

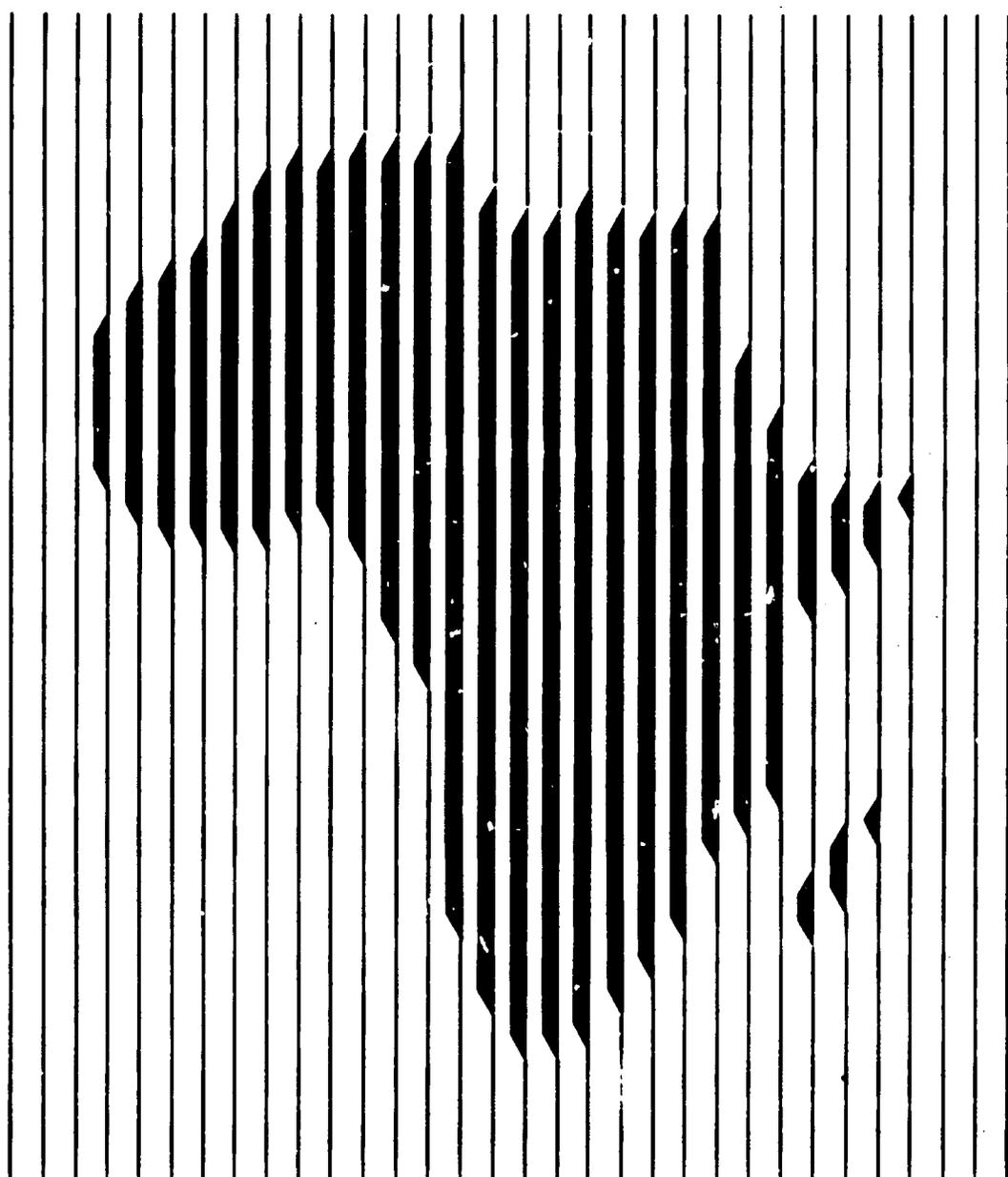
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# Development Fund for Africa

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The Impact of Child Survival Activities in Africa:

*A Report on A.I.D.'s Progress in Reducing Infant and Child Mortality and Illness in 17 Child Survival Priority Countries*



Agency for International Development  
Bureau for Africa  
Washington, D.C. 20523

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# ***The Impact of Child Survival Activities in Africa***

## ***A Report on A.I.D.'s Progress in Reducing Infant and Child Mortality and Illness in 17 Child Survival Priority Countries***

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**June, 1989**

# *Executive Summary*

## *The Impact of Child Survival Activities in Africa*

### **The Problem**

In 1988, approximately 21 million children were born in sub-Saharan Africa. An estimated 4.3 million — or about 20 percent of them — will die before their fifth birthdays, unless adequate health care can be provided to combat the illnesses killing them.

### **The A.I.D. Response**

A.I.D. initiated activities in 12 African countries in 1981 to combat the common diseases which become fatal for children in Africa — measles, whooping cough, tetanus, diarrheal illnesses, and malaria — with the launching of the African Child Survival Initiative - Combating Communicable Childhood Diseases (ACSI-CCCD) project. Five additional countries became child survival priority countries in 1985. A.I.D. activities in all 17 child survival priority countries in Africa work at three levels:

- *Immediate targetted delivery of services* — vaccinations and oral rehydration therapy — is a principal means to pursue child survival goals. It is estimated that using these two simple, safe technologies alone could cut the annual infant and child mortality rate in half.
- *Institutionalization of short-term projects into host country health programs* is also a key area of support. It is essential that child survival activities become permanent features of national development programs. The CCCD project, for example, not only directly provides vaccinations and oral rehydration salts, but trains health workers to better diagnose and treat childhood diseases.
- At the broadest level, A.I.D. continues to address the problem of poverty by supporting efforts to *increase economic growth* crucial to Africa's development. Under the new Development Fund for Africa (DFA), there is greater flexibility to more directly address the socio-economic factors — poverty, illiteracy and inflation — which have been identified as major contributing factors to under-five mortality.

### **The Results**

This report presents *initial evidence of progress in reducing infant mortality rates through vaccinations, oral rehydration therapy, and other child survival interventions*. A.I.D.'s principal worldwide Child Survival goal is lowering mortality to the rate of 75 infant deaths per thousand live births by the year 1990. It is clear that this goal in Africa will not be realized by the target year. Nevertheless, the goal remains an important indicator of what the stakes are. If the target were reached by the year 2000, it is estimated that a staggering 3.3 million children's deaths would be prevented that year alone in Africa.

**Kenya** has already achieved the Child Survival Initiative goal of 75 deaths per 1,000 live births. Of the remaining 16 countries where A.I.D. has focused its child survival efforts, it is expected that an additional six may achieve the target by 1995: Burundi, Cote d'Ivoire, Lesotho, Senegal, Togo, and Zaire.

This is good progress considering that the target presents a significant challenge to African nations. Compared to Africa's 1980-85 rate of 118 infant deaths per thousand live births before age one, Asia's rate was about 100, while Latin America and the Caribbean's was 63 per thousand.

Expanded immunization rates promise further gains. Because of the importance of immunizable diseases in infant and child mortality, measles and DPT-3 vaccine coverage are used as indicators of progress toward the child survival goal. Measles coverage has increased in all but two child survival priority countries and has more than doubled in several cases. **Kenya, Lesotho, and Swaziland** have a good chance of reaching and maintaining the Agency's child survival immunization target of 80 percent coverage by 1990. By 1995, Malawi, Senegal, Burundi, Cote d'Ivoire and Rwanda will enter the probable category, making a total of eight countries which could meet the 80 percent immunization coverage target by 1995.

What is important to recognize, but what is *not* illustrated by the data on immunization target attainment, is the significant improvement in the quality of the services that is being obtained. Data from 12 of the countries shows significant changes: correct temperature storage for vaccines increased from 60 to 90 percent and use of a sterile needle and syringe for each injection increased from 50 to 90 percent. These qualitative improvements have tremendous impact on the major objectives of child survival — reducing disease and saving lives.

A.I.D.'s goal for improving child survival through expanded use of oral rehydration therapy (ORT) is for 100 percent of the population to have access to a trained provider of oral rehydration salts (ORS), and for 45 percent of diarrheal cases to be treated with ORT. **Lesotho** has the distinction of already having achieved 100 percent access to ORT. ORT Units have been established in 16 of 18 hospitals (89 percent) and local production of ORS has doubled. In Malawi, Swaziland and Togo, 100 percent of health facilities are now using ORS. In Burundi, Cote d'Ivoire, Liberia, Rwanda and Zaire the proportion of facilities using ORS ranges from 54 percent to 77 percent.

## **The Future**

The greatest challenge which remains is institutionalizing such interventions into national programs. Faced with the conflict between severe budgetary pressure and the need to address basic health needs, African governments must be creative, looking at alternatives other than free public health care services. They must not only find ways to increase revenues, including increasing reliance on user fees, but also how to most effectively reallocate existing revenues to those health services which can most efficiently reduce premature mortality and unnecessary morbidity. To improve the survival of tomorrow's children, therefore, A.I.D. must support these efforts to improve health delivery systems as a whole as well as those interventions which reduce mortality among infants being born today.

# The Impact of Child Survival Activities in Africa

## I. Introduction

In 1988, approximately 21 million children were born in sub-Saharan Africa. An estimated 4.3 million — or about 20 percent of them — will die before their fifth birthdays, unless adequate health care can be provided to combat the illnesses killing them. This level of mortality means a child born in Africa is 20 times more likely to die than a child born in the United States.

In response to the extreme human and financial costs of high infant and child mortality in the developing world, the U.S. Congress, in concert with a UNICEF global initiative, established a special Child Survival Fund in 1985. The goals set for this Child Survival Fund in Africa are:

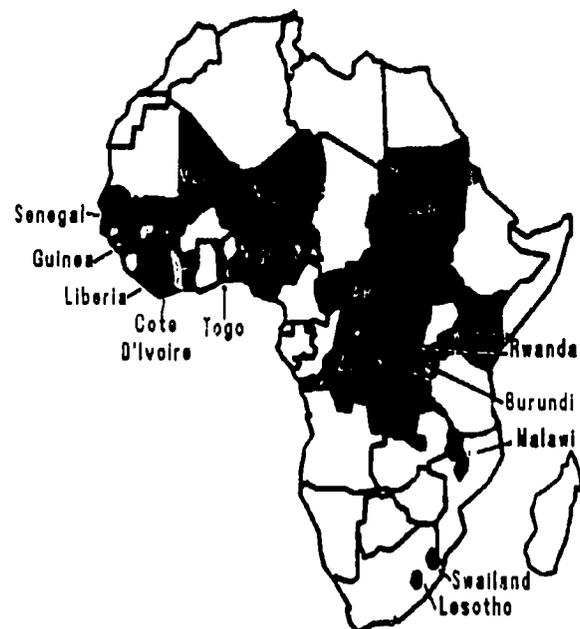
- an infant mortality rate of less than 75 deaths for every thousand births per year;
- 80 percent of children under 5 years of age vaccinated for the major childhood diseases;
- expanded access to treatment of diarrheal disease episodes for children under 5 years of age;
- expanded access to voluntary family planning information and birth spacing methods for 50 percent of couples;
- less than 10 percent of children below the standard of nutritional adequacy, measured as 80 percent weight for height; and
- access to an appropriate anti-malarial treatment for at least 80 percent of children under 5 years of age who visit a clinic for fever or malaria.

A.I.D. had initiated activities in 12 African countries in 1981 with the launching of the African Child Survival Initiative - Combating Communicable Childhood Diseases

(ACSI-CCCD). This effort was to combat the common diseases which become fatal for children in Africa - measles, whooping cough, tetanus, and diarrheal illnesses - along with malaria and other complicating factors like malnutrition. In 1985, five more countries were added. A.I.D. is now working in 17 child survival priority countries (Figure 1).

Since 1981, \$126 million has been obligated for child survival activities in the 17 priority countries, which include just over half of the population in sub-Saharan Africa. Hundreds of health care delivery experts have been trained, and literally thousands of African mothers and health care workers have worked towards improving child survival on the continent. In order to achieve maximum impact, A.I.D. chose to work in those countries with relatively large populations where mortality rates are especially

Figure 1. Child Survival Priority Countries in Africa



high. Special consideration was also given to countries whose governments are committing their own resources and where opportunities exist for collaborating with other donors.

*This report presents initial evidence of progress in reducing infant mortality rates through vaccinations, oral rehydration therapy, and other child survival interventions.* Data suggest that attainment of the child survival targets will take longer and will be attained in fewer countries than hoped. Movement toward the targets, however, is visible in virtually all priority countries.

A fact about data should be noted at the outset. Statistics from Africa are often based on estimates from census or survey data. While their reliability may be open to question, the statistics included in this report, taken from United Nations, World Health Organization, World Bank, and A.I.D. sources, are the best available.

## II. The Problem

### A. Infant/Child Mortality

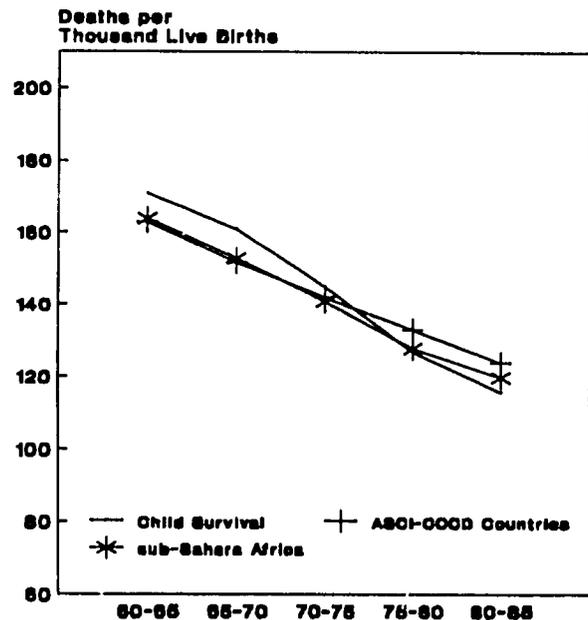
Of all the world's children, those in sub-Saharan Africa facing the deadly combination of malnutrition and disease, are in the most precarious situation. Twelve out of every 100 children die in Africa before age one, compared to 9 in the Near East, 6 in Latin America, and 2 out of 100 in the U.S. There is no simple answer to the question "Why do so many children die?" There is a biological cause for every death, but poverty plays a crucial role in paving the way for both the disease and eventual death.

Over the past twenty years, food production per capita has stagnated or declined in most of Sub-Saharan African countries. Incomes, which would permit people to buy food from elsewhere, are low. Birth rates are high; children are often born only two years, or less, apart. Mothers find themselves stretched to provide care for children

while devoting sufficient time to their agricultural production activities and other jobs. Unclean water, poor sanitation and housing allow infections to spread rapidly. Measles, whooping cough, and malaria are endemic. Ratios of health care workers to population are the lowest in the world. Many countries are vast in size; road and communication networks are inadequate. No electricity exists for the majority of the population, and the cold chain needed to keep vaccines and medicines viable is unreliable or nonexistent.

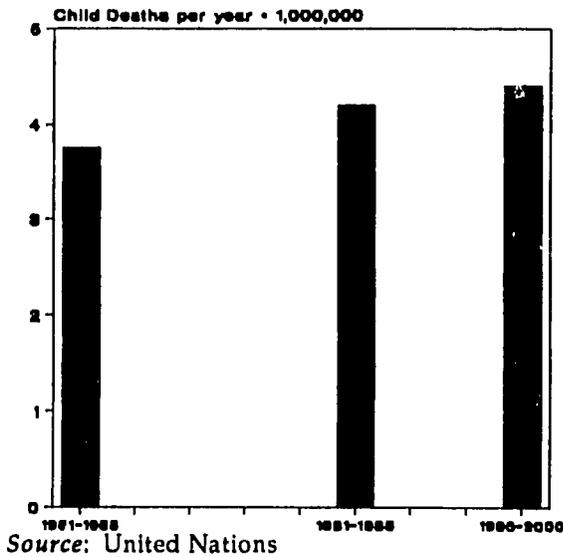
Compounding the situation, civil strife and natural disasters have turned food shortages into famine and illness into epidemics. An estimated 30 million Africans, three-quarters of them women and children, were threatened by malnutrition and starvation at the height of the drought of 1983-85. War and natural disasters, however, affect only a minority of African children. Many more are victim to the general poverty that pervades the continent.

**Figure 2. Selected Infant Mortality Trends in Sub-Saharan Africa, 1960-1985**



Source: U.N. World Population Prospects, 1988

**Figure 3. Child Deaths in Africa, 1951-2000**



Africa's high infant mortality rate (IMR) — 118 deaths per thousand live births — is a central indicator of the complex of critical problems now threatening the continent. While IMRs have decreased 27 percent over the past 20 years (Figure 2), the actual number of deaths of African children under five years of age is increasing (Figure 3). The apparent contradiction between falling rates and increasing deaths is explained by population growth.

One out of every five African children die before they are five; a rate which is double that of Latin America and the Caribbean. Over half of all deaths in Africa come from the 20 percent of the population which is under five. While such numbers and statistics tell only part of the story, they convey the breadth and depth of the problem.

In sum, *improving child survival requires a systematic understanding of all aspects of child mortality.* Largely as a result of the success of new child survival programs, there has been a growing understanding of the various social, economic, and medical impediments to child survival and the means of their removal. Signs of progress have, in turn, spurred both international

and national efforts to lower childhood death rates.

A.I.D.'s worldwide Child Survival goal is 75 infant deaths per thousand live births by the year 1990. It is clear that achieving this goal in Africa will require heroic efforts and will not be realized by the target year. Nevertheless, the goal remains an important indicator of what the stakes are. If the target were reached by the year 2000, it is estimated that a staggering 3.3 million children's deaths would be prevented that year alone in Africa (UNICEF, 1988).

### **B. Childhood Diseases**

Throughout sub-Saharan Africa, the patterns of childhood disease are relatively similar, although the order of prevalence differs from country to country:

- Today, about a quarter of infant and child mortality is caused by diseases for which vaccines have been developed: *tetanus, whooping cough, measles, polio.*
- Another third of children under five die from *diarrheal diseases*, which cause *dehydration.* Yet oral rehydration — a combination of sugar, salts, and water in specific ratios — will, along with proper feeding, prevent or reverse dehydration in most cases. According to surveys conducted by the Ministries of Health in conjunction with A.I.D.-assisted projects in seven African countries, the prevalence of diarrhea among children at any one time can vary from 12-38 per cent.
- *Malaria* is endemic in the region, except in high-altitude zones. As high as 10 percent of all deaths before age 5 can be attributed to malaria or other illnesses whose onset is related to malaria. Chemoprophylaxis and presumptive treatment are effective in reducing the incidence of most malaria, but the recent increasing resistance of the major strain of malaria to drug treatment has in-

creased both the number of cases and the mortality.

- *Children born less than 24 months apart* have a 60 percent greater risk of death than those whose births follow their siblings at greater intervals.

These general data were confirmed in a regional health survey, conducted through an A.I.D.-assisted project in Senegal in 1982 (CDC, 1982). This survey revealed that 68 percent of deaths of Senegalese children under 5 years of age were attributable to:

diarrhea . . . . .	24 percent
respiratory infections . . . . .	23 percent
malaria . . . . .	9 percent
measles . . . . .	7 percent
tetanus . . . . .	5 percent

### C. Poverty

Poverty plays a crucial role in the high mortality rates in Africa, paving the way both for disease and eventual death. Low incomes are a clear indicator of inadequate household food consumption levels. But the effect of the socioeconomic context in which children live — beyond the incomes of their parents — is also plainly evident. The importance of education, for example, is underscored by the fact that low mortality levels are more closely related to national levels of literacy than to levels and distribution of income (USAID, Demographic Data for Development project information, 1987). Bringing about child survival requires systematic understanding and response to the socioeconomic aspects of child mortality.

Africa, afflicted by wars, drought, environmental degradation, debt and recession has been the hardest hit area in the world. Over the past decade, the economic decline in many of the countries of sub-Saharan Africa has resulted in a decreasing proportion of government spending devoted to health (Table 1). As per capita GNP has fallen in Africa, along with other economic indicators, spending on health has also declined by as much as 50 percent per capita in the 37

poorest nations (UNICEF, 1989). Thus, until the basic issues of health attitudes and resource constraints are improved, child survival will remain an elusive goal.

**Table 1. Government Expenditure on Health as a Percentage of Total Government Expenditure**

	1972	1986
Kenya	7.9	6.4
Zaire	2.3	1.8
Lesotho	7.3	6.9

### III. The Program Response

A.I.D. is working on three levels to achieve its child survival goals.

On the primary level of *immediate targeted delivery of services*, A.I.D. has chosen two important interventions — vaccinations and oral rehydration therapy — as the principal means to pursue its goals. It is estimated that using these two simple, safe technologies alone would cut the annual infant and child mortality rate in half.

Another set of child survival interventions are aimed at the major causes of death and disease: immunizations against preventable diseases, oral rehydration therapy (ORT) for diarrhea, better child spacing for women subject to high risk births, chemotherapy for malaria, and nutrition activities. Some countries have added water and sanitation activities to their diarrheal disease control programs. Programs for acute respiratory disease are just beginning in countries where immunization and ORT are already under way.

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### **Zaire: An Integrated Child Survival Program**

A good example of an integrated — and successful — country child survival program is A.I.D.'s program to improve the quality of health care services in Zaire.

- A basic rural health project, managed by a Zairian private voluntary organization (PVO), is establishing community-supported systems of primary health care in 80 of the country's 306 health zones. Part of a new approach, these systems provide preventive and curative treatment for the most prevalent health problems. Some 275 of the planned 720 curative centers have become full-service primary health care centers covering about 4.4 million people. Progress is tangible in some areas, such as reducing water-borne disease. Studies show that people living closer to project-supplied water spigots have 35 percent fewer incidences of diarrhea.
- The ACSI-CCCD project, operating for more than three years under the technical guidance of the Centers for Disease Control, has firmly established immunization services in 193 of Zaire's 306 health zones. The results have been impressive: the number of children protected against measles has increased an average of 24 percent each year, for a threefold increase overall; 400,000 measles cases annually are prevented by the program while polio cases have dropped sharply in number. The use of ORT has also expanded markedly, and the distribution of oral rehydration salts more than doubled between 1981 and 1985 under the program. A recent study showed that 72 percent of children with diarrhea in project areas were now treated with rehydration salts compared to 42 percent in 1985.
- An A.I.D.-supported study on financing the health zones in Zaire has made recommendations for improving the cost-recovery capabilities of the system, making it more self-supporting and sustainable.
- A family planning project is helping to develop the national strategy for family-planning information, education, and communication, and has established over 100 centers. A complementary contraceptive social marketing program is being very successfully implemented by a PVO and has contributed to the rapid increase in contraceptive use - 88 percent in the past six months in project areas. Increased contraceptive use is an important way for mothers to more widely space births of their children and thus to increase the infants' chances for survival.

Over the medium to long term, A.I.D. is working to *institutionalize the projects into host country health programs* to ensure that child survival activities will become permanent features of national development programs. The ACSI-CCCD project, for example, not only directly provides vaccinations and oral rehydration salts, but is training health workers and institutionalizing national health programs. Advisors from the U.S. Centers for Disease Control have helped strengthen program management and logistics, develop training modules, improve sterilization techniques, and teach survey methodologies in 12 of the Child Survival priority countries. In immunization, efforts are designed not only to improve immunization coverage, but to sustain it over time. An important element of these efforts has been increased donor cooperation, making it easier for the host governments to make the needed changes.

Finally, A.I.D. is working on the broadest level to address the problem of poverty by *increasing the economic growth* crucial to Africa's development. Although not covered in this paper, A.I.D. is supporting the impetus of African leaders to promote growth which is broad-based, market-oriented, and above all, sustainable. Under the new Development Fund for Africa (DFA), there is greater flexibility to more directly address the socio-economic factors — poverty, illiteracy and inflation — which have been identified as major contributing factors to excess under-five mortality. Food production and distribution are areas in which A.I.D. has particular expertise and which are essential to long term improvements in child health.

## IV. The Results

### A. Infant/Child Mortality

Kenya has already achieved the Child Survival Initiative goal of 75 deaths per 1,000 live births. Of the remaining 16 coun-

tries where A.I.D. has focused its child survival efforts, it is expected that an additional six may possibly achieve the target by 1995: Burundi, Cote d'Ivoire, Lesotho, Senegal, Togo, and Zaire.

This is good progress considering that the targets presented a significantly greater challenge to African nations, all of whom started with much higher IMRs when the targets were set in 1985 than the IMRs prevailing in other regions of the developing world. Compared to Africa's 1980-85 rate of 118 infant deaths per thousand live births before age one, Asia's rate was about 100, while Latin America and the Caribbean's was 63 per thousand.

In relation to the rest of sub-Saharan Africa, it is clear the 17 priority countries as a group have made particularly strong progress. Despite the fact that they started out with higher IMRs in 1960-65, they now have a slightly lower IMR than the rest of the continent (Table 2).

**Table 2.** Infant Mortality Rates Over Time (Deaths per 1,000 live births, population weighted)

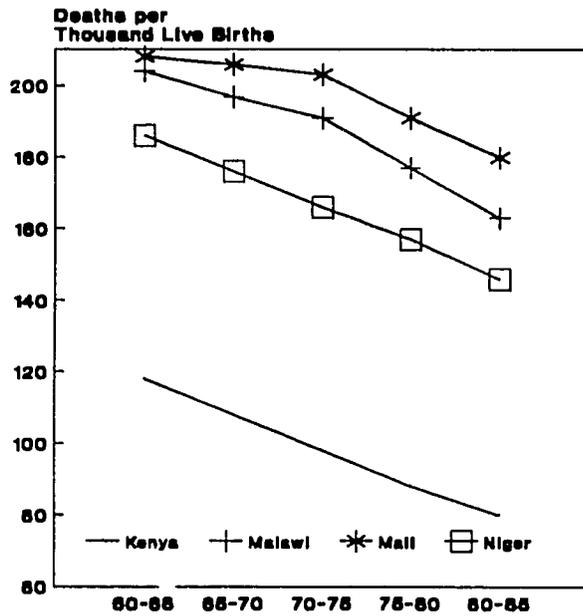
	1960-65	1970-75	1980-85
All of Sub-Saharan Africa*	165	141	118
17 CS priority countries	170	144	118
Rest of Sub-Saharan Africa*	158	136	119

Source: ISTI Reports

\*Note: Not including Angola, Ethiopia, or South Africa

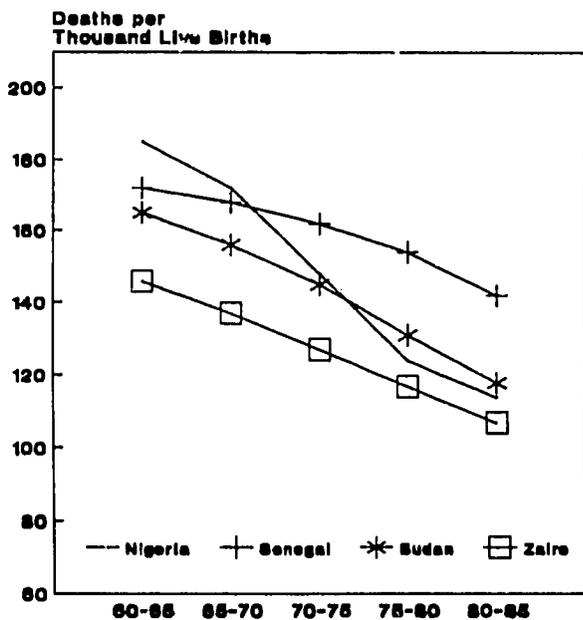
Analysis of the IMR trend lines for individual child survival priority countries (Figures 4 through 7) is also encouraging. Despite not yet achieving the target levels, IMR rates have declined by a third in eight countries, from 171 deaths per 1,000 live

**Figure 4. IMR Trends in Kenya, Malawi, Mali, Niger**



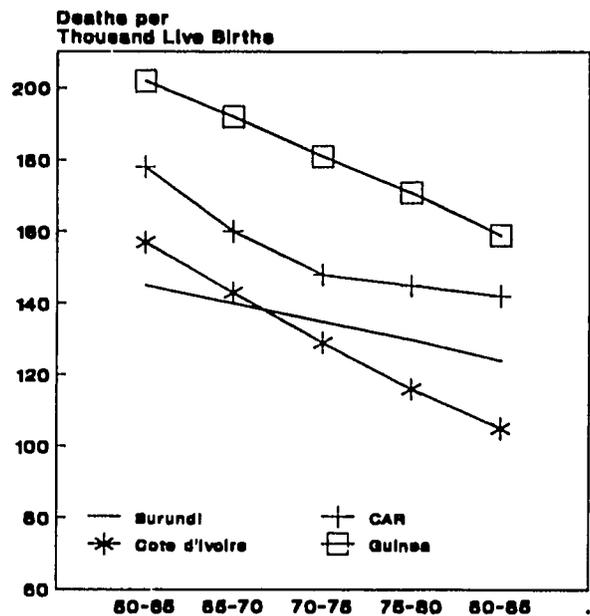
Source: U.N. World Population Prospects, 1988

**Figure 5. IMR Trends in Nigeria, Senegal, Sudan, Zaire**



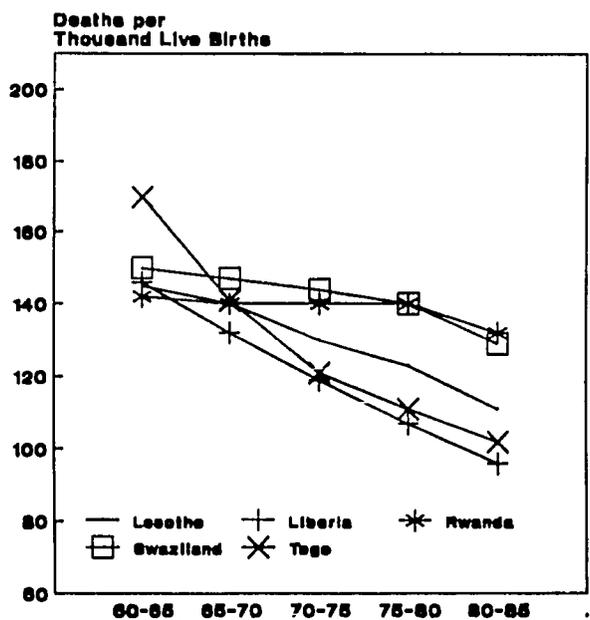
Source: U.N. World Population Prospects, 1988

**Figure 6. IMR Trends in Burundi, CAR, Cote d'Ivoire, Guinea**



Source: U.N. World Population Prospects, 1988

**Figure 7. IMR Trends in Lesotho, Liberia, Rwanda, Swaziland, Togo**



Source: U.N. World Population Prospects, 1988

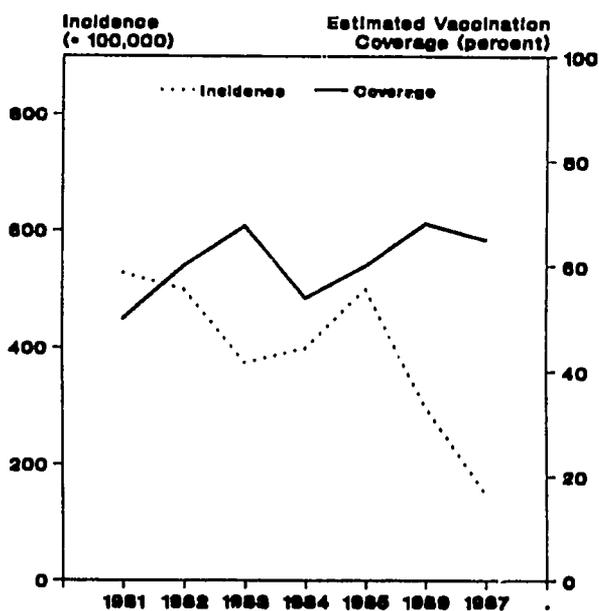
births' to 116 deaths per 1,000 live births for the periods 1960-65 and 1980-85 respectively. For the other child survival priority countries, there has been a 24 percent decline in IMR (from 163 to 124 deaths per 1,000 live births) for the same periods.

Close cooperation with other donors has been an important part of A.I.D.'s efforts. For example, DANIDA (Danish Aid) and UNICEF are key donors in the child survival priority countries and Rotary International is a leader in the battle against polio.

### B. Immunization

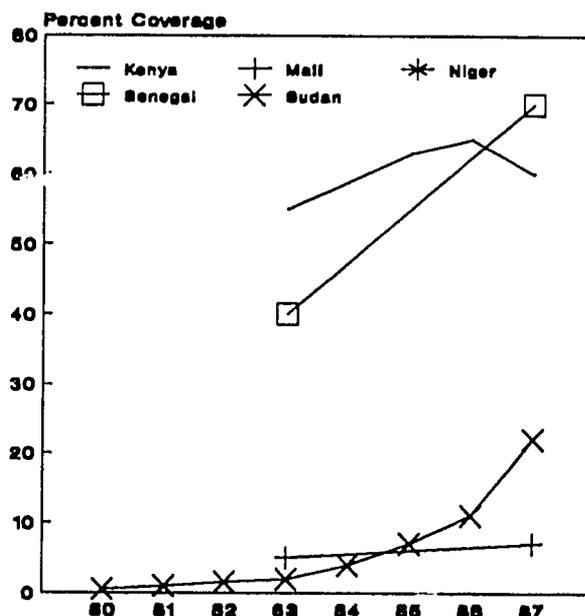
Studies show that the relationship between vaccination and morbidity due to measles can be dramatic. Projecting the level of impact achieved in Lesotho, for example, a vaccination program assuming a vaccine efficacy rate of 80 percent can result in the prevention of 32,000 cases of measles a year in a target population of 50,000 infants of 9-12 months (Figure. 8).

**Figure 8** Measles Incidence and Estimated Measles Vaccine Coverage, Lesotho, 1981-87



Because of their importance, measles and DPT-3 coverage have been selected by A.I.D. as indicators of progress in extending immunization coverage and in achievement of fully-immunized levels. Measles vaccination records, summarized graphically in Figures 9 and 10, make it clear that the majority of the child survival priority countries have made progress in immunization coverage. Measles coverage has increased in all but two countries and has more than doubled in several cases. Eight of the 17 countries have a measles coverage rate of 58 percent or more and a DPT-3 coverage rate of 53 percent or more (Table 3).

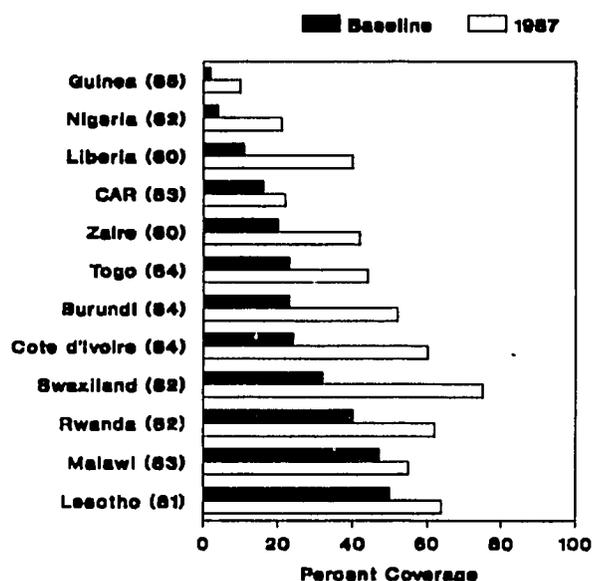
**Figure 9.** Trends in Measles Coverage in Selected Priority Countries



Source: WHO/EPI Reports

Kenya, Lesotho, and Swaziland have a good chance of reaching and maintaining the Agency's child survival immunization target of 80 percent coverage by 1990. By 1995, Malawi, Senegal, Burundi, Cote

**Figure 10. Measles Vaccine Coverage Progress Over Time**



d'Ivoire and Rwanda will enter the probable category, making a total of eight countries which could meet the 80 percent immunization coverage target by 1995.

What is important to recognize, but what is not demonstrated by the information on target attainment, is the significant improvement in the quality of the services that is being obtained through bilateral and multi-lateral technical assistance. Data from 12 of the countries show significant changes: correct temperature storage for vaccines increased from 60 to 90 percent and use of a sterile needle and syringe for each injection increased from 50 to 90 percent. These qualitative improvements have tremendous impact on the major objectives of child survival — reducing disease and saving lives.

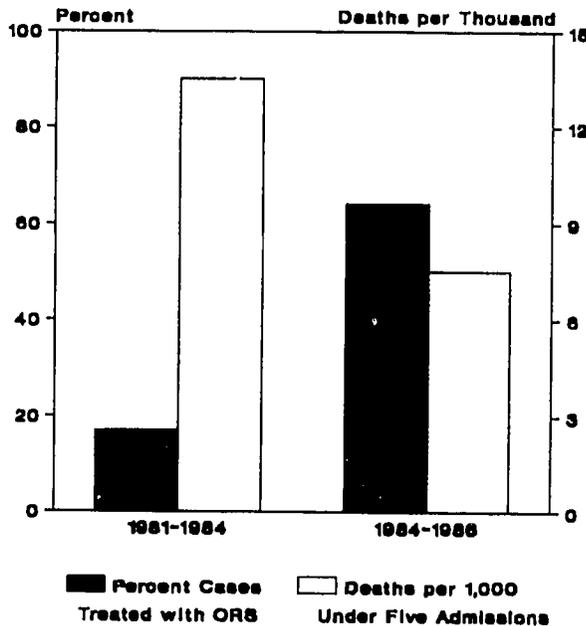
**Table 3. Comparison of Vaccine Coverage Data Over Time, 1983-1987**  
Seventeen Child Survival Priority Countries in Africa

	Measles Coverage Rates (Percent of Children)			DPT-3 Coverage Rates (Percent of Children)			ORT Indicators in 1985/86	
	1983	1987	Change	1983	1987	Change	% Access	% Use
Burundi	45	58	+13	27	73	+46	30	9
CAR	16	18	+ 2	14	18	+ 4	10	6
Cote d'Ivoire	30	85	+55	25	71	+46	10	4
Guinea	1	10	+ 9	15	10	- 5	10	1
Kenya	55	60	+ 5	58	75	+17	40	23
Lesotho	73	79	+ 6	55	77	+22	100	6
Liberia	23	40	+17	23	22	- 1	13	6
Malawi	67	60	- 7	59	75	+16	23	10
Mali	5	7	+ 2	3	3	0	20	2
Niger	19	N/A	N/A	6	5	- 1	4	1
Nigeria	17	20	+ 3	5	18	+13	25	18
Rwanda	42	61	+19	59	75	+16	21	8
Senegal	40	70	+30	54	53	- 1	26	3
Sudan	2	22	+20	3	29	+26	38	8
Swaziland	47	74	+27	49	74	+25	N/A	N/A
Togo	21	48	+27	18	41	+23	56	9
Zaire	29	39	+10	16	36	+20	48	18
<b>Weighted Average</b>	<b>23</b>	<b>33</b>	<b>+10</b>	<b>17</b>	<b>34</b>	<b>+17</b>	<b>30</b>	<b>14</b>

### C. Oral Rehydration Therapy (ORT)

The marked improvement in quality of care and reduced morbidity which results from the use of oral rehydration therapy (ORT) in health facilities is not easily measured. The success of ORT in preventing death, however, is clear and dramatic. Figure 11 summarizes data from Kamuzu hospital in Malawi showing the fall in diarrheal mortality which accompanied the increasing use of ORT.

**Figure 11. Effect of ORS Use on Diarrheal Mortality in Kamuzu Hospital, Malawi, 1981-1986**



A.I.D.'s goal for the ORT programs is for 100 percent of the population to have access to a trained provider of oral rehydration salts (ORS), and for 45 percent of diarrheal cases to be treated with ORT. Lesotho has the distinction of already having achieved 100 percent access to ORT. ORT Units have been established in 16 of 18 hospitals (89 percent) and local production of ORS has doubled. Six other countries (Nigeria, Senegal, Sudan, Zaire, Burundi, and Togo) have

all made significant progress in improving access to ORS.

In Malawi, Swaziland and Togo, 100 percent of health facilities are now using ORS. In Burundi, Cote d'Ivoire, Liberia, Rwanda and Zaire the proportion of facilities using ORS ranges from 54 percent to 77 percent. Thus, it is conceivable that, by 1995, five more of the 17 countries could achieve 100 percent access to ORS. In general, the greater the political commitment to child survival and specifically to ORT programs, the greater the likelihood that countries will achieve national goals.

Because greater ORT use depends on continued training of health care workers and mothers in effective case management and supervision, A.I.D. plans to emphasize these aspects. In Senegal, a recent mid-term evaluation of the national Control of Diarrheal Disease Program revealed that all cases of diarrhea observed were evaluated for the state of dehydration and 88 percent were correctly diagnosed. Most facilities surveyed (63 percent) displayed posters promoting the use of ORT.

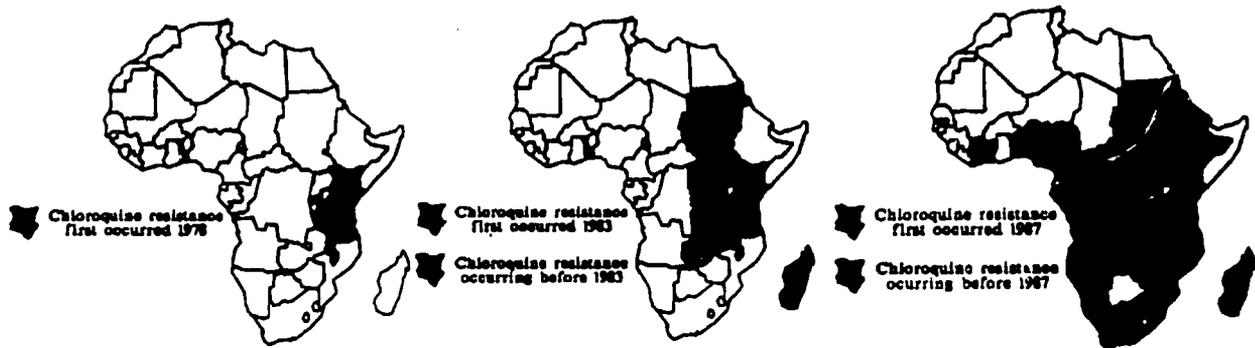
### D. Malaria

Of all the regions in the world, sub-Saharan Africa is the most threatened by malaria today. Over the last decade, one of the greatest health challenges has been an increasing resistance of the major strain of malaria, *Plasmodium falciparum*, to chloroquine and other affordable drugs (Figure 12). As resistance has developed, both the number of cases and the mortality have increased.

For example, the data on Zaire presented in Figure 13 show the dramatic increases in the number of reported cases since 1984.

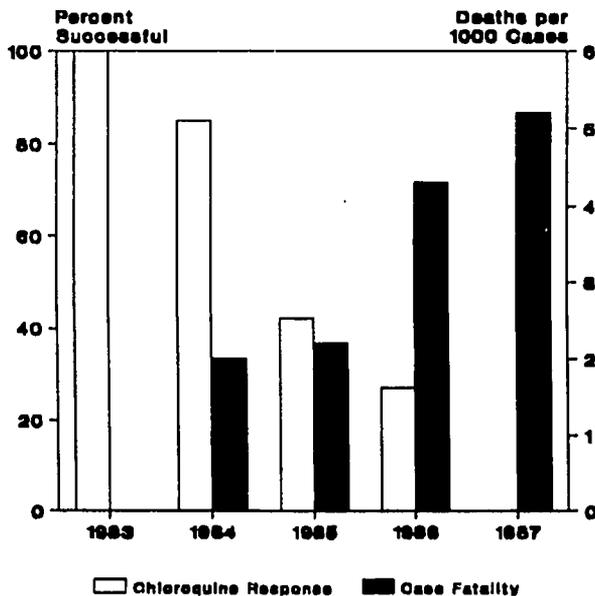
Fourteen of the 17 child survival priority countries have malaria activities focusing on chemoprophylaxis of high risk groups, presumptive treatment of fever, drug sensitiv-

**Figure 12. Spread of Chloroquine Resistant Plasmodium Falciparum Malaria in Africa, 1978, 1983, and 1987**



ity surveillance systems and operations research. Through (1) research into alternative drug regimes, and other preventive measures, such as bed nets and curtains im-

**Figure 13. Plasmodium Falciparum In-Vivo Response to Chloroquine Treatment and the Malaria Case Fatality Rate in Zaire**



pregnated with insecticide, (2) continued training and surveillance, and (3) annual review of national malaria policies, it is hoped that progress will be made in reducing morbidity and mortality due to malaria. In a promising initial response, national malaria control plans are being developed in 11 of 12 endemic countries.

### E. Other Health Problems

Another factor which has proven to be a significant contributor to high infant mortality rates is *high risk births*. Women over age 35 or under age 20, who are delivering their fifth child or more, or whose last pregnancy terminated less than 24 months previously, are considered to be high risks. Better child spacing and reduced conception in certain age groups may reduce the IMR as much as 25 percent. Thus, health education, child spacing services or outreach programs that focus on these women should be an important part of child survival programs.

In Botswana, an A.I.D.-funded project managed by UNDP has identified high risk perinatal factors and is developing management guidelines for staff to use in identifying and treating these factors. The project

has supported update seminars for physicians and matrons, on-the-job training for community health nurses, supervisory activities to strengthen village-level perinatal activities. It has also sponsored research in such areas as birth surveys, maternal mortality, traditional birth attendants and high risk factors associated with home and institutional deliveries. Other countries — Kenya, Malawi, Mali, Niger, Nigeria, Zaire, Swaziland and Togo — have also recently begun similar project interventions to address the problem of high risk births.

Finally, an area which has yet to be adequately addressed in the child survival priority countries is the problem of *nutrition*. Since malnourished children are twenty times more likely to die than well-nourished children, and malnutrition underlies more than half of childhood deaths, A.I.D.'s child survival effort is initiating programs in this critical area. The programs emphasize breastfeeding, growth monitoring, improved feeding practices, dietary management of diarrhea, targeted feeding programs and Vitamin A interventions, where appropriate.

## V. Building Institutional Capacity

While there have been considerable achievements under A.I.D.'s Child Survival program in Africa, the greatest remaining challenge is institutionalizing them into national programs. Thus, *sustainability* of child survival programs continues to be a vital issue and top priority in the Africa Bureau. Faced with the conflict between severe budgetary pressure and the need to address basic health needs, African governments must be creative, looking at alternatives other than free public health care services. They must not only find ways to increase revenues, including increasing reliance on user fees, but also how to most effectively reallocate existing revenues to those health

services which can most efficiently reduce premature mortality and unnecessary morbidity. Typically, the majority of government spending on health goes to expensive curative services in hospitals, rather than to inexpensive preventive health measures such as immunization and prenatal care.

Sustainability remains a challenge because strengthening the infrastructure of a national program takes time. It is a lengthy process for host-country structures to use donor aid efficiently and to sustain activities without relying on continued infusions of massive amounts of donor assistance. Despite the success in ORT, for example, progress in building low-cost intervention techniques into community systems, i.e., by training mothers and village health care workers to increase fluid intake using home fluids, homemade salt and sugar solutions, as well as manufactured ORS, has been disappointing. As research in Nigeria showed, only a small percentage of the mothers trained in the preparation of a salt/sugar solution at home were able to mix it correctly under observation.

In order for programs to be sustainable and well integrated into national organizational structures and budgets, it is vital that they be *technically sound*. In many cases, this has not happened. Nor are adequate staff and resources to assure program sustainability available in all of the countries. At the country level, child survival priorities and objectives should be established and national level dialogue should be carried out at least annually, emphasizing program implementation.

Not surprisingly, there are a host of extenuating factors hindering program effectiveness. In areas of political unrest and civil war (e.g. Southern Sudan), systems to deliver available child survival technologies break down. In these situations, under-five mortality rates over 500 deaths per 1,000 livebirths are not uncommon. Political sta-

bility is clearly an essential prerequisite to child health.

Geographic and climatic conditions generate tremendous logistical and cold chain problems for five of the child survival priority countries (Mali, Niger, Nigeria, Sudan and Zaire). Servicing a health post in northern Mali, for instance, is comparable to servicing a health post in Maine from Washington, D.C., over bad, rutted roads. Mali and Niger are strengthening a primary health care infrastructure upon which to build an immunization program, but progress continues to be slow because of the governments' limited resources and personnel. It is unlikely that either country will achieve the coverage goals by 1995. Sudan must resolve its civil war to do so.

*Health financing* is a key element in an integrated strategy to sustain the outcomes and benefits of health services. Ongoing health care financing studies in 14 of the 17 countries are leading to important policy dialogue on the allocation of scarce health resources. In addition, several child survival priority countries have adopted plans for cost recovery. A.I.D.'s ACSI-CCCD project also plans to develop country-specific health

financing objectives as part of an overall sustainability strategy.

Finally, the issue of obtaining *better quality data* is one which must be addressed. Without reliable statistics to make projections or comparisons, it is virtually impossible to draw meaningful conclusions about progress or program effectiveness.

## VI. Agenda for Child Survival in Africa

Although the challenges and constraints are many, seven areas of progress during the eighties give great hope for child survival in Africa in the nineties, as African governments are:

- giving increasing priority to child spacing;
- recognizing the importance of data to establish priorities, setting objectives and targets, monitoring implementation, documenting progress, and identifying problems for solution;
- recognizing the importance of decentralized management in effectively managing and implementing child survival programs;

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### Senegal

With only 3 percent of the national budget allocated for health, one of the ways A.I.D. is supporting the Senegalese Government to improve the health system is by initiating user fees for health services and medication. A.I.D. is also placing emphasis on the introduction of preventive child survival interventions and family planning services. Already, over 2,000 health workers have been trained through the program to staff local health huts to do growth monitoring, immunizations, malaria prevention, and ORT.

A family health and population project has shown success in all areas, including the significant step of promulgating a National Population Policy. Under the project, over 180 physicians and nurses have been trained, a national family planning curriculum has been developed, and over 60 public sector and 17 private sector family planning clinics are providing services to over 20,000 couples. Reflecting these changes, the use of contraception has risen from a low of 1 percent in 1978 to nearly 5 percent in 1987.

- recognizing the need for quality health care and its prerequisites (on-the-job training and supervision) for effective implementation of child survival strategies;
- using, increasingly, cost sharing mechanisms to expand the availability of health care;
- beginning to improve the capability of mothers and communities to provide basic preventive and curative care; and
- giving increasing priority to preventive health care.

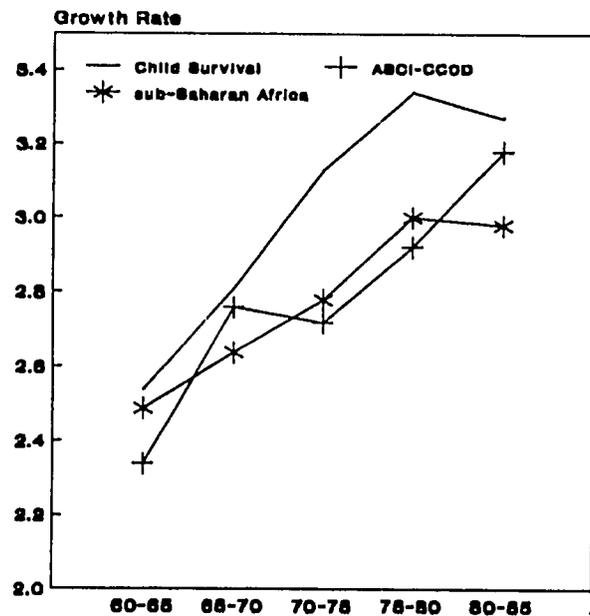
Improvements in child survival are important not only in the area of social justice, but to economic development and political stability. Development of sustainable improvements in health services is a slow process, requiring a long term commitment on the part of governments and collaborating partners. Of special importance in this area has been the success of UNICEF in convincing national leaders on the social and political importance of child health.

An A.I.D. team is currently developing a follow-on activity for the nineties. This will involve a major increase in cooperative planning and implementation by African governments as well as cooperating multi-lateral, bilateral, and PVO partners. Congressional support to child survival through the Development Fund for Africa is important to this process; for all the parties involved, a long-term commitment and support will be vital to strengthening the momentum and seeing the process through.

There are, however, three constraints that significantly threaten the current progress being made in child survival and which must be placed at the top of the agenda: high population growth rates; drug-resistant malaria; and AIDS.

First, the *population growth rate* of sub-Saharan Africa increased almost 20 percent over the last 20 years, from 2.5 percent per year to 3.0 percent per year (Figure 14). The population growth rate of the 17 child survival priority countries during the same period (the two lines designated as CS emphasis and as ASCI-CCCD) has increased

**Figure 14.** Trends in Growth Rates in Sub-Saharan Africa, 1960-1985



over 30 percent, from approximately 2.44 percent to 3.27 percent, far outstripping the growth of the African economy. The estimated population of the region in the year 2000 will be 700 million people.

However, African governments have increasingly come to recognize the importance of slowing population growth in order to achieve economic development and political stability. Population policies have been or are being developed in 20 African countries. Child spacing services are being expanded and contraceptive utilization rates, although low, are increasing. There are major, donor-

supported population programs in 12 of the 17 countries reviewed in this paper. These activities are especially important given that the success of continuing programs in child survival will lower childhood mortality and will contribute to increasing the overall population growth rate.

Second, the major strain of *malaria* in Africa, *Plasmodium falciparum*, has developed increasing resistance to chloroquine and other affordable drugs over the last decade. As resistance has spread westward in Africa, both the number of cases of malaria and the mortality have increased. Research continues in an attempt to find economical and effective preventive measures.

Third, a new problem area has emerged in the last decade — *HIV infection (AIDS)*. In central, eastern, and southern Africa increasing percentages of pregnant women are being identified as infected. This carries with it a significant risk of perinatal infection and early infant death. As HIV transmission in Africa is primarily transmitted heterosexually, lowering rates of transmission will require a major change in sexual practices. Many African governments are giving high priority to this area. Cooperative laboratories in Kinshasa, Zaire and Abidjan, Cote d'Ivoire, with technical assistance from the Centers for Disease Control and the National Institutes of Health, are making major progress in understanding the disease and in identifying approaches to limiting transmission.