

# Health, wealth, AIDS and poverty<sup>1</sup>

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# Health, wealth, AIDS and poverty<sup>1</sup>

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## ***The importance of health***

Back in 1978, in the Declaration of Alma Ata, the international community committed to achieving health for all by 2000. Clearly, that goal has not been reached, although most countries have achieved significant health improvements. Now, with the UN Security Council discussing the implications of AIDS for global security, the leaders of the Group of Eight Countries signing up to new disease reduction targets, and the UN Secretary General, Kofi Annan, calling for an increased global response to HIV/AIDS at the recent UNGASS, health is again at the heart of international debate.<sup>5</sup>

The renewed interest in health has three main causes. First, good health is of profound importance to people, topping the United Nation's Millennium Poll as the thing that people most value in life.<sup>6</sup> In rich and poor countries, voters place pressure on democratic governments to improve health standards, while internationally, the health problems of developing countries provides one focus for discontent at the perceived inequities of globalisation.<sup>7</sup>

Second, we now know more about the importance of health to economic and social development.<sup>8</sup> Healthy societies are more likely to become wealthy societies – an effect that was felt especially strongly by the Asian tigers. Healthier people make more productive workers; they have greater incentives to invest in their education and in that of their children; they are likely to save more in expectation of a long retirement; and childhood cognitive development is more efficient. Healthy populations can also be a powerful magnet attracting direct foreign investment, new technology, and jobs. Health improvements also help speed the demographic transition from high to low rates of both mortality and fertility. Health improvements accounted for as much as one-third of East Asia's economic miracle, with formal analysis suggesting that a country can, on average, expect to see per capita incomes grow by an extra 0.3-0.5 percent for every five years it adds to its life expectancy.<sup>9</sup>

Third, health poses a complex series of challenges to national governments. While richer countries generally experience better health than poorer ones, the market does not automatically deliver health improvements.<sup>10</sup> Major shifts in health status are built on the same foundations as economic growth – new knowledge and technology, exploited through new practices and institutions, new investment, and new labour requirements. But the process by which health is improved is *parallel* rather than identical to economic development, needing specific policies and a serious political commitment to the goal of better health. Markets are insufficient providers of universal health care.

The ability to respond to major health challenges, in other words, depends on the health of institutions themselves, at local, national, regional and global levels. Can we match the supply of health technology to *need*, rather than just market demand?<sup>11</sup> Can we find significant investment today in the expectation of avoiding much greater costs in the future? Can effective new partnerships be formed to make a "cross-sectoral" response more than a theoretically desirable dream?

These profound and complex questions are given ever-greater urgency by the knowledge that the threats to our health do not stand still. Ageing populations, increasing drug resistance, and the growing burden of chronic disease in rich and poor countries, all mean that policy-makers must try to solve a problem that is continually mutating. New diseases do most to mutate the battlefield, however. Over the last twenty years, around thirty new diseases have emerged, including Ebola, Hepatitis C, the Hanta virus and new variant Creutzfeldt-Jakob disease.<sup>12</sup> The most serious new threat, however, has been HIV/AIDS

which has now killed around 22 million people, with over 36 million people currently living with the disease.<sup>13</sup>

## **AIDS, Asia and future prospects**

HIV reached Asia and the Pacific in the late 1980s. According to UNAIDS, East Asia and the Pacific currently has 640,000 people living with HIV/AIDS, an adult prevalence rate of 0.07 percent. There were 18,000 deaths in 2000. South and South-East Asia, meanwhile, has 5.8 million people infected with the virus, an adult prevalence rate of 0.56%, while 470,000 people died in 2000.<sup>14</sup> Although HIV rates have not grown to African levels, Asia's infection rate is growing faster than anywhere else in the world, and the large populations of many Asian countries mean that even low percentage rates of HIV infection such as India's 0.7% rate translate into large numbers of infected people -- India currently has 3.7 million people living with HIV/AIDS.<sup>15</sup>

Within Asia, there are wide variations in infection rates. So far, only Cambodia, Myanmar and Thailand have adult HIV prevalence rates above 1%, with many other countries having rates below a tenth of one per cent. In East Asia and the Pacific, the epidemic has hitherto remained largely among high-risk groups (only 13% of HIV-positive adults in the region are women, implying a low rate of heterosexual transmission), while in South and South-East Asia women comprise 35% of infected adults. There are also pockets of high infection within countries. Rates are so high among certain high-risk groups (China's injection drug users, for example, and Cambodia's female sex workers<sup>16</sup>) that the Asian Development Bank has warned that "many Asian countries are potential incubators for a rampant spread of the infection" if the virus succeeds in crossing over into mainstream groups.

