data presented above in Figure 7, Polio 3 and DPT 3 coverages improved over this time while Measles declined and BCG remained constant. Coverage rates for all vaccines were found to be from 73-76 percent.

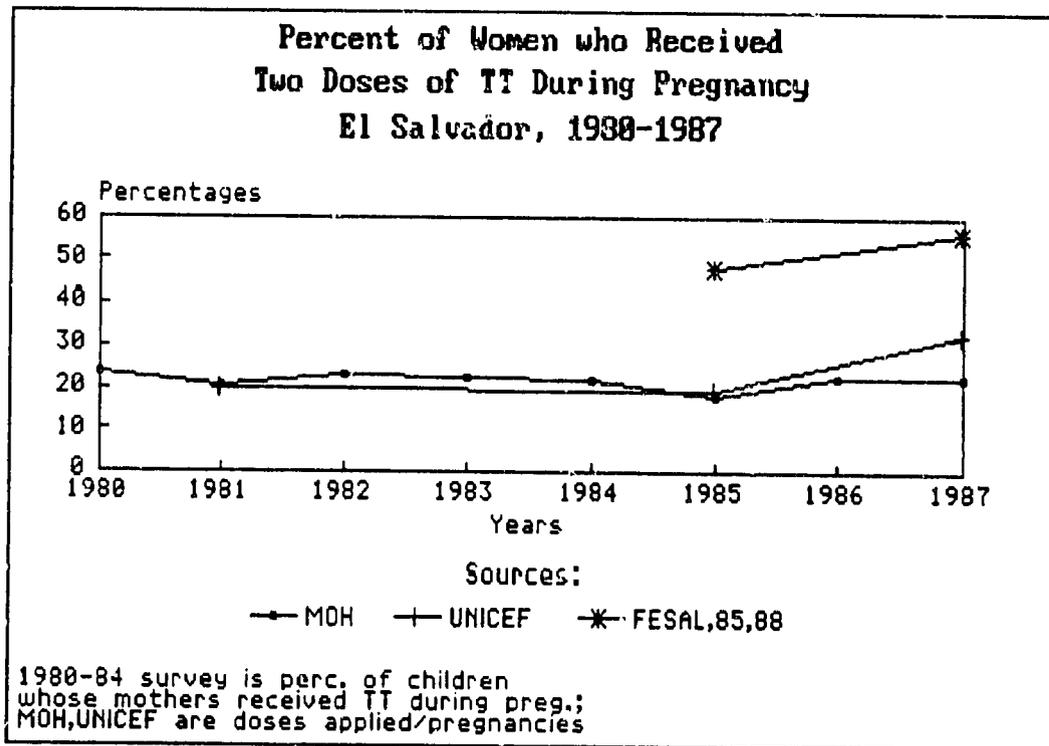


Figure 8

C. Coverage of Pregnant Women with Tetanus Toxoid

Estimates of TT coverage of pregnant women from 1980-1987 are available from both non-survey (MOH, UNICEF) and survey sources. Non-survey sources base their estimate on the doses of TT applied through the public health system to pregnant women each year, and an estimate of the total number of pregnancies in the nation (5

percent of the population, UNICEF). This estimation technique is problematic as it is limited to public sector vaccination activities and is based on population estimates which may be invalid. In spite of problems with recall, surveys are the best source of information as they are based on real pregnancy histories.

Figure 8 above presents non-survey and survey data on TT coverage of pregnant women. According to UNICEF, coverage rates have increased from 1980-1987 while the MOH reports no improvement or a slight decline in coverage over this same period. Survey sources for 1985-87 report an increase in coverage with estimates which are much higher than non-survey estimates.

#### IV. Malaria

Two sources of information are available on the number of cases of malaria reported each year in El Salvador: USAID and the Ministry of Health. Unfortunately, there is no survey data to verify the case rate on the community level.

Although there is some slight difference in the number of cases reported by each source, illustrated below in Figure 9, both the MOH and AID show an overall decrease in morbidity from malaria from 1980 to 1987.

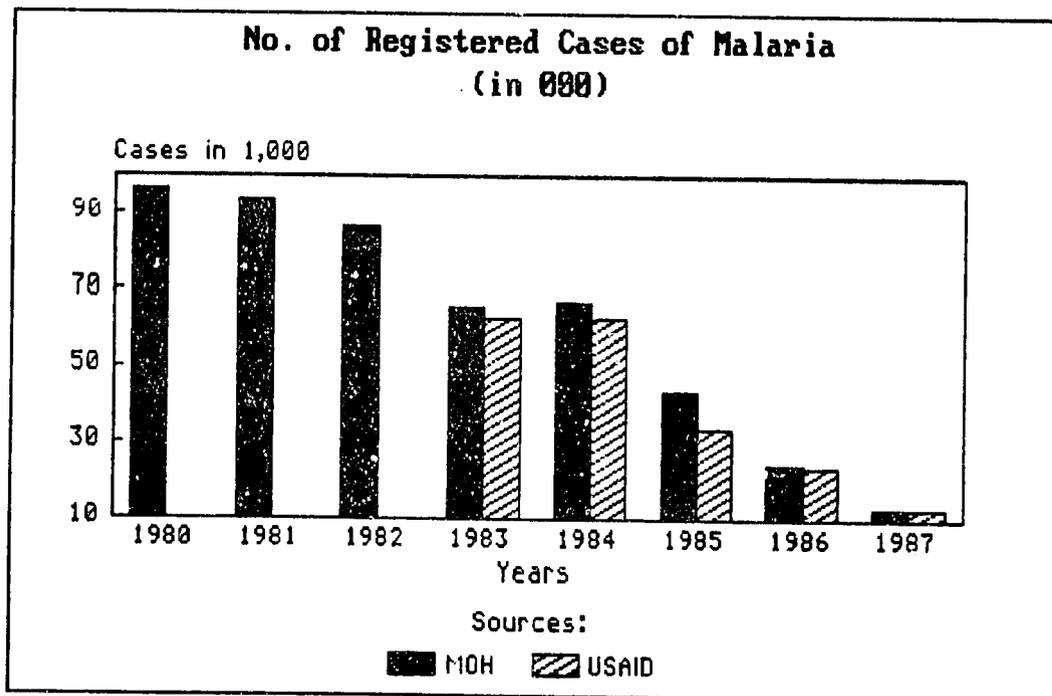


Figure 9

## VI. Diarrheal Disease

### A. Diarrheal Disease Mortality among Children

Diarrhea-associated mortality data is available from vital statistics, reported by the MOH. As problems with under-reporting and the reporting system itself are common throughout the region, death rates from this source are generally considered to be under-estimates of actual death rates on the community level.

Figure 10 presents numbers of deaths due to diarrhea and diarrhea-associated death rates for children 0-12 and 13-60 months of age from 1980 to 1984. No data was available from 1985-1987. According to this information, diarrheal disease mortality decreased in both age groups over this period of time. The greatest improvement in rate occurred among children 0-12 months of age.

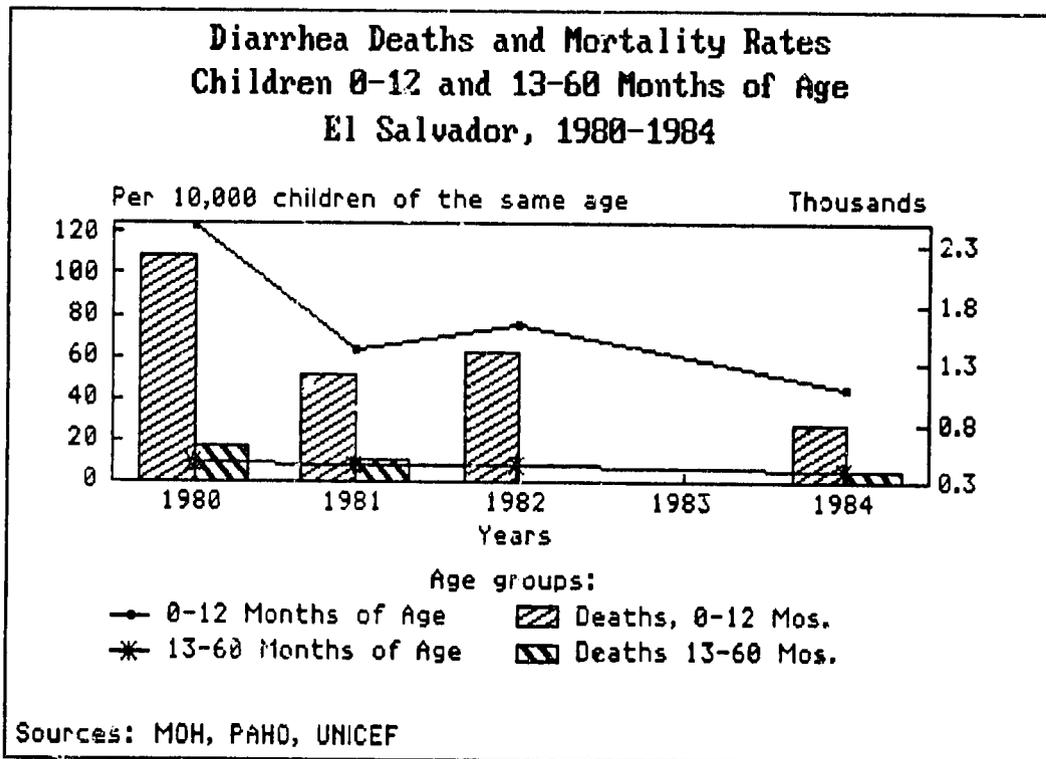


Figure 10

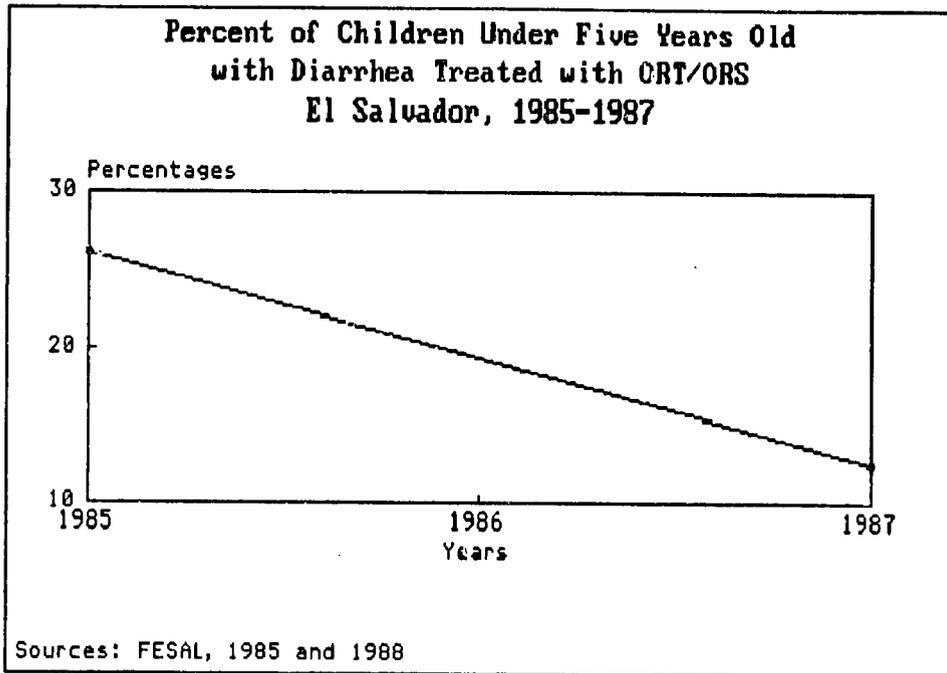


Figure 11

#### B. ORS/ORT Use Rates

The best information on use of ORS/ORT in the treatment of dehydration during episodes of diarrhea is from national surveys. According to survey data presented in Figure 11, there has been a decrease in the use of ORS/ORT during childhood diarrhea episodes since 1985. However, a note of caution must be introduced here when interpreting results. As the information on use-rates is not broken down by the severity of the diarrhea episode, we have no idea of trends in the appropriate use of ORS/ORT. Although the survey data reports a decline in the use of ORS/ORT during episodes of diarrhea in general, this decline may actually represent improved targeting of use to those diarrhea episodes which are acute and most likely to cause dehydration and death. The decline in childhood mortality from diarrhea noted above tends to support this possibility.

#### VI. Childhood Undernutrition

Information on childhood nutritional status is also available from national surveys. In 1978, a national anthropometric survey collected data which was analyzed using Gomez Grades of undernutrition. The Central American Nutrition Institute (INCAP) later re-analyzed this data into Z scores (standard deviations from the mean) using NCHS reference measures. In 1988 another national anthropometric survey was conducted and analyzed in Z scores, yielding trend data for the decade.

The weight for age measure of nutritional status is considered to be a composite measure which includes the effects of wasting (weight for height) and stunting (height for age). Children with moderate or severe undernutrition are those whose weight for age is more than 2 standard deviations below the mean.

The results of these two national surveys are presented below in Figure 12. They show a decrease in moderate or severe weight for age deficiencies among Salvadoran children under five years of age over the past ten years. Unfortunately, there is no information on fluctuations in undernutrition over this period.

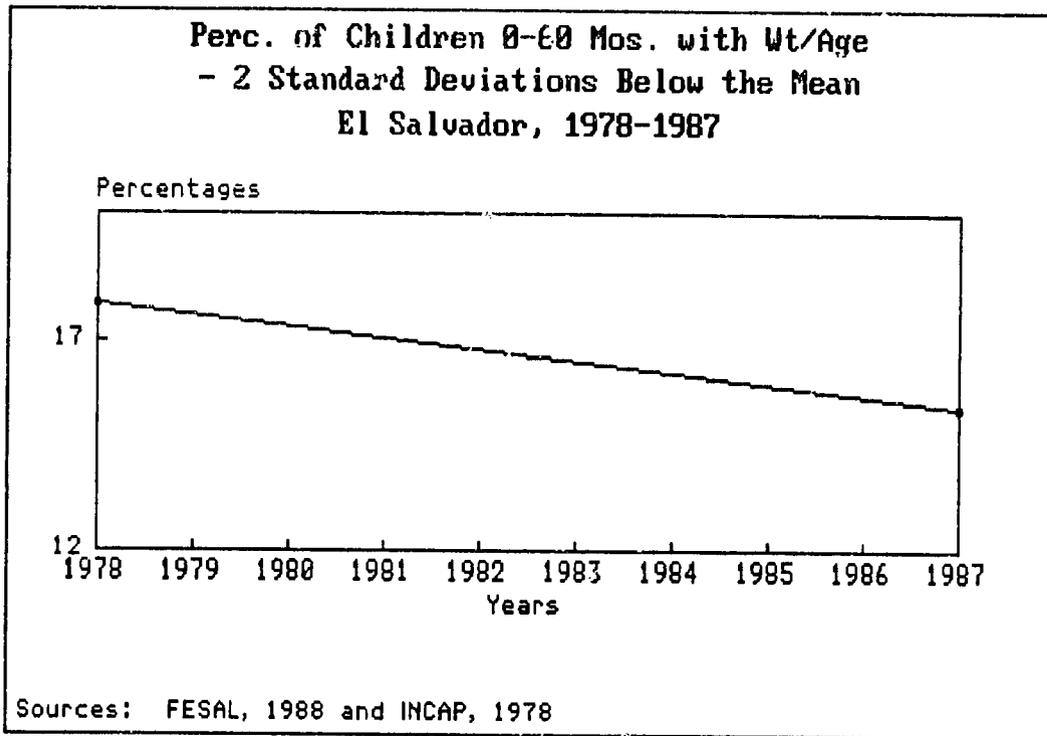


Figure 12

## VII. Water and Sanitation

There are several sources of information on water and sanitation coverage in El Salvador including the MOH, USAID, WASH (AID's centrally-funded water and sanitation project), and a national survey conducted in 1988. According to all non-survey sources, from 1980-1987 water coverage improved in urban areas and sanitation coverage improved in both urban and rural areas, while water coverage in rural areas declined. There is no trend information available from national surveys, however estimates of coverage from the 1988 survey are higher than estimates from non-survey sources including those reported by WASH. The exception is the survey estimate for urban sanitation coverage which is in line with the WASH projection.

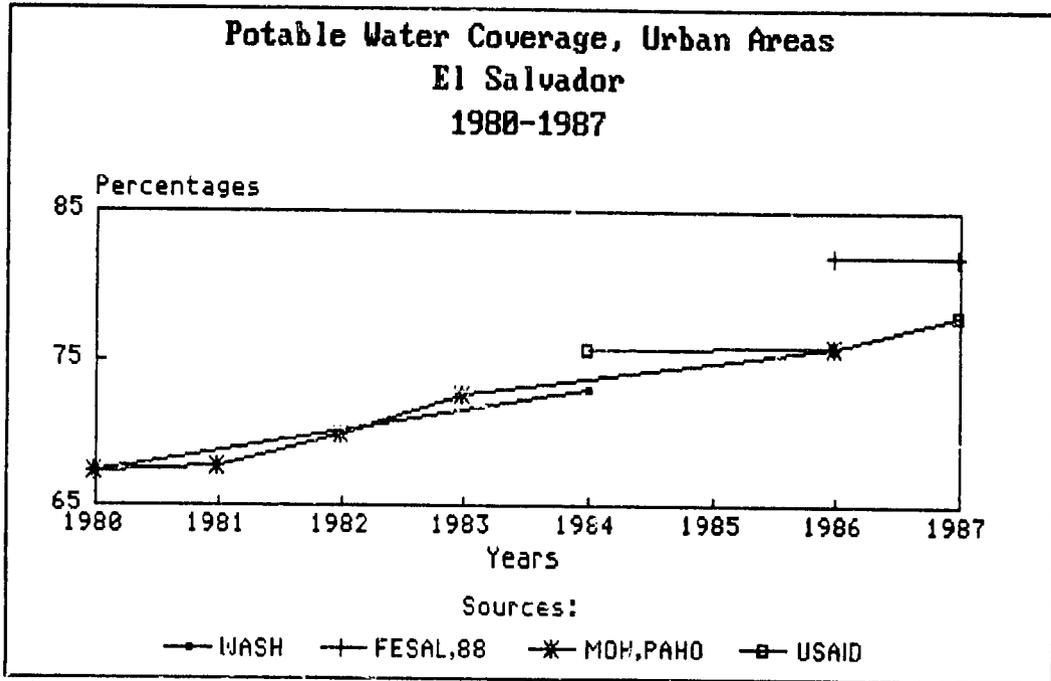


Figure 13

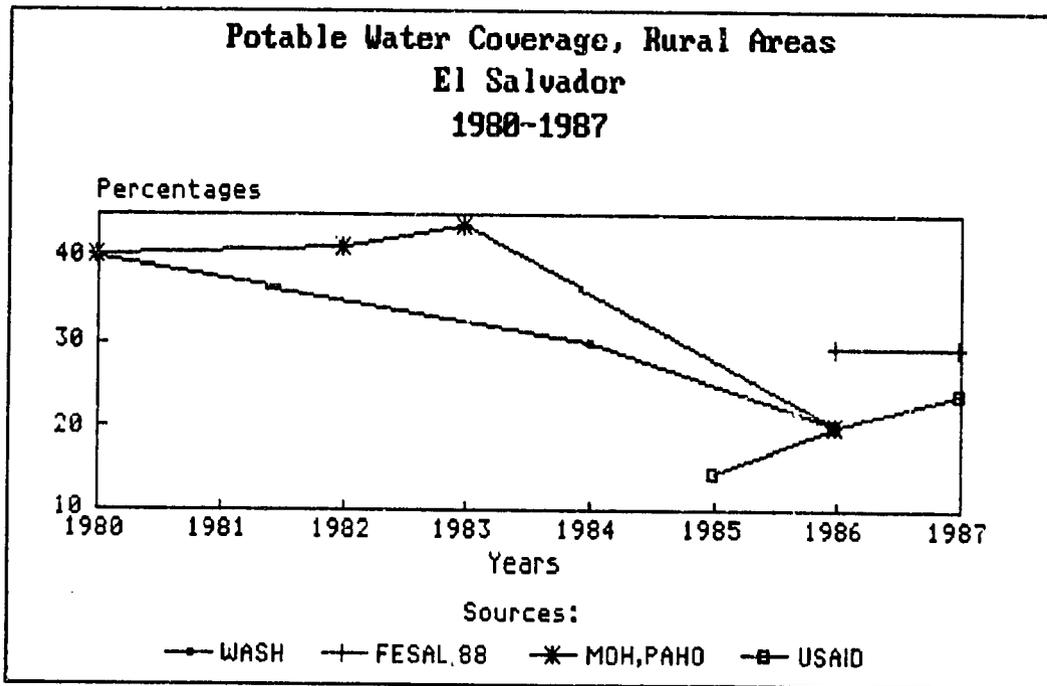


Figure 14

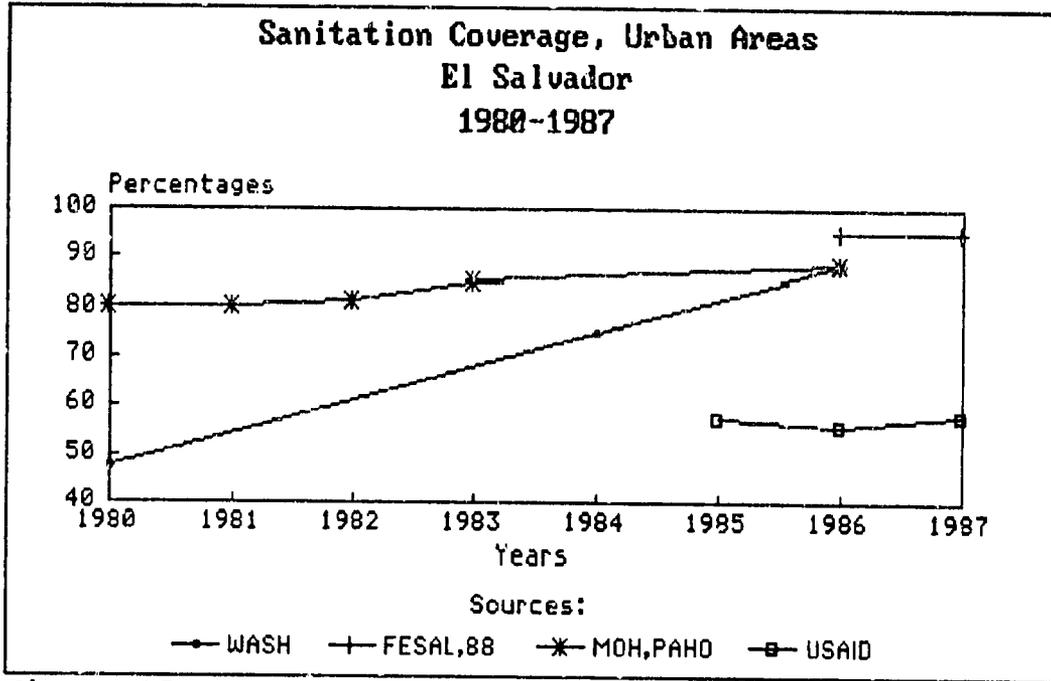


Figure 15

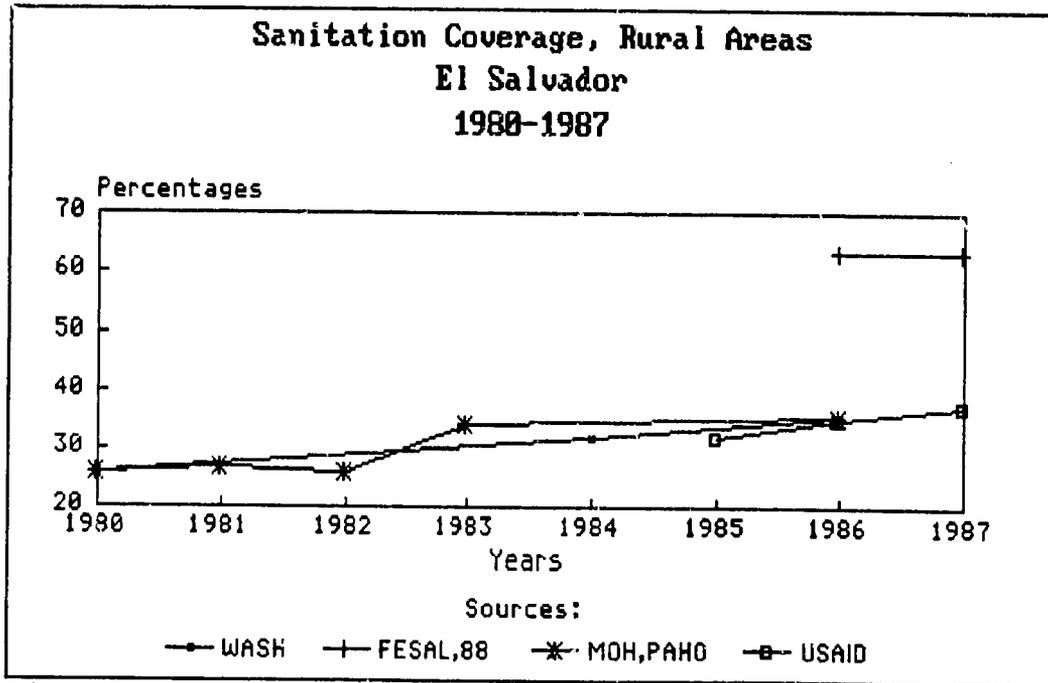


Figure 16

**ANNEX A**  
**References**

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**ANNEX B**  
**Data from El Salvador**



Table 2  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of children 0-12 mos. having received polio 3 vaccine

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES						54.0	60.0	65.0
Ministry of Health *	44.7	37.7	46.0	50.0	47.3	44.5	49.5 52.0	51.1
<u>Surveys/other (list):</u>								
FESAL - 1988 **								(1988) 35.7
FESAL - 1985						36.2		
Displaced - 1985						32.3		
PAHO		38.0	42.0	20.0 56.2	31.0			
UNICEF		31.8 38.0				54.0	70.0	67.0

Notes:

- \* Percentages based on doses applied and census population estimates (1980-1984, 2 doses)
- \*\* excludes 0-5 mos. of age

Table 3  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of children 0-12 mos. having received measles vaccine

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES						71.0	75.0	75.0
Ministry of Health							94,867 doses*	
<u>Surveys/other (list):</u>								
FESAL - 1988								(1988) 40.9
FESAL - 1985						36.4		
Displaced - 1985						31.3		
PAHO		44.0	43.0	60.3 46.0	41.0			
						(1985-1986) 24.0		
UNICEF		44.0			41.0	71.0	45.0	48.0

Notes:

\* Doses applied to children 6 - 23 mos. of age

Table 4  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of children 0-12 mos. having received DPT 3 vaccine

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES						50.0	50.0	53.0
Ministry of Health *	46.6	41.7	46.3	50.2	47.9	44.6	50.0 51.3	50.2
<u>Surveys/other (list):</u>								
FESAL - 1988								(1988) 26.1
FESAL - 1985						37.9		
Displaced - 1985						27.3		
PAHO		42.0	42.0	56.3	31.0			
						(1985-1986) 70.0		
UNICEF		42.0			31.0	54.0	66.6	67.0

Notes:

\* Percentages based on doses applied and census population estimates (1980-84, 2 doses)

Table 5  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of children 0-12 mos. having received BCG vaccine

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES								
Ministry of Health *	60.0	46.6	49.9	53.1	24.4	43.2	49.8	54.4
<u>Surveys/other (list):</u>								
FESAL - 1988								(1988) 64.9
FESAL - 1985						48.3		
Displaced - 1985						21.8		
PAHO		47.0	46.0	55.8 48.0	22.0			
						(1985-86) 50.0		
UNICEF		47.0			22.0	50.0	51.0	53.0

Notes:

\* Percentages based on doses applied and census population estimates









Table 10  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of women 15-49 yrs. who have delivered in the last 12 mos.  
 who have received two doses of tetanus toxoid

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES								
Ministry of Health *	23.7	20.6	23.2	22.4	21.4	17.9	22.2	22.1
<u>Surveys/other (list):</u>								
FESAL - 1988 **								(1988) 55.8
FESAL - 1985 ***	(1980-1984)							
			47.7					
PAHO								
						(1985 - 86)		
UNICEF *		20.0				19.0	32.7	

Notes:

\* Percent of pregnant women (estimated as 5% of the population)

\*\* Women in union 15-44 yrs. of age with a live birth within 5 yrs. of the survey

\*\*\* Perc. of children 0-60 mos. whose mothers received TT during pregnancy

Table 11  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Number of registered cases of malaria

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES				62447	62400	33500	23500	13000
Ministry of Health	95835	93187	86202	65407	66844	43474	24239	12761
<u>Surveys/other (list):</u>								
PAHO								
UNICEF								

Notes:

Table 12  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Diarrhea-assoc. mortality rate in children 0-12 mos. of age  
 (per 10,000 children 0-12 mos.)

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES								
Ministry of Health	deaths (2,169) 123.6	(1,221) 63.0						
<u>Surveys/other (list):</u>								
PAHO	deaths		863.5*	870.0*	(841) 44.9			
UNICEF	deaths		(1372) 74.9					

Notes:

\* Rate per 100,000 live births

Table 13  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Diarrhea-assoc. mortality rate in children 13-60 mos. of age  
 (per 10,000 children 13-60 mos.)

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES								
deaths	(628)	(538)						
Ministry of Health	10.0	7.9						
<u>Surveys/other (list):</u>								
deaths								
PAHO			78.3*		(385) 5.8			
UNICEF								

Notes:

\* Rate per 100,000 children 13-60 months of age

Table 14  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of children 0-59 mos. with diarrhea in the past 2 weeks  
 who were treated with ORT

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES								
Ministry of Health								
<u>Surveys/other (list):</u>								
FESAL - 1988								(1988) 41.7** 12.6*
FESAL - 1985						26.1		
Displaced - 1985						17.7		
INCAP - 1986							44.0***	
PAHO								
UNICEF						26.1		

Notes:

\* ORS (10.8%) and ORT (1.8%)

\*\* Perc. of families with children under 5 yrs. who have used ORS in the past year

\*\*\* Last cases of diarrhea

Table 15  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of children 12-23 mos. with weight for age less than  
 2 standard deviations below the mean

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES								
Ministry of Health								
<u>Surveys/other (list):</u>								(1988)
FESAL - 1988								26.8*
								22.4
PAHO								
UNICEF								

Notes:

\* Rural only





Table 18  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of children under 60 mos. with weight for age Grades II and III

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
						( Grade III only )		
USAID/ES					7.0	6.0 5.0	5.0	4.0
Ministry of Health *	3.6	3.9	38.1 3.5	3.0	3.4	2.6	2.4	2.1
<u>Surveys/other (list):</u>								
<u>Displaced - 1985</u>						28.1		
<u>INCAP - 1985</u>	(1978) 10.5							
<u>PAHO</u>	(1978) 10.5 11.8							
<u>UNICEF</u>	10.5				(1980 - 1986) 58.0			

Notes:

\* Percentages based on cases seen in Ministry facilities and census population estimates

Table 19  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of urban population with access to potable water

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES	51.0*				75.6	71.1 77.1	70.5 75.9	78.0
Ministry of Health	67.3	67.7	69.9 77.2	72.6				
<u>Surveys/other (list):</u>								
FESAL - 1988								(1988) 81.9
WASH - 1987	67.4				73.0		75.9	
Displaced - 1985						44.7*		
PAHO	67.0		69.9	71.0			75.8	
UNICEF							48.0*	

Notes:

\* Urban and rural

Table 20  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of rural population with access to potable water

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES	51.0*					14.6	20.1	24.0
Ministry of Health	39.7	41.5	41.2 40.0	43.7				
<u>Surveys/other (list):</u>								
FESAL - 1988								(1988) 29.2
WASH - 1987	39.8				30.0		20.1	
Displaced - 1985						44.7*		
PAHO	40.0		41.0	43.0			20.1	
UNICEF					(1983 - 1986)			
					42.0		48.0*	

Notes:

\* Urban and rural

Table 21  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of urban population with adequate sanitation

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES						57.3	55.9	58.0
Ministry of Health	80.1	80.2	81.3 89.9	85.2				
<u>Surveys/other (list):</u>								
FESAL - 1988								(1988) 94.9
WASH - 1987	47.9				75.0		88.6	
PAHO	48.0		81.4	52.0			88.6	
UNICEF								

Notes:

\* Urban and rural

Table 22  
 Comparison of data sources on CAI core Health and Nutrition Indicators,  
 1980-1987  
 Percent of rural population with adequate sanitation

Country: EL SALVADOR

Source	1980	1981	1982	1983	1984	1985	1986	1987
USAID/ES						32.0	35.0	37.0
Ministry of Health	26.1	26.7	25.6 26.1	34.3				
<u>Surveys/other (list):</u>								
FESAL - 1988								(1988) 62.9
WASH - 1987	26.1				32.0		35.2	
PAHO	26.0		26.0	34.0			35.2	
UNICEF								

Notes:

\* Urban and rural

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