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## The Global AIDS Disaster: Implications for the 1990s

Interagency Intelligence Memorandum

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# The Global AIDS Disaster: Implications for the 1990s

Information available as of 15 July 1991 was used in the preparation of this Memorandum.

The following intelligence organizations participated in the preparation of this Memorandum: The Central Intelligence Agency The Defense Intelligence Agency The National Security Agency The Bureau of Intelligence and Research, Department of State

also participating: The Deputy Chief of Staff for Intelligence, Department of the Army The Director of Naval Intelligence, Department of the Navy The Assistant Chief of Staff, Intelligence, Department of the Air Force Director of Intelligence, Headquarters, Marine Corps

This Memorandum was approved for publication by the Chairman of the National Intelligence Council.



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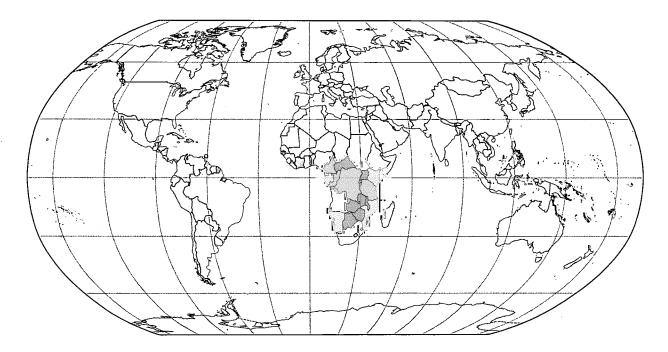
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The Global AIDS Disaster: Implications for the 1990s	(b)(3)
• AIDS cases worldwide will increase rapidly during the 1990s, from about 1.5 million now to a cumulative total of more than 10 million by the end of the century.	(b)(3)
• Whatever the success of research on vaccines and treatment, the upward trend in AIDS cases through the mid-1990s will not be affected.	(b)(3)
• Currently, the problem is worst in Africa, but rapidly spreading infections in India, Brazil, and Thailand will contribute significantly to an estimated 45 million infections worldwide by 2000.	(b)(3)
• By any measure—deaths, number of people infected, economic cost—the impact of AIDS will be far greater in the 1990s than in the 1980s.	(b)(3)
• The United States will face three basic foreign policy problems: How to allocate assistance for AIDS prevention, how to manage the testing and distribution of a vaccine, and how to deal with countries that are heavily afflicted with AIDS and consequently undergo substantial economic and political change.	(b)(3)



### Figure 1 Global Human Immunodeficiency Virus (HIV): Rates of Infection per 100,000 Persons



Creater than 5,	000
Botswana	5,324
Control Altz Rep.	6,774
Malawi	7,946
ene Uganda	6,933
2000,000	5,920
Zinbabwa 	<u>11,194</u>

	°1,000 (	to 5,00	0
all the second	kan setter -	13 <sup>23</sup>	1.000
Buru	.db		1,200
Cam	eroon	1980) 1986)	1,975
Con	go	i gant ti Agant ti	2,598
Fren	ch Guian	<b>a</b>	4,921
Guin	ea-Bissa	u 👘	2,933
Hait	FRE Species	an Adhi	1,941
lvon	y Coast	Constraint State Anno Anno Maria	3,082
14.9	ragua		1,199
Rwa	at souther	- 494 - 494 - 494	3,796
1.1.69	ziland	2912 7,1751	1,164
	zania	i kalenti. Sekeli	2,977
Trin	dad and	Tobago	SPHRIE - SHREE
Zairo	9 (199 <sup>9)</sup> 10 (199		1,586

500 to 1,000	
Cape Verde	678
Dominican Republic	948
Fiji	672
Gambia, The	915
Gabon	648
Honduras	756
Kenya	792
Mozambique	662
Namibia	987
Senegal	968
Suriname	880
Thailand	528

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200 to 500		
Angola	496	
Argentina	276	
Bahamas, The	476	
Belize	351	
Benin	310	
Brazil	451	
Burkina	214	

200 to 500		
Ecuador	233	
France	441	
Ghana	288	
Grenada	430	
Guinea	241	
Guyana	387	
Mali	288	
Martinique	246	
Netherlands	220	
Nigeria	408	
Panama	202	
South Africa	369	
Spain	419	
Switzerland	262	
United States	396	
Uruguay	320	

Less than 200	
All other countries	5

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# **Key Judgments**

The number of AIDS cases worldwide will increase rapidly during the 1990s, from about 1.5 million as of early 1991 to a cumulative total of more than 10 million by the end of the century. The great majority of the new AIDS cases during the 1990s will occur in Sub-Saharan Africa, with North America a distant second. This increase is inevitable because about 11.5 million people are now infected with the virus that leads to AIDS, a figure we expect to quadruple by 2000.

Current preventive measures are not being used on a sufficient scale to reverse the spread of the disease. No "cure" for HIV infection is in prospect. Even if an effective vaccine is devised within the next few years, technical and financial obstacles probably will limit its use and, thus, its impact on the spread of the disease. Whatever the success of any of these measures, the upward trend in AIDS cases through the mid-1990s will not be affected.

The AIDS epidemic is at its worst in Sub-Saharan Africa. Some 7 million Africans are already infected. By the mid-1990s the cumulative total probably will exceed 20 million, and beyond 2000 infection rates will be up to 40 percent for typical young-adult populations in urban areas, with life expectancy at birth reduced by 15 years or more.

This explosion of AIDS cases will substantially weaken the political elites and damage the economies of affected African countries. A greater portion of their limited budgets will have to be devoted to prevention and treatment. At the same time, the dangers posed by AIDS and the AIDS-induced economic decline will discourage foreign investment.

During the 1990s, AIDS in the Caribbean countries will proceed on a scale comparable to that in Africa, with similar dire results for the affected societies. In India, AIDS is a major threat on the horizon, but the government probably will not take adequate steps to counter the disease during the next five years. This neglect has the potential of allowing replication of the African experience in 10 or 15 years. Brazil is in a similar situation, whereas Thailand's early prevention programs may slow the epidemic.

Using any standard of measure—deaths, number of people infected, economic cost—the impact of AIDS will be much greater in the 1990s than it was in the 1980s. The resulting social and economic calamity will

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#### Data Deficiences

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No country has an accurate count of the number of people infected by HIV. Much of the testing to date comprises small samples of highrisk groups, such as prostitutes and drug addicts, and is therefore unrepresentative of entire populations. Within countries, infection rates vary widely from region to region, further complicating the problem of generalizing from a small sample. Counting the number of AIDS cases and AIDS-related deaths is also difficult, particularly since health care systems in many countries lack the required diagnostic ability. Moreover, some governments suppress what information they have

The data in figure 1 are Intelligence Community estimates of HIV prevalence from open-source information in conjunction with intelligence reports. Our aggregate figures are somewhat higher than those published by the World Health Organization. In some countries—India, Brazil, and Nigeria for example—the data are particularly weak. Our world total may well be off by more than a million. We believe that further improvements in data collection will probably reveal a crisis of even greater magnitude than is portrayed in this Memorandum. For instance, recent refinements of information mostly account for larger figures for several countries than in our previous Estimates.

force the United States to make politically sensitive decisions regarding the prevention programs that it will encourage and the aid it will dispense.

The three basic foreign policy problems are:

- How to allocate assistance for AIDS prevention. Anti-AIDS programs are most effective when started early in an epidemic, but most of the money now goes to countries where the disease is already well entrenched.
- Managing the testing and distribution of a vaccine. Political friction will arise as countries haggle over the terms for allowing tests to take place among their people and over access to vaccines.
- Dealing with countries that are heavily afflicted with AIDS. Achieving US objectives for development in less developed countries will be made much more difficult in AIDS-stricken countries.

Compared with the situation in the less developed countries, the West is better equipped to combat AIDS. Nevertheless, AIDS will spread slowly there, but without reaching the epidemic proportions of Africa or the Caribbean.

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#### **Basic Facts About AIDS**

Acquired Immune Deficiency Syndrome (AIDS), first identified in 1981, is the final stage of a viral infection caused by the Human Immunodeficiency Virus (HIV). Medical experts recognize two strains: HIV-1, discovered in 1983, which is generally accepted as the cause of most AIDS cases throughout the world; and HIV-2, discovered in West Africa in 1986 and later found in some former Portuguese colonies elsewhere and in Europe. HIV is a retrovirus: a virus that insertsprobably for life—its genetic material into the cells of the host at the time of the infection. Inasmuch as the ability to remove genetic material from cells is far beyond the capability of current medical science, the infection may be said to be incurable.

#### The Course of HIV Infection

Following infection with HIV, only the most sophisticated tests can detect its presence during the first weeks or months. After this period, the infected person's system begins producing antibodies to HIV, which blood testing can reveal. Such tests were first available in 1985 and vary as to their ability to detect HIV. About half of the infected people will develop AIDS symptoms in less than 10 years, and some within five years. The incubation period can be lengthened with drug therapy, and it is shorter where health care is poor. Death from AIDS usually occurs in one to two years; infants generally die more rapidly. Everyone infected will acquire AIDS, and AIDS is always fatal.

#### Transmission

Three main routes of transmission exist:

- Contact with infected blood or blood products via transfusions, transplants, or shared needles.
- Sexual contact with an infected person.
- Infection of infants born to an infected mother.

#### **Preventive Measures**

A contaminated blood supply is often the first sign of an incipient AIDS epidemic, and it is relatively easy to control. Donated blood should be tested for HIV, which is costly but feasible.

The next stage of an epidemic is often the prevalence of HIV infection among prostitutes, prisoners, or intravenous (IV) drug users. This is far more difficult to control, and few countries have taken meaningful steps to do so.

When the virus infects IV drug users, it spreads rapidly if needles are shared. Distributing needles free, as in the Netherlands, is one way of combating this, with differing claims as to success.

The spread of HIV in the general population is typically very slow, yet potentially it is the source of far greater numbers of AIDS cases than in the smaller groups of IV drug users and male homosexuals. Once the infection is established in the general population, it spreads mainly by sexual contact and thus may be impossible to eradicate. Reducing the prevalence of other sexually transmitted diseases can slow the transmission but would require public health expenditures in LDCs far greater than any to date.

In addition to all of these steps, behavioral changes—less promiscuity and more frequent condom use—by large numbers of people are essential for effective control. The main programs to achieve this are dissemination of information and distribution of condoms. Many public health experts are pessimistic about the prospect that the necessary behavioral changes will occur. Some decry the lack of research into prevention measures that women could use.

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## **Discussion**<sup>1</sup>

The number of Acquired Immune Deficiency Synyears to develop after the initial infection. During this drome (AIDS) cases worldwide will increase rapidly time, infected people can infect others. during the 1990s, from about 1.5 million people as of early 1991 to a cumulative total of more than 10 mil-This lengthy incubation makes it hard to detect early lion by the end of the century. Most of those infected signs of an AIDS epidemic. In the absence of an will die within a year or two of developing AIDS outbreak of AIDS cases, countries rarely undertake symptoms, whether or not they have access to modern the rigorous test sampling needed to accurately meahealth care. This increase in AIDS cases is inevitable sure Human Immunodeficiency Virus (HIV) prevabecause about 11.5 million are now infected, all of lence. More commonly, recognition of the disease is whom are vulnerable to AIDS-related diseases. delayed until the epidemic is well established, making preventive action far more difficult Past 1995, the number of AIDS cases will continue to grow. Current prevention programs will begin to pay Indeed, AIDS is unstoppable in the short term. off at the margin, but by then AIDS will be deeply Because it takes an HIV infection so long to develop entrenched in many countries. After 2000, the trend into AIDS, virtually all of the AIDS cases that occur in AIDS deaths will depend crucially on changes in during the next five years will be the result of existing behavior or whether a scientific breakthrough is made infections. Therefore, the epidemic cannot be materiduring the next several years. For the 1990s, however, ally reduced in this time frame by any reduction in the trend is fairly clear and virtually independent of new HIV cases. Worldwide, millions of HIV infecnew scientific progress-barring development of a tions are set to explode into AIDS during the 1990s. drug that disables the virus. However the impact of the disease is reckoned-by The long incubation period probably contributed to deaths, AIDS cases, or monetary losses-it is just initial overestimates of how fast AIDS would spread beginning. The worldwide impact during the 1990s globally. In the early 1980s, many cases of AIDS will be five to 10 times that of the 1980s. As this went undetected. As AIDS became better understood, process unfolds, the United States will find itself the number of individuals diagnosed increased much progressively more involved with prevention programs more rapidly than the rise in the actual number of and with the political changes that AIDS will bring cases. Some projections of these rising numbers of about in the hard-hit countries. cases diagnosed resulted in astronomical forecasts for the late 1990s. By now, the number of diagnoses probably has about caught up with the number of A Time Bomb for the 1990s actual cases in the industrial countries but not yet in the Third World. Much of the difficulty in halting the spread of AIDS stems from the long incubation period of the disease. Unlike any deadly epidemic of the past, AIDS takes **AIDS Is Now Global** ' This Memorandum was requested by the Assistant Secretary of The great majority of the new AIDS cases during the State for Oceans and International Environmental and Scientific 1990s will occur in Sub-Saharan Africa, with North Affairs. It focuses on the worldwide scope and impact of the disease America a distant second. This is simply a projection during the 1990s. For a more complete assessment of Africa's prospects, see SNIE 70-90, Sub-Saharan Africa's Worsening AIDS August 1990 Crisis,

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#### AIDS: The New Plague?

Bubonic plague—the "black death"—is the best known of the earlier pandemics. It first appeared in the sixth century, then in the 14th, when it killed 20 million people in Europe, a quarter to a third of the population. Its last major appearance in England was the Great Plague of 1665, described in Defoe's Journal of the Plague Year. France underwent its last epidemic in 1720. Later outbreaks occurred in Asia, Africa, and, as recently as 1983, in the United States. The impact of AIDS may not approach the historical significance of the black death. By killing some of the rich and many of the poor, the plague helped end the feudal system. Serfs inherited or occupied estates whose owners had died. Peasant revolts and severe labor shortages made workers more mobile; many moved to towns, forming the nucleus of the urban middle class. Some historians argue that the black death ended wars everywhere in Europe and, by weakening Viking settlements in Greenland and Vinland during one of its early surges, set back Europe's reach toward the New World.



WHO AIDS logo

AIDS differs from the plague in several important ways:

#### AIDS

Incubation period lasts up to 10 years or more. Infection likely to persist in large parts of the world's population.

Spread primarily by sexual contact or needle sharing. Prevention efforts aim at public awareness and behavior change. Other measures are of secondary importance so far.

Natural immunity uncertain, not yet observed.

No vaccine, no cure.



#### **Bubonic** Plague

Illness comes on quickly, spreads rapidly, disappears only to reoccur episodically.

Spread by rodent fleas. Personal measures for protection were not known, but public health measures are now effective.

Rodent and human populations build natural immunity on exposure.

Vaccine now available, can be cured if treated quickly.

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#### Figure 2 AIDS Cases and HIV Infections Estimated Through 2000

 Millions of people

 50

 40

 30

 30

 20

 10

 0

 Through 1991

 Through 2000

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of the location of current HIV infections: about twothirds in Africa and one-tenth in North America

Elsewhere, the AIDS epidemic generally is in an earlier stage, though practically every country has reported the presence of AIDS, and some have several thousand cases. The Caribbean has some of the highest infection rates in the world. In some countries—India, Brazil, and Thailand, for example—the infection rate is comparatively low overall but quite high among certain segments of the population and growing rapidly with little to impede it

We believe that during the 1990s some 35 million people or more will become infected, these in addition to the 11.5 million estimated to date. About 85 percent of the new infections will occur in developing countries, mainly in Africa. The epidemic will spread fastest in Asia and South America, setting the stage for a large increase in AIDS cases after 2000.

#### **AIDS in the Industrial Countries**

Industrial countries have important advantages over developing countries in combating AIDS:

- *Greater literacy*. This makes publicity campaigns more effective, facilitating the spread of knowledge necessary to avoid infection.
- Money. AIDS prevention campaigns are expensive, as they require widespread testing of blood, educational programs, and other costly measures. Welldeveloped health care systems aid in tracking the epidemic and assessing the effectiveness of policies.
- Lower prevalence of sexually transmitted diseases (STDs). A person already infected with an STD, such as gonorrhea or syphilis, may be as much as 10 times more likely to contract HIV from a sexual contact with an infected person than is a person without an STD.

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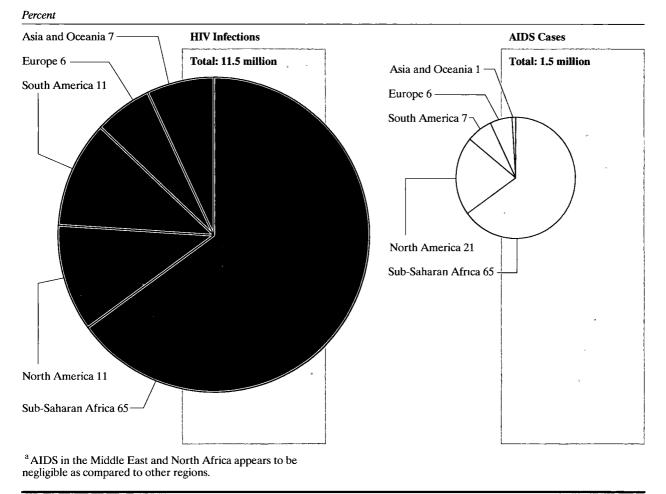
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The situation in the industrial countries, however, is favorable only in comparison with Africa and some other places in the developing world. Western Europe as a whole reports some 50,000 cumulative AIDS cases; Switzerland, for example, with a population of 6.9 million, has had more than 1,000 AIDS deaths. The epidemic in Western Europe afflicts mainly homosexuals as well as a growing number of intravenous (IV) drug users. IV drug users in Eastern Europe-notably in Poland and Yugoslavia-have also been infected, although overall rates are much lower than in the West. The main source of AIDS in Eastern Europe and the Soviet Union has been the government health care infrastructure, which has unwittingly infected patients through the practice of using needles more than once.

The mid-1990s will see great increases in AIDS cases in some industrial countries, given the extent of today's HIV infections. Beyond that, and into the next century, the outlook is mixed. While some affected groups have made substantial behavioral changes (US homosexuals, for example), other groups (IV drug



#### Figure 3 Estimated HIV Infections and AIDS Cases, 1991 <sup>a</sup>



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users and, in some countries, heterosexuals) are at risk of accelerating infection rates. HIV infection among these groups is characterized by rapid spread, then saturation. Among heterosexuals in industrial countries, there is likely to be a very slow buildup, but ultimately many more AIDS cases than in the smaller cohorts of homosexuals and IV drug users. AIDS will affect people in every demographic group, but it will remain predominantly a disease of the poor, who are prone to riskier behavior regarding drugs and sex.

AIDS will be a growing concern in industrial countries. The major issues will focus on health care cost which will grow rapidly in the 1990s—and equity in benefits and burdens. Should an effective vaccine or treatment be discovered, questions will arise over how rapidly and cheaply it will be made available and over the patent rights and liability of drug manufacturers.

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#### The Epidemic Has Limits

Epidemics typically reach a point of "saturation" whereby incidence levels off at well under 100 percent of the population. This happens because some people either are naturally immune or avoid exposure to the disease. Thus, AIDS will not wipe out entire populations, but the point of saturation for HIV probably varies substantially from population to population and cannot be predicted with any precision.

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#### **AIDS in the Developing Countries**

Without the industrial countries' advantages, the LDCs will be far more vulnerable to AIDS. The disease will bring fundamental changes in the economic structure of the developing countries where it is widespread.

Impact on the Work Force. The years of highest economic productivity coincide with the age groups of highest infection rates. Workers will begin succumbing to the disease in greatest numbers just as they finish their education or apprenticeships and enter their most productive years.

**Regional Trade.** Governments may come under pressure to "protect" their citizens by restricting the free flow of labor from countries that have higher rates of infection than they. Foreign investment will also be hurt. In Africa, Western investors probably will see AIDS as just one more reason to put their money elsewhere. Expatriate workers from industrial countries may prove increasingly reluctant to come to AIDS-stricken countries

Health Care Expenditures. It is not clear just how much governments or international organizations will choose to spend on care for AIDS sufferers. The harsh reality is that most victims will receive little treatment beyond home care. Ameliorating drugs like AZT are beyond the reach of all but the most wealthy. Many in Africa die of AIDS without even being tested for HIV infection. The ELISA test costs about \$5 to administer. The Western Blot test, which is used to confirm a positive ELISA test, costs about \$35. To put this in perspective, the entire annual health budget for Ivory (b)(3) Coast is around \$10 per person, high for Africa.

*Education and Training.* AIDS could ruin a nation's strategy of higher education. If AIDS reduces school graduates' worklives by 15 years, then the payoff to investment in education is greatly reduced. Policy-makers will face the grim question: Why spend money training people who are likely to die before the cost of specialized instruction can be recouped? This consideration applies not only to those who are infected but also to the entire cohort of young people *likely* to become so.

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Impact on Elite Groups. Elites in Africa, with greater access to travel and multiple sex partners, are afflicted by AIDS in increasing numbers, with negative consequences for filling skilled jobs and for national economic productivity. Whether this trend will continue or elites will change their high-risk behavior is unclear. Also unclear is the susceptibility of elites in other parts of the Third World. The urban base and risky behavior of most elites, however, leads us to speculate that the African pattern will be followed elsewhere.

Impact on Military Personnel. Screening in many countries of soldiers and recruits for HIV has turned up a number of high rates of infection. This has implications for national security and for the ability of rulers to maintain their hold on power, mainly in Africa at present, but possibly elsewhere in time.

**Revenues From Tourism.** Revenues from tourism comprise 4 to 5 percent of gross national product in Kenya and Thailand, and more than 20 percent in some Caribbean countries. In Haiti, tourism was virtually wiped out when the country became associated with the disease, though tourists' fear of violence played a role too. Tourist visits fell from 70,000 to



#### Impact of AIDS on Security Forces

In militaries where AIDS becomes widespread, readiness and effectiveness will be degraded. This will become apparent in some armed forces in Africa within two to three years, particularly from the loss of technical and specialized personnel. While the problem is most serious in Africa, some hard-hit countries elsewhere will suffer important losses of personnel by the end of the decade.

(b)(3) In Haiti, the military is a high-risk group, with an estimated 15 percent of active-duty personnel infected, compared with 2 percent of the general population. The infection complicates the search for healthy recruits—80 percent are turned down for poor health. Forty percent of beds in the military hospital in Port-au-Prince are occupied by AIDS patients, and four of the 49 Army doctors are infected. The epidemic threatens to overwhelm the already inadequate Haitian military medical system.

AIDS will not degrade the combat capabilities of other key countries before the end of this decade but will impose a growing burden. In **Brazil**, data on the infection rate in Rio de Janeiro, coupled with a serious IV drug problem, suggest a growing epidemic among recruit-aged youths. The Brazilian armed forces are aware of the danger and have incorporated general information on AIDS into military training classes. Due to fear of criticism from the Catholic Church, active measures such as condom distribution are not being pursued. In addition, legal challenges led to a cessation of testing of draftees and active-duty personnel. We believe health care costs will consume most of the <u>military's medical budget within 5 to 10 years</u>. The Indian Army has no screening or education programs despite a growing AIDS problem in society at large. Several divisions of the Indian Army are garrisoned near the Burma border where widespread infection is related to IV drug use. The use of prostitutes by troops and unscreened blood supplies suggest the epidemic will spread rapidly trough the armed forces.

Screening potential conscripts in **Thailand** revealed the overall infection rate of 2.1 percent in 1990, but in three major northern cities the rate ranged from 6 to 14 percent. Recruitment, however, will not suffer because of the large pool of conscripts. Confidential screening of active-duty soldiers suggests the Thai military is nonetheless concerned about AIDS. The potential for infection among high-ranking officers could lead to unexpected leadership changes. By the end of the decade, the cost of AIDS-related health care could consume a third to a half of the military's medical budget

The Soviet military has not incorporated AIDS prevention into its health program. When discovered, infected individuals are released from active duty, relieving the military of health care costs. Poor medical hygiene combined with a growing incidence of STDs and a lack of disposable syringes suggest that the infection will spread slowly in the security forces along with Soviet society. (b)(3)

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10,000 a year. Some of the sizable decline in Kenya's tourism is ascribable to foreign fears of AIDS. Thailand's tourism is also threatened because its sex industry is a major attraction

For these reasons, AIDS will be a huge drain on the economies of highly infected countries. Moreover, the epidemic will not alleviate problems stemming from rapid population growth. Development policies of the past several decades will be undercut or reversed, and aid donors will feel obliged to reexamine their assistance policies to determine whether to redirect their aid to—or away from—AIDS-ridden countries.

**Political Instability.** AIDS may in time undermine political stability in some countries as key officials succumb to the disease. In Uganda, for example, at least three ministers who were recently dismissed are reported to be HIV positive, and several other Cabinet members may be infected. AIDS will generate a search for scapegoats that will focus on leaders who fail to stop the epidemic. Leaders who themselves contract the disease may change their behavior drastically owing to "AIDS dementia." Corruption may worsen as elites attempt to accumulate more wealth for their heirs at public expense in countries where this is possible. Leaders' illnesses may lead to power struggles among would-be successors.

#### **Africa: Getting Worse**

The AIDS epidemic is at its worst in Sub-Saharan Africa. HIV infection was well established there by the early 1980s, and, until recently, little was done to slow its spread. We estimate that 7-8 million of the 560 million Sub-Saharan Africans are already infected with HIV, and by the mid-1990s the cumulative total probably will exceed 20 million. The number of AIDS cases will grow apace, well into the millions this decade

The African Response: Too Little, Too Late In 1990, about \$150 million was spent on AIDS prevention in Africa, nearly all of it coming from the World Health Organization's Global Program on AIDS and other foreign donors. However, even this modest level of effort is very recent and will have only a marginal effect on the spread of HIV infection. Africans are not changing their sexual behavior fast enough to affect the course of the disease, even though the basics of HIV transmission have been widely publicized.

Few African political leaders now put the full force of government into the fight, and fewer still share the medical professionals' sense of urgency. In Zimbabwe, for example, despite high and rising infection rates, the Minister of Health downplayed the threat; only after his replacement last year—and subsequent death from AIDS—did the government embark on an aggressive prevention program. In Uganda, with one of the world's worst epidemics, President Museveni has wavered on encouraging condom use despite his acute awareness of the problem's seriousness.

#### **Grim Future: A Changed Continent**

Infection rates are rising almost everywhere and are particularly high in cities and certain countries. Botswana, Central African Republic, Malawi, Uganda, Zambia, and Zimbabwe all have HIV infection rates exceeding 5 percent of the population. In a variety of subgroups in these and other African countries, infection rates of 40 or 50 percent have been recorded. Nigeria, the continent's most populous country (120 million), has recently acknowledged that 500,000 are infected—probably a substantial underestimate.

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Without an effective vaccine or widespread behavioral change, the virus beyond 2000 is likely to infect 10 to 30 percent of the Sub-Saharan population (b)(3) Infection rates could reach 40 percent for young-adult age groups in many urban areas. Life expectancy at birth could be reduced by 15 years or more. (b)(3)

Some African economies will be stunted by AIDS, for reasons discussed above. In particular, foreign investment in Africa, now only a tiny fraction of world investment, is likely to dry up almost entirely later





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this decade in countries where AIDS is widespread. Foreign companies probably will substantially reduce their operations out of fear for the health of their personnel and in recognition of worsening performance of African economies.

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Will Africa's Experience Be Repeated Elsewhere? Conditions in Africa that contributed to the AIDS disaster included sexual behavior patterns conducive to the spread of HIV infection, high incidence of STDs, nonuse of condoms, governmental inattention to the problem in its early years, and contaminated blood supplies in some places. Wherever such conditions prevail, the African experience is likely to be repeated.

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In certain Latin American and Asian countries conditions resemble those of Africa. There, the future course of AIDS threatens to follow Africa's path. Elsewhere, the outlook for the 1990s is better for two reasons: the slow-moving epidemic is in an earlier stage and conditions that govern the spread of AIDS range from somewhat better to much better than in Africa. However, the potential number of AIDS cases in newly infected countries is enormous; for example, Brazil and India together have almost twice the population of Sub-Saharan Africa.

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#### Other AIDS Hotspots Around the Globe

#### Thailand

Thailand is the most AIDS-prone country in Southeast Asia, according to the World Health Organization, owing mainly to widespread prostitution and IV drug use. Although Thailand's Minister of Public Health claimed the number of infected Thai at 27,000 early this year, some outside experts estimate a more accurate figure as 200,000 to 300,000 in a population of 57 million. Recent projections indicate that more than 1 million and up to 3 million could be infected by 2000. A study by the Thai Development Research Institute puts the potential earnings losses in the billions of dollars by the mid-1990s.

Infection rates are highest among Thailand's halfmillion or more prostitutes (ranging from 10 to 40 percent, depending on the region) and IV drug users (25 to 30 percent). The rate among military conscripts is about 2 percent, with much higher rates (6 to 14 percent) among those from the northern provinces

The government recognizes the problem and has launched large-scale programs to counter it, including systemic surveys for those infected, education efforts, and promotion of condom use. Critics say the program is too small and disorganized, but it appears that some behavioral changes have been made. Debate still rages over what, if anything, to do about the sex industry, which is a major foreign exchange earner. Prime Minister Anan Panyarachun, installed by the military junta, described prostitution and AIDS as two of Thailand's greatest problems.

#### Brazil

Estimates of the number of Brazilians infected with HIV range from 500,000 to 1.5 million in a population of 155 million. The spread of the disease will at least double the number of infections by the mid-1990s.

Brazilian authorities lack an adequate picture of the overall problem. Testing for HIV infection is minimal, and the number of unknown, unregistered AIDS cases is likely to be many times greater than published figures. A large proportion of prostitutes in Recife and Rio de Janeiro is believed to be infected, and IV drug use is a growing urban problem. The city of Santos may have a 5-percent overall infection rate. Rates are reportedly over 50 percent in Brazil's prisons. Prevalence rates among new military conscripts are not well established, since testing is infrequent, but the rate is increasing and is apparently much greater than in the general population.

Brazil's anti-AIDS policies are inadequate. The awareness program is small, and the program for distribution of condoms disburses only 6 million per year. The director of the national AIDS control division of the Health Ministry has shortsightedly downplayed the problem; commenting on WHO figures showing Brazil to have the world's third-highest (b)(3)

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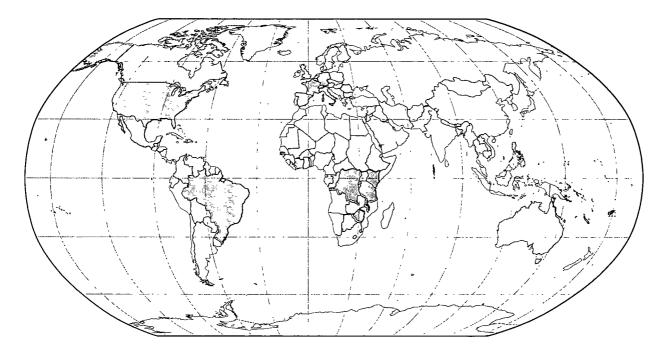
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### Figure 5 AIDS Cases as Reported to World Health Organization (WHO)



Greater than 5,000		
Braził		17,373
France	2	<u></u> 14,449
Germany .		6,176 🦼
Italy -		9,053
Ivory Coast		6,836
Kenya 🗐		9,139
Malawi		7,160
Mexico		6,510
Spain	134	8,199
Tanzania 👘 🔆		8,163
Uganda		21,719 🍠
<b>United States</b>		174,893
Zaire	1. 1. 18	11,732
Zimbabwe		6,716

1,000 to 5,000		
Australia	2,494	
Burundi	3,305	
Canada	4,885	
Colombia	1,285	
Congo	2,405	
Dominican Rep.	1,506	
Ghana	1,732	

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1,000 to 5,000	
Haiti	3,086
Honduras	1,133
Netherlands	1,683
Romania	1,331
Rwanda	3,407
Switzerland	1,778
United Kingdom	4,454
Venezuela	1,061
Zambia	4,036

500 to 1,000	
Argentina	920
Austria	557
Bahamas, The	599
Belgium	852
Burkina	978
Central Afr. Rep.	662
Denmark	784
Ethiopia	636
Portugal	647
South Africa	764
Sweden	557
Trinidad and Tobago	736

200 to 500		
Cameroon	429	
Chile	255	
Costa Rica	232	
El Salvador	357	
French Guiana	232	
Greece	457	
Jamaica	201	
Japan	374	
Mali	338	
Namibia	311	
New Zealand	229	
Norway	208	
Panama	249	
Peru	398	
Senegai	307	
Sudan	265	

Less than 200	
All other countries	

Boundary representation is not necessarily authoritative 722542 (B01111) 7-91

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India

The WHO estimates 250,000 infections in India, though reporting from scattered locales suggests a number several times larger, possibly more than 1 million in a population of 866 million. Conditions in India point to a rapid spread of the epidemic: sexual behavior patterns conducive to the spread of HIV infection, high incidence of STDs and IV drug use, high rates of infection among prostitutes, and insufficient safeguards to the blood supply. Moreover, with a nationwide literacy rate of only 36 percent, no doubt much lower among prostitutes and drug users, anti-AIDS publicity campaigns will not be highly effective.

number of AIDS cases, he argued that the figures overstated the problem since the number was small in

relation to Brazil's population.

The Indian Government does not recognize AIDS as a serious problem. According to press reports, a recent meeting of experts advised adhering to "Indian cultural values" as the best way of combating the disease. Foreigners are frequently blamed for transmitting AIDS. According to US public health experts, the official Indian attitude toward AIDS is consistent with earlier policies on STDs, which over the years have resulted in very little preventive action

These attitudes are reflected in India's health care budget. In 1991, the government announced a threeyear AIDS prevention program costing \$1.8 million-.2 cent per capita. India's slow-moving bureaucracy, lack of funding, and lack of technical equipment will keep the government's efforts lagging far behind the problem.

This neglect probably will continue until AIDS cases and deaths exceed the hundreds of thousands. As with other epidemics, a death toll lower than this will not be clearly evident in a country of India's size and impoverishment. Therefore, we conclude that the Indian Government will not take meaningful steps to counter AIDS during the next five years. The epidemic will most likely grow to Africa-like proportions in 10 to 15 years

#### The Caribbean

AIDS is a major concern in the Caribbean, and the rate of infection is increasing rapidly. Haiti, the Dominican Republic, and The Bahamas are particularly hard hit. AIDS initially affected mainly homosexuals, but now it is well established among heterosexual men and women, as well as among children.

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Caribbean governments are aware of the problem, but the prevalence of sexual behavior patterns conducive to the spread of HIV infection, IV drug use, and inadequate prevention programs point toward a continued rapid spread of the disease. During the 1990s, AIDS in much of the Caribbean will proceed on a scale similar to that in Africa, with similar dire results for the economies of the affected nations.

In *Haiti*, government officials have not publicly acknowledged the seriousness of Haiti's epidemic, even though the country has the highest number of reported cases in the Caribbean, with infection rates now at 7 to 10 percent of adults. Until recently, officials refused to gather data on AIDS. An estimated 15 percent of military personnel tested HIV positive.

The Dominican Republic has a far more active anti-AIDS program than Haiti, but infected prostitutes and contaminated blood supplies are still spreading the disease. The Bahamas has one of the highest infection rates, difficult to control for similar reasons. AIDS is also spreading steadily elsewhere in the region.

#### **Other Problem Countries**

**Romania.** AIDS is a major health problem in Romania, particularly among infants. Hundreds of them received infected blood transfusions in hospitals. This type of transmission is far easier to prevent than sexual transmission, as it only requires improving conditions in the hospitals. Romania with considerable international assistance is attempting to correct this, but the infection has already spread to the adult population through contaminated blood supplies and

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sexual transmission. The scope of infection is poorly understood, and prevention programs are only just (b)(3) beginning.

> Soviet Union. The AIDS problem in the Soviet Union is relatively small—around 600 people with AIDS and about 20,000 infected with HIV, according to Soviet scientists. Primitive conditions in hospitals have led to transmission by infected needles, but that problem is now widely recognized, and limited efforts are under way to deal with it. Some hospital patients are now tested for HIV (though they are not always told the results). The disease will probably continue to

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**Cuba.** AIDS in Cuba will not approach the infection rate in Haiti or other Caribbean hotspots, largely because Cuba's AIDS control program is the most aggressive in the world. It includes nationwide HIV screening, lifetime quarantine of those who test positive, and strict control of blood supplies and products. According to the Cuban Health Ministry in early 1991, 9.6 million tests had been given since 1986. (Cuba's population is 10.7 million.) These tests have identified 609 HIV positives, and of the 73 with AIDS symptoms 44 have died. However, it appears that testing for HIV-2 (a strain found in Angola) was not sufficiently rigorous

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Despite draconian measures, HIV prevalence in Cuba is likely to grow. Conditions are ripe: widespread promiscuity, high incidence of STDs, and the return of troops from Angola. Perhaps in recognition of this likelihood, the network of quarantine facilities is being expanded, with plans said to call for at least one facility in each of Cuba's 14 provinces.

*Mexico.* Mexico is second to Brazil among Latin American countries in AIDS cases. It has a moderate but growing rate of HIV infection. The Mexican Government views AIDS as a serious public health problem and recognizes the threat it poses. But eight years of austerity measures have limited the resources available for combating the disease. The government has established a national council on AIDS, which conducts public awareness programs. Military leaders are wary of the potential for infection among soldiers.

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#### **Prevention Strategies**

The effectiveness of AIDS prevention strategies worldwide is difficult to assess. Worldwide publicity on AIDS has induced a portion of the world's population to protect itself against the disease, particularly in the industrial countries. In the LDCs, current programs may well be worthwhile in terms of lives saved per dollar spent, but they are extremely small in scale. These programs are very difficult to evaluate, because of data shortcomings and because their benefits may not be observable for years.

The unanswered question is whether greatly expanded programs could reverse the long-term trend. Most likely, the question will remain unanswered, since anti-AIDS resources will probably grow only moderately during the 1990s. However, it is clear that foreign assistance without powerful national leadership will have little impact.

The developing countries that are taking steps to contain the infection are mainly those where the problem is already obvious, grave, and intractable. In other countries such as India, Brazil, Nigeria, and Thailand, where infection rates are sure to accelerate, preventive measures range from "totally lacking" to "inadequate." This is particularly troubling, since preventive strategies are far more effective when they are taken early in the epidemic

The reasons for this nonaction involve medical technology, politics, and cost:

- In the early years of an epidemic, few infected people display symptoms. Without appropriate blood testing, sizable rates of HIV infection can go unnoticed.
- The design and implementation of anti-AIDS programs is an evolving field. Preventive measures are now familiar in basic outline, but none guarantees success. Indeed, behavioral patterns that cause the spread of HIV infection are extremely resistant to change. Another serious deficiency is the lack of

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preventive methods designed for women. Governments lack clear guidance on the effectiveness of alternative prevention strategies.

- Even if dangerous rates of infection are detected, remedial actions are often politically difficult. Public awareness programs, for example, require a country to advertise its problems boldly—never an easy political course, especially in countries with sizable tourist industries.
- An effective political constituency for action is often lacking, particularly in the early stages of an epidemic when action is most effective. In the badly infected African countries, governments traditionally have not been very responsive to public wishes or needs, and there has been little public outcry to initiate strong anti-AIDS programs.
- Full-scale prevention programs are costly. Free distribution of condoms, for example, would require a government to establish a *permanent* program costing upwards of \$10 per year for each person in the targeted population. Even measuring the extent of the problem is costly: testing and analysis, costing roughly \$5 to \$10 per person, represent a major investment for health systems that are already meagerly funded. In Africa, even modest prevention programs can easily double the public health budget.

A few countries, however, have taken action early in the epidemic. For example, China adopted an aggressive policy to identify infected individuals and to educate the population. Beijing recently hosted an international symposium on hepatitis and AIDS, even though China has announced less than 500 HIV infections and hepatitis is a more pressing problem. Likewise, after the first AIDS case was reported in Japan in 1985, Tokyo instituted universal screening of blood products and ended their importation. Japan estimates less than 1,700 infections, including about 400 AIDS cases, but the disease still poses a risk, and Tokyo will continue to use education and screening to control its spread.

Even though the 1990s will bring an upsurge in AIDS cases, anti-AIDS expenditures will probably increase only modestly in developing and midincome countries.

In Africa and the Caribbean, resources are lacking, and behavioral change on the scale that is needed has not occurred. In South America, political pressures for governmental action probably will increase during the 1990s, but dramatic spending increases are not likely to occur. The WHO now spends about \$70 million on 14 countries, but much greater expenditures are required. For example, it would cost \$460 million a year to provide condoms to Africa for an adequate program.

In Western countries, by contrast, far more will be spent. Political pressures are substantial for spending on research, public awareness, and health care. The economic situation is far more favorable too: not only is far more money available, the payoff per dollar spent may be greater as well. For example, Japanese researchers estimated that each AIDS case costs more than \$450,000 in treatment costs and lost productivity and that a prevention program in Japan would therefore be worthwhile, even if only a relatively small number of cases could be prevented.

## Implications of Research on Treatments and Vaccines <sup>3</sup>

Even the most optimistic researchers acknowledge that an immediate breakthrough would not appreciably reduce the number of AIDS cases during the next five years. An effective treatment for HIV infection—even if discovered right now—would take several years to test, manufacture, and implement. Likewise for a vaccine: by the time everyone at risk was inoculated, it would take another decade for the epidemic to wind down.

#### Treatment for HIV Infection

Medical experts believe that no outright cure for HIV infection is likely. Viruses in the human body cannot be killed or removed by drug treatment, but the disease can be slowed by impeding their ability to

<sup>3</sup> This Memorandum makes no attempt to predict the success of the research efforts under way. Rather, it deals with the implications of ongoing research and what might occur if it were successful

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multiply or incapacitate cells. Much effort is directed toward drugs, like AZT, that postpone the onset of AIDS symptoms. Progress along these lines is generally expected to be incremental, with gradual improvements in effectiveness and reductions in cost. These drugs, however, probably will remain too expensive for widespread use in any but the richest countries. By comparison, penicillin at 10 cents a dose, is too expensive to treat everyone in poorer countries who needs it.

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#### Vaccines

Expert opinion varies on the prospects for a vaccine against HIV infection. Some think that the technical barriers may never be fully overcome, in part because of the high mutability of the virus, while the most optimistic think that the massive research effort might produce a useable vaccine within five years or so. Eleven "candidate" vaccines are in the early stages of testing on small numbers of people and may be ready for large-scale testing in two to four years. Once into a field trial, these experimental vaccines probably will need at least four to five additional years of development and testing before they could be proved safe and effective.

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Several problems will hinder progress. For example, Africa's high rate of infection makes it a good choice as a test site. But the strains of HIV prevalent in Africa may differ from those isolated in the United States. This suggests that a vaccine optimized for the United States may not be effectively tested in Africa. Testing in a country where AIDS is less prevalent than in Africa would require a larger sample and a longer trial period.

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At this early stage, the likely cost of mass-producing a vaccine is uncertain. If previous patterns hold, it will probably be priced much higher in the United States than elsewhere. For example, vaccine for hepatitis B costs about \$100 to \$150 in the United States, versus \$3 or less in some Asian countries. The difference in price stems from the higher quality of vaccines produced in the United States, plus costs that producers allocate to research and testing and to provision for product liability. This could lead to disputes over patents between US firms and their low-price competitors, an issue that the WHO has begun to address.

A different vaccine may be required for each region of the world, because the prevalent strain of HIV varies from country to country. This suggests that pharmaceutical companies may concentrate on the strains of HIV prevalent in the United States and Europe rather than on African strains that promise far lower profits. However, medical experts believe that in time all HIV strains will spread globally

In the long term, an effective vaccine may be the best hope for a radical reduction in the spread of the disease. Based on experience, even after effectiveness is established, it takes many years before vaccines are used widely, particularly in LDCs. Polio and measles vaccines—effective and cheap, but still not in universal use—are examples.

#### **Other Technical Progress**

The area of testing shows some promise. Cheaper tests for HIV infection would help in pinpointing the new infections, so that preventive measures could be better targeted. Tests that work in the earliest stages of infection (conventional tests do not) would permit more effective blood product screening.

#### **International Transmission**

AIDS has crossed virtually every national border in its global spread, and international transmission remains a significant source of infection and subsequent growth of the epidemic. For example, emigration from Haiti is believed responsible for much of the spread of HIV into the Dominican Republic, The Bahamas, and Jamaica. Many Cuban troops were infected in Angola. Thailand's sex industry has the potential to infect tourists from several countries, Japan for one example.

To counter the spread of the disease and reduce costs of caring for infected immigrants, more than 40 countries now restrict the entry of short-term visitors or immigrants with HIV infection or AIDS. Several single out black Africans, and some deport infected foreigners. We expect restrictive measures to increase (b)(3)

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#### AIDS and Immigration

Laws and policies designed to reduce the foreign threat to populations from AIDS will remain controversial in several countries. Restrictions on immigration are aimed at reducing risks to residents and costs of caring for infected immigrants. For instance, a Canadian study concluded that there would be a net saving in direct health costs if all potential Canadian immigrants were screened and those found to be HIV positive were excluded. Critics charge, however, that this unfairly targets HIV-positive individuals and unnecessarily highlights AIDS among diseases. The Canadian study also determined that screening immigrants for cardiovascular disease would be even more cost effective than screening for HIV. It is likely that the debate over the laws and policies designed to restrict immigration on the basis of HIV infection will become more heated as AIDS cases and associated costs rise during the decade.

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during the next five years, when the numbers of HIV infections in many countries will be much larger than they are today. US policies will also receive more attention as AIDS increases in countries that supply many of the immigrants to the United States.

#### **Implications for the United States**

The United States will face three basic foreign policy problems associated with the spread of AIDS in the 1990s:

- Allocating assistance for AIDS prevention abroad.
- Managing the testing and distribution of a vaccine in other countries.
- Dealing with afflicted countries.

#### What To Spend Where

The United States now spends about \$65 million annually on AIDS programs in foreign countries. Africa gets most of the resources, but there are small programs in South America and Asia. Thus, the money goes where the disease is worst and where the demand for assistance is the highest

In allocating funds, US policymakers will face the problem of how to choose between countries where the disease is already widespread and those where infection rates are low but threaten to grow rapidly. The payoff to AIDS prevention assistance might be higher in countries where the epidemic is in a much earlier stage—Brazil, India, and Thailand, for example. These countries, however, have only recently acknowledged their AIDS problem and have not yet developed effective strategies. Indeed, the US Agency for International Development programs in Brazil and India are directed largely at persuading leaders that AIDS is, in fact, a major problem.

For Africa, AIDS support will be an expanding part of the aid package during the 1990s. One study concluded that in five central African countries. AIDS medical care and screening alone could consume all foreign aid. Caribbean nations will follow this pattern, and later so will India. The rapidly rising incidence of AIDS-particularly in Africa-will attract concentrated, graphic media attention during the 1990s. Whether this will build popular support for large-scale relief programs—as has often been the case with natural disasters and refugee problemsremains to be seen. In a broader context, the experience with AIDS demonstrates the importance of quick intervention, which may well be needed to deal with the other deadly but undetected viruses that now exist in quiescent forms and may spread in the future.

#### **Vaccine Politics**

Working out arrangements for testing and distribution of a vaccine will pose numerous political hazards. It is conceivable that US efforts to protect people from AIDS could be tarnished, as countries haggle over the terms for allowing tests to take place among their people and demand more aid than the United States can offer. Rivalries among producers of vaccine and disputes over patent rights might also slow



the delivery of vaccine. Similar problems over distribution of improved drug treatments probably will also arise.

Testing vaccines could be a political minefield for the United States. As the WHO supervises foreign testing, conflict may arise as to which vaccines to test those developed by and for the United States, or others aimed at European strains of HIV. Some African leaders are concerned that their countries will be used as a testing site and then abandoned once the results are in. They will probably make demands for the continued availability of any successful vaccine that they allow to be tested. Conflict may arise if the United States refuses to supply a particular vaccine on grounds that it is not effective. Other friction over who controls the design and management of testing is foreseeable. There will also be inevitable ethical issues on how to integrate prevention programs with testing.

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Many public health experts doubt that the capability exists to dispense AIDS vaccines on a worldwide scale. Some have suggested establishing an international corporation, funded by a consortium of industrial nations, to produce and distribute a vaccine at cost or below, with clear standards for assigning priorities for treatment. This approach would have the advantage of removing the United States from the focal point of criticism. In addition, companies capable of developing vaccines would be given clear guidelines on their patent rights; otherwise, it is argued, they may hold back on development efforts out of fear that these rights would be preempted by an international regulatory effort

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Anti-US disinformation may flare up in connection with the testing and distribution of a vaccine, particularly in Africa. Charges of racial discrimination, shifting unacceptable risks to Africans by testing vaccines on them, and distortions as yet unimagined are likely to be publicized. During the 1980s, various stories blaming the United States for the spread of AIDS were published, often instigated by the Soviet Union. Such disinformation still crops up occasionally. Just before the Persian Gulf war, for instance, Iraqi officials playing to Arab fears asserted that US troops in the Arabian peninsula included "thousands of AIDS victims."

#### **Dealing With Decimated Countries**

AIDS threatens US objectives of promoting economic development in LDCs. Though we cannot quantify the economic impact of AIDS, it is hard to conceive of a developing country with both a serious AIDS problem and a thriving economy. The badly infected countries will be radically transformed, with greatly reduced chances of developing.

US economic assistance will become less effective in AIDS-ridden countries. For example, the rate of return to money spent on education will be less. Generating private enterprise activity and foreign investment will be more difficult. The question will arise whether these diminished prospects for effectiveness are a reason for more or for less aid. Whatever the scale of future aid programs, assistance to AIDSridden countries is likely to be spent on basic subsistence rather than on development projects.

#### **Military Basing and Access Issues**

These issues have quieted in recent years. Most governments seem satisfied that US forces in their countries pose little risk from the standpoint of AIDS. In early negotiations over basing rights in the Philippines, for example, numerous political and press statements claimed that US servicemen were spreading the disease. Such claims have largely subsided and are no longer impediments to an agreement

In most countries, operationally deployed US troops are no more at risk from HIV than if they were stationed in the United States. As AIDS spreads, however, increasing portions of the globe will become less suitable as peacetime sites for US bases. (b)(3)

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