There continue to be disputes about the extent to which AIDS is likely to spread beyond high-risk groups, with James Chin leading those who believe that there are relatively few routes for transmission from high-risk communities to the general population<sup>17</sup>. However, sentinel surveillance data from urban areas in India has shown that over 1% of pregnant women – a low-risk, monogamous group unlikely to indulge in high-risk behaviour - are HIV-positive, suggesting that the virus is beginning to cross over to the mainstream population in some areas.<sup>18</sup> The doubling of infection rates in Vietnam, the Philippines, Nepal, Indonesia and India between 1993 and 1997 means that few Asian governments can afford to be complacent.

Government-level response to AIDS in Asia, however, has been mixed. Many political leaders have not acknowledged that HIV/AIDS is a threat to their countries, and few have put in place strategies for action at a national level. Some programs that have been put in place, such as Bangladesh's program to "disperse" communities of illegal sex workers, may actually contribute to the spread of the virus, and others, such as Vietnam's "Eradication of social evils" policy, could potentially raise the stigma surrounding AIDS and hamper more enlightened efforts.<sup>19</sup> Only Thailand, which has managed to curb STI rates and visits to sex workers and increase condom use, stands out as a beacon in the fight against HIV.

The scale of the AIDS epidemic – and its status as a new problem – has led many to predict that the disease will have dramatic effects on national wealth. The United Nations Development Programme (UNDP) has argued that HIV/AIDS has caused "falling labour quality and supply, more frequent and longer periods of absenteeism, losses in skills and experience, resulting in shifts towards a younger, less experienced workforce and subsequent production losses." These effects have been felt "throughout the economy, from the macro-level to the household." Research early in the epidemic failed to substantiate this intuitive link, with the influence of AIDS on per capita income growth shown to be statistically insignificant (though negative) during the period 1980-1992.<sup>20</sup> However, AIDS has now had a significant negative impact on life expectancy in many countries, with this expected to act as a drag on growth.<sup>21</sup>

Data predicting general economic immiseration deserve to be interpreted cautiously, especially in Asia and Pacific, which has not experienced an epidemic of the ferocity felt in sub-Saharan Africa. Even within Africa, we do not have good estimates of the role AIDS plays in economic stagnation, alongside other negative factors, such as civil war, corrupt governments, undeveloped institutions, inadequate education and other health problems. However, it would be equally rash not to consider AIDS as a truly *national* problem. Modern development thinking increasingly emphasizes the interactions between sectors, with 'virtuous spirals' developing as, for example, improved health and education lead to enhanced growth, which in turn increases the availability of investment for these sectors, and the capacity to ensure increased investment delivers value.<sup>22</sup> The opposite is also possible, of course, as a deterioration in one area acts as an invisible drag on others.

In sum, then, a balanced view of the effect of AIDS on Asia and the Pacific's prospects should be encouraged. AIDS will have a range of direct and indirect impacts across a broad swathe of a nation's life and, without intervention, the vast majority of these impacts will be negative. The challenge to policy-makers, therefore, is to design the kind of policy interventions that will not only tackle AIDS impacts, but will also see the opportunities that action against AIDS presents to make improvements that will have broad and beneficial collateral impact. Use of condoms, for example, will protect against other sexually transmitted diseases (STDs), which will in turn reduce the rise of drug-resistant strains encouraged by the common practice of self-medication with antibiotics. Lowering HIV rates will help to reduce the spread of tuberculosis (TB) among non-HIV positive people (TB is the biggest killer of people with AIDS and, as HIV/AIDS spreads, TB rates rise and the disease is passed on to non-HIV positive people).<sup>23</sup> Curricular reform aimed at improving health education, meanwhile, will likely lead to improvements across the education system, while efforts to improve the way the government system copes with AIDS will help build capacity to meet other cross-cutting problems in our increasingly "joined up" world.

## **AIDS and poverty reduction**

Many developing countries are focusing on poverty reduction as a key component of their overall development thinking. Poverty reduction strategies are now a key to accessing a growing proportion of multilateral and bilateral donor funding, with the World Bank encouraging countries to build strategies based on a comprehensive understanding of poverty and its determinants, a portfolio of policy actions that will have a targeted and cost effective impact on poverty reduction, and the selection of clear indicators that will enable national governments and donors to track progress.

HIV/AIDS clearly has an impact on the prospects of poor people who become infected with the virus and, as such, it needs to be given careful consideration in any poverty reduction strategy. Data on the extent of this problem proves elusive, however. The most striking figure is also the simplest: 95 percent of those infected with HIV live in developing countries, home to around 85 percent of the world's population. There is a strong positive association between HIV globally and the absolute poverty rate (at both \$1 and \$2 a day levels), with this correlation still significant even if Africa is removed from the equation. Regionally, however, findings are less clear. Within Africa, the association at a country level between poverty and HIV is significantly *negative*, in other words the poorer countries have less HIV and the epidemic is disproportionately affecting richer, more mobile populations. For Asia, as for other continents, there is no statistical association between AIDS and poverty either way, with the disease *income neutral* from its inception.

Averages, of course, hide as much as they reveal. Across the world there is evidence that, as the epidemic matures, HIV/AIDS is becoming increasingly concentrated in poor populations. While wealthier groups learn to protect themselves (in the early 1980s in Brazil, three-quarters of people newly diagnosed with HIV/AIDS had a secondary education; by the early 1990s this share had fallen to one-third<sup>24</sup>), the poor have less

access to information and health care services, while they are more likely to be forced by hardship and marginalisation into making sub-optimal choices.<sup>25</sup> The disease therefore proves harder to tackle among poor people.<sup>26</sup>

The epidemics in most Asian countries are comparatively under-developed when compared to Africa. There is already evidence, however, that new groups are becoming more vulnerable to infection, even as the initial high-risks groups (principally commercial sex workers and their clients) learn to protect themselves.<sup>27</sup> Evidence from Bangladesh, Nepal, Indonesia and Vietnam all suggests that the least educated face relatively high risk, with knowledge that condoms prevent transmission markedly lower among women with no education than those with primary education who, in turn, knew less than those with secondary education or higher.

Recent Demographic & Health Survey data surveying adult women in Cambodia, the country with the most advanced epidemic in Asia, emphasises the extent to which Asia's poor are at greater risk of HIV infection than better off sections of society.<sup>28</sup> 15,557 women were asked about a range of issues from education to sexual habits to HIV awareness. The results, after splitting the women into five wealth quintiles, are instructive:

- The poorest young women (aged 15-19) are 50% more likely to have had sex than their wealthier counterparts [an early age of first sex is an important risk factor for HIV]
- The wealthiest women are twice as likely to practise safe sex as the poorest women
- The wealthiest women are twice as likely as the poorest segment to know how to prevent HIV transmission
- Although 30% of women in all wealth quintiles want to be tested for AIDS, women from the wealthiest quintile are almost four times more likely to know where to get tested than women from the poorest quintile

Knowledge and behaviour, therefore, are dramatically different among the poorest sections of society, and it is clear that AIDS has the potential to have a major impact on development efforts. Although most women from all groups have heard of AIDS and know it is transmittable, the more detailed knowledge which is crucial to preventing HIV transmission is lacking among the poor. Interventions targeting the poor, therefore, should focus on education that goes beyond mere awareness-raising, and on increasing access to condoms and testing facilities.

A second concern for those interested in poverty reduction should be the additional – and sometimes unbearable – burden that caring for someone with AIDS places on already poor households. People with AIDS are subjected to a long and ultimately hopeless illness, in which they will be unable to work for protracted periods of time. Patients frequently are not provided with diagnosis or prognosis, however, and many spend large sums on treatment of marginal or no worth (one study in Cambodia found expenditures equal to many times an extended family's annual income, funded by sale of assets and debt at high rates of interest).<sup>29</sup> The effects of one illness can therefore be widespread, as a family, for example, sells its land, removes one or more children from school, and diverts expenditure away from other essential areas. A cycle of impoverishment is also common, as a family member leaves home to find work, becomes infected, and returns home when sick, which will further drain the family's assets and may encourage another family member to migrate.

A third area of concern is the possibility that measures that help reduce poverty may be unsuccessful because they increase the vulnerability of the beneficiary population to AIDS. Disease feeds on change, with migration and the breakdown of social structures especially important in creating the conditions by which HIV spreads. Development, of course, also relies on change and it is unsurprising that it is often areas where development is occurring that develop into hotspots for the disease. Inward investment, for example, brings factories and much needed jobs. However, the workers that migrate to these jobs are likely to have

increased numbers of sexual partners, whether they are men visiting sex workers, women engaging in informal sex work to supplement their income, or men or women experiencing a form of sexual “liberation” freed from the norms of their place of origin. Again, those planning and facilitating development face the challenge of turning risks into opportunities. An army, for example, can be an exceptionally effective tool for spreading all kinds of sexually-transmitted disease. On the other hand, it is also possible for an army to offer poor young men a standard of health education and health care beyond any they have experienced in their childhood. As well as a more effective army, the latter would be likely to lead to significant benefits for poverty reduction as soldiers seek and achieve similar standards of health for their partners and children.

### **AIDS *within* health *within* development**

This paper has underlined the importance of health to a country’s development and its vital role in improving the lives of the poor. It has stressed that AIDS should be treated as one of many health problems, rather than in isolation – but that there should be broad action at all levels of societies to ensure that general health standards are improved.

An attempt to consider AIDS *within* health, and health *within* development, will mean facing many different problems in different countries. However, some consistent areas can be identified:

- The need for peace, stability and good governance. War leads to sudden increases in mobility, the destruction of infrastructure, and the diversion of human capital from development to destruction. Peace and political stability, guaranteed by strong democratic institutions, must therefore be the foundation of any broad effort to tackle AIDS. Even within a peaceful society, the importance of effective governance cannot be over-emphasised.
- The need for data-driven decision making. Part of the process of improving governance involves ensuring that decisions are made using data that are reliable, relevant, and available. A genuine multi-sectoral approach requires judgements to be made about the competing claims of quite different interventions – a process that can only intensify as issue after issue attempts to “mainstream” itself across government. Only data and clear processes can begin to discriminate between competing claims in any rational fashion. Ongoing measurement of the effectiveness of interventions also enables policy-makers to keep track of the changing nature of the HIV virus. Although Thailand has achieved remarkable results in reducing HIV rates among sex workers and their clients, the profile of the virus is currently changing, with rates among children and drug users on the rise and rates among pregnant women either stable or rising in most areas.<sup>30</sup>
- The need to build broad partnerships. Government – in its broadest sense – has traditionally been atomised, with government ministries working in narrow channels, each cultivating a constituency of interested NGOs, professionals, lobby groups etc. In developing countries, these divisions have often been mirrored and emphasized by intense competition among donors for influence and the “right” to spend funds on pet projects. Broad action on a subject like AIDS requires a concerted attempt to break down these barriers. It will also require a clear assessment from government of where it can act effectively, and where it is better facilitating action from the private or civil sectors. The structure of government will almost certainly need to change, so that international funds channelled through governments are not absorbed by administrative bureaucracy.
- The need for health sector reform. There are a growing number of people in the Asia/Pacific region who are in need of AIDS care and this is exposing the weakness of the health systems in many countries. Health sector reform therefore becomes increasingly urgent and it, in turn, should be seen in the context of broader public

service reform in many countries. For example, in some countries where public servants are paid extremely low wages many charge the public unofficial fees for their services to survive. Such institutionalised corruption bedevils *all* government initiatives and dramatically distorts the country's health service. Without some attempt to tackle these problems, many improvements in the lives of poor people and those ill with AIDS will happen despite, rather than because of, government action.

- The need for private sector involvement. Public sector reform is a long-term strategy, but innovative, well-targeted actions may have a more immediate impact. Simple, inexpensive actions can have far-reaching effects. The drug nevirapine, for example, has been shown to be effective in reducing mother-to-child transmission of HIV during labour and through breastfeeding.<sup>31</sup> Pharmaceutical company Boehringer Ingelheim provides this drug free to developing countries and, in order to ensure wide access, major food and drink manufacturers, who have strong distribution networks in place in the developing world, may be persuaded to work with governments and NGOs to distribute Nevirapine to women in high-risk areas. If Nevirapine is offered to all pregnant women in at-risk populations, the promise of preventing HIV transmission to their babies is likely to encourage many more women to present for HIV testing. At the same time, the women can be given information about the virus. The relatively simple, cost-effective distribution of nevirapine can thereby have the much wider effect of indirectly strengthening the knowledge of these key gatekeepers of family health.<sup>32</sup>
- The need for special consideration of the role of women. Although men suffer disproportionately from HIV everywhere except Africa, women remain an irreplaceable key to fighting the epidemic. Their education is vital to ensuring better health for whole families, while their empowerment will give them a better chance of avoiding infection with HIV as the epidemic matures and their risk of infection continually increases. They are also likely to bear the main burden for providing care. Perhaps more than any other intervention, progress towards national targets for the major indicators of female welfare (i.e. educational attainment, maternal mortality and general health status, role in the labour market, access to birth spacing technologies and use of condoms etc.) has the potential to deliver benefits to a country's fight against AIDS, its attempt to improve health standards, its poverty alleviation work, and its general development.
- The need to increase the participation and involvement of poor people. Targeting of high-risk populations has been a valuable strategy in the fight against AIDS. However, the adoption of this strategy has been encouraged by the fact that most of these groups have been concentrated in urban centres (often, indeed, in the capital). If governments are to take seriously the possibility that AIDS epidemics will become "stuck" in poor populations even as overall prevalence rates decline, they will need to confront a generalised inability to target poor people. Both geography and politics have played a part here. Rural areas have always been neglected, mainly due to distance, while the poor generally exert the least political pressure and therefore can easily be ignored. Strategies to encourage participation remain the answer, especially as prevention campaigns switch from the provision of information to an attempt to give people the tools to understand the risks they face and to make better decisions, both individually and collectively.

## Conclusions

The international community is increasingly aware of the importance of health to a society's economic development. Although AIDS is potentially the biggest health threat to Asia's developing countries, it remains to be seen whether AIDS will have a serious macro effect on Asian economies. It *will* however, have a broad range of impacts on a country's health. Policy will determine whether action on AIDS will lead to vicious or virtuous development

spirals. Without action, the number of poor will increase, development efforts will be hampered, and those who are already poor will be pushed deeper into poverty traps. Well-targeted, innovative policies, on the other hand, may have a collateral impact with far-reaching beneficial implications for the health of a society as a whole. AIDS, like health in general, is a test of the overall health of a society. Asia's policy-makers will decide whether their countries pass that test.

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<sup>1</sup> This briefing represents a summary of a longer paper on AIDS, Asia and poverty, which is in draft form.

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<sup>5</sup> David E Bloom and David Canning, 2000. *The Health and Poverty of Nations: From Theory to Practice*, unpublished

<sup>6</sup> Health, Economic Growth, and Poverty Reduction, Working Group 1, World Health Organisation, forthcoming

<sup>7</sup> David E. Bloom & River Path Associates, 2000. *Social Capitalism & Human Diversity*, published in OECD (2000), *The Creative Society of the 21st Century*.

<sup>8</sup> Bloom, David, and David Canning. 2000a. "The Health and Wealth of Nations." *Science* 287 (February 18): 1207, 1209.

<sup>9</sup> Bloom, David, David Canning, and Pia Malaney. 2000. "Demographic Change and Economic Growth in Asia." *Population and Development Review*.

<sup>10</sup> Sen, A. 1999. *Development as Freedom*. New York: Knopf.

<sup>11</sup> David E. Bloom and River Path Associates 2000. *Something To Be Done: Treating HIV/AIDS*, *Science*, Vol. 288, 23 June 2000.

<sup>12</sup> Removing Obstacles to Healthy Development, World Health Organization Report on Infectious Diseases 1999, <http://www.who.int/infectious-disease-report/index-rpt99.html>

<sup>13</sup> UNGASS overview: [http://www.unaids.org/fact\\_sheets/ungass/html/FSoverview\\_en.htm](http://www.unaids.org/fact_sheets/ungass/html/FSoverview_en.htm)

<sup>14</sup> UNAIDS Dec 2000

<sup>15</sup> UNAIDS (2000): Epidemiological Fact Sheets by Country. Available at [http://www.unaids.org/hivaidinfo/statistics/june00/fact\\_sheets/index.html](http://www.unaids.org/hivaidinfo/statistics/june00/fact_sheets/index.html)

<sup>16</sup> CDC (2001): The global HIV and AIDS epidemic, 2001. *MMWR Weekly*, 1 June; UNAIDS (2000): Epidemiological Factsheet: Cambodia. UNAIDS

<sup>17</sup> James Chin (2000): HIV/AIDS Projections for Asia (draft paper)

<sup>18</sup> DFID (2001): DFID's response to HIV/AIDS in Asia and the Pacific. DFID. Unpublished.

<sup>19</sup> DFID (2001) *ibid*.

<sup>20</sup> Bloom, David, and Ajay Mahal. 1997. "Does the AIDS epidemic threaten economic growth?" *Journal of Econometrics* 77(1):105-24

<sup>21</sup> Bloom, David, Neil Bennett, Ajay Mahal, and Waseem Noor. 1996. "The Impact of AIDS on Human Development." Draft. New York: Columbia University, Department of Economics.

<sup>22</sup> Agosin, Manuel and David E. Bloom. 2000. *Globalisation, Liberalisation, and Sustainable Human Development: Analytical Perspectives*. Draft. Geneva: UNCTAD.

<sup>23</sup> The World Bank has estimated that "about one of four TB deaths among *HIV-negative* people would not have occurred in the absence of the HIV epidemic," and UNAIDS has attributed one third of the increase in TB cases over the last five years to HIV. World Bank (1997): *Confronting AIDS: Public Priorities in a Global Epidemic*, A World Bank Policy Research Report, Oxford University Press, 1997.

<sup>24</sup> Parker, R.G. 1998. 'Historic Overview of Brazil's AIDS Programmes and Review of the World Bank AIDS Project'. Family Health International/AIDSCAP. Processed. In Ainsworth, M., Semali, I. "Who is most likely to die of AIDS? Socioeconomic correlates of adult deaths in Kagera Region, Tanzania." Cited in Ainsworth, M., Fransen, L., Over, M. (Eds). 1998 *ibid*

<sup>25</sup> World Bank (1997): *Confronting AIDS: Public Priorities in a Global Epidemic*, A World Bank Policy Research Report, Oxford University Press, 1997. Chapter 4. pp. 173-233.

<sup>26</sup> Paul Farmer, 1999: *Infections and inequalities*. University of California Press

<sup>27</sup> Field trip conducted for this paper.

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<sup>28</sup> Demographic & Health Survey Data, Macro International. 2001

<sup>29</sup> AIDS in Rural Families study

<sup>30</sup> World Bank (2001): Thailand's response to AIDS: Building on success, confronting the future. World Bank Thailand Social Monitor V.

<sup>31</sup> UNAIDS Asia Pacific Intercountry Team Bangkok, UNICEF East Asia Pacific Regional Office, WHO Thailand (1999): Large-scale Implementation for the Prevention of Mother To Child Transmission of HIV: Issues for South East Asia and the Pacific. Technical Update No. 1. Prevention of Mother To Child Transmission of HIV. November 1999

<sup>32</sup> For more information on the donation programme, see <http://www.viramune-donation-program.org/en/program/index.cfm?c=countries>

## Introduction

This paper explores the links between AIDS and poverty and the wider impact of health on a country's development, focusing particularly on Asia. It starts by looking at the overall importance of health to developing countries, assessing the ways in which changes in health can help or hinder development. Part 2 of the paper addresses the links between AIDS, one of the biggest health threats to the developing world, and poverty. It asks whether poverty is a risk factor for AIDS, and conversely whether AIDS is itself immiserating. The nature of the relationship between AIDS and poverty remains a contentious issue. South African president Thabo Mbeki in 2000 famously and controversially claimed that the problem of AIDS was essentially a problem of extreme poverty. Earlier still, Jonathan Mann, the founding director of the World Health Organisation's Global Program on AIDS claimed that, "[the] marginalized, stigmatized and discriminated against...have later become, over time, those at highest risk of HIV infection."<sup>5</sup> The paper therefore assesses whether AIDS is likely to hamper development efforts, in particular those aimed at poverty reduction – a key goal of current development policy.

Part 3 of the paper looks at the likely effects of AIDS on Asian societies. It traces the history of the virus in the region and considers the potential impacts, at both micro and macro level, on Asian households and economies. The response of Asian governments to the threat of AIDS is also examined, with a particular focus on the sustainability of Thailand's successful attempts to combat the virus. The final section highlights the need to treat AIDS in the context of the overall health of a country – action on AIDS should be used as a spur to improvements to health systems in general. Recommendations for Asia's policy-makers and development agencies include the need for a cross-sectoral and cross-border approach to tackling the disease, bringing all sections of society on board to implement targeted actions that are likely to have a broader collateral impact.

### Part 1: The importance of health

In 1978, in the Declaration of Alma Ata, the international community committed to achieving health for all by 2000. Clearly, that goal has not been reached, although most countries have achieved significant health improvements. In Asia, over the fifteen years from 1980 to 1995, average life expectancy increased from 62.2 to 68.4 years, an improvement of over six years. Three of the most populous countries in the region, India, Indonesia, and Bangladesh, all saw life expectancy grow by more than seven and a half years in this period.

Now, with the UN Security Council discussing the implications of AIDS for global security, the leaders of the Group of Eight Countries signing up to new disease reduction targets, and the UN Secretary General, Kofi Annan, calling for an increased global response to HIV/AIDS at the recent United Nations General Assembly Special Session, health is again at the heart of international debate.<sup>6</sup>

The renewed interest in health has two main causes. First, good health is of profound importance to people, topping the United Nations Millennium Poll as the thing that people most value in life.<sup>7</sup> In rich and poor countries, voters place pressure on democratic governments to improve health standards, while internationally, the health problems of

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<sup>5</sup> Quoted in Hawa, Rahab. Africa: Poverty and the AIDS virus. Third World Network Online. Available at <http://www.twinside.org.sg/title/poverty.htm>

<sup>6</sup> David E Bloom and David Canning, 2000. The Health and Poverty of Nations: From Theory to Practice, unpublished

<sup>7</sup> Health, Economic Growth, and Poverty Reduction, Working Group 1, World Health Organisation, forthcoming

developing countries provide one focus for discontent at the perceived inequities of globalisation.<sup>8</sup>

Second, we now know more about the importance of health to economic and social development.<sup>9</sup> Healthy societies are more likely to become wealthy societies – an effect that was felt especially strongly by the Asian tigers. Healthier people make more productive workers; they have greater incentives to invest in their education and in that of their children – and their children will be more effective learners; they are likely to save more in expectation of a long retirement. Healthy populations can also be a powerful magnet for attracting direct foreign investment, new technology, and jobs. Health improvements also help speed the demographic transition from high to low rates of both mortality and fertility. Health improvements accounted for as much as one-third of East Asia's economic miracle. Formal analysis suggests that a country can, on average, expect to see per capita incomes grow by an extra 0.3-0.5 percentage points a year for every five years it adds to its life expectancy. This is a considerable boost, given that between 1965 and 1990 global income per capita grew by an average of 2% per year.<sup>10</sup>

The poor are most vulnerable to poor health. Firstly, ill health is disproportionately concentrated among the poor – those living on less than 1 dollar a day are estimated to be five times more likely to die before the age of 5, and 2.5 times more likely to die between the ages of 15 and 59 than those who are not poor.<sup>11</sup> The poor are also the least able to deal with health shocks. They have less access to health services and fewer resources to pay for treatment. Good health is particularly important to those attempting to escape from poverty. The nature of the unskilled work many poor people are involved in makes the body the principal asset of the poor,<sup>12</sup> and a health crisis can quickly reverse any progress a poor family has made in moving out of subsistence. A study in Uganda, for example, found that eighty per cent of tuberculosis patients had lost their job or closed their businesses, and in Bangladesh, 8 out of 21 TB patients had been forced to sell assets to pay for treatment and make up for lost income.<sup>13</sup> The World Bank, meanwhile, has found that illness, injury and death are the most common causes of household impoverishment.<sup>14</sup>

Conversely, health improvements can act to drag people out of poverty. Econometric simulations covering 31 countries found that if life expectancy had been 10 per cent higher in 1990, the consequent income growth over the following 25 years would have lifted 30 million people out of absolute poverty.<sup>15</sup>

Health, therefore, poses governments a complex and pressing series of challenges. While richer countries generally experience better health than poorer ones, the market does not automatically deliver health improvements to all a country's inhabitants.<sup>16</sup> Major shifts in health status are built on the same foundations as economic growth – new knowledge and

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<sup>8</sup> David E. Bloom & River Path Associates, 2000. *Social Capitalism & Human Diversity*, published in OECD (2000), *The Creative Society of the 21st Century*.

<sup>9</sup> Bloom, David, and David Canning. 2000a. "The Health and Wealth of Nations." *Science* 287 (February 18): 1207, 1209.

<sup>10</sup> Bloom, David, David Canning, and Pia Malaney. 2000. "Demographic Change and Economic Growth in East Asia." *Population and Development Review*. David E. Bloom and David Canning, 2000, "The Health and Wealth of Nations", *Science*, February 18.

<sup>11</sup> World Health Organisation (1999): World Health Report 1999. WHO.

<sup>12</sup> World Bank (2000): *Voices of the Poor*. World Bank.

<sup>13</sup> R. A. Croft and R. P. Croft, "Expenditure and loss of income incurred by tuberculosis patients before reaching effective treatment in Bangladesh" *International Journal of Tubercular Lung Diseases* 2(3) 1988, pp. 252-254; P. R. Saunderson, "An Economic Evaluation of Alternative Programme Designs for Tuberculosis Control in Rural Uganda" *Soc. Sci. Med.*, Vol. 40, no. 9 1995, pp. 1203-1212

<sup>14</sup> World Bank (2000); *ibid*

<sup>15</sup> Bloom, Canning (2000) *ibid*

<sup>16</sup> Sen, A. 1999. *Development as Freedom*. New York: Knopf.

technology, exploited through new or reinvigorated institutions, new investment, and new labour structures. But health will not be improved by economic development alone. Rather, specific policies are needed, as part of a consistent political commitment to the goal of better health. In no other sector is the relationship between the public, private and civil sectors so vital, with the public sector required to show leadership, long-term vision, consistently effective organisation, and the willingness to maximise its limited resources by facilitating action across society.<sup>17</sup>

The ability to respond to major health challenges, in other words, depends on the health of institutions themselves, at local, national, regional and global levels. Can we match the supply of health technology to national needs, rather than just market demand?<sup>18</sup> Can we find significant investment today in the expectation of avoiding much greater costs in the future? Can effective new partnerships be formed to make a “cross-sectoral” response more than a theoretically desirable dream?

These profound and complex questions are given ever-greater urgency by the knowledge that the threats to our health do not stand still. Ageing populations, increasing drug resistance, and the growing burden of chronic disease in rich and poor countries, all mean that policy makers must try to solve a problem that is continually changing. New diseases do most to mutate the battlefield, however. Over the last twenty years, around thirty new diseases have emerged, including Ebola, Hepatitis C, the Hanta virus and new variant Creutzfeldt-Jakob disease.<sup>19</sup> The most serious new threat, however, has been HIV/AIDS, which has now killed around 22 million people, with over 36 million currently living with the disease.<sup>20</sup> HIV/AIDS poses a serious threat to income growth and development, and the next section will look at its impact on poverty reduction – a key goal of modern development policy.

## Part 2: AIDS and poverty reduction

Many developing countries are focusing on poverty reduction as a key component of their overall development thinking. Poverty reduction strategies are now a key to accessing a growing proportion of multilateral and bilateral donor funding. The World Bank now encourages countries to build strategies based on a comprehensive understanding of poverty and its determinants, a portfolio of policy actions that will have a targeted and cost-effective impact on poverty reduction, and the selection of clear indicators that will enable national governments and donors to track progress.

Just as health improvements can lead to income growth, so too can they help to reduce poverty. The increases in average income generated by life expectancy improvements translate into percentage point for percentage point increases in income among the poor.<sup>21</sup> This section will look at the links between AIDS – the biggest threat to life expectancy in many developing countries - and poverty, and assess the likely impact of the virus on poverty reduction strategies. AIDS has slashed life expectancies across Africa – Zimbabwe,

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<sup>17</sup> See Bloom, David E., River Path Associates and Karen Fang. 2001. “Social Technology and Human Health”, Concept paper for the Human Development Report 2001 “Channelling technology for Human Development”. Cuba does, however, seem to be a notable counterexample to this point insofar as its health system development involved essentially no private sector involvement. Political will, on the other hand was key and abundant in this non-democratic setting.

<sup>18</sup> David E. Bloom and River Path Associates 2000. Something To Be Done: Treating HIV/AIDS, *Science*, Vol. 288, 23 June 2000.

<sup>19</sup> Removing Obstacles to Healthy Development, World Health Organization Report on Infectious Diseases 1999, <http://www.who.int/infectious-disease-report/index-rpt99.html>

<sup>20</sup> UNGASS overview: [http://www.unaids.org/fact\\_sheets/ungass/html/FSoverview\\_en.htm](http://www.unaids.org/fact_sheets/ungass/html/FSoverview_en.htm)

<sup>21</sup> Bloom, David, and David Canning. 2000a (ibid)

for example, has seen a 25-year decline because of the virus<sup>22</sup> - and threatens the demographic transition in many countries, so, at the very least, hard-hit African countries will be unable to benefit from the increased income growth which life expectancy improvements can deliver.

*The macro level:*

Though poverty data that are comparable across countries are scarce, it is clear that Asia contains a large share of the world's population as well as of its poor. Existing data for the late 80s and early 90s show that the two most populous nations in the world, China and India, have 22% and 53% of their respective populations living on incomes of less than a dollar a day, the World Bank's criterion for living in absolute poverty. If we look at the population shares living on incomes under two dollars a day, the numbers are 58% for China and 89% for India. The record for other poor countries in the region is not much better. Nepal, Indonesia and Pakistan have 87%, 59%, and 57% of their populations below the two-dollar poverty line. Even middle-income countries in the region such as Malaysia and Thailand have about a quarter of their populations under the two-dollar poverty line. These numbers predate the East Asian financial crisis and the global economic slowdown of the late 90s. In the absence of more recent data, therefore, this could potentially understate the magnitude of existing global poverty.

The emerging specter of AIDS threatens to wreak havoc on the already precarious position of the world's poor. Some of the most striking numbers are the simplest: 95 percent of those infected with HIV live in developing countries, home to around 80 percent of the world's population. Cross-country evidence indicates a strong statistically significant association between high HIV prevalence and poor socio-economic performance whether measured by per capita income (figure 1a), income inequality (measured by the Gini coefficient, figure 2a), absolute poverty (measured as the population share living on less than \$1 a day, figure 3a), or the UNDP's Human Poverty Index (a weighted measure of mortality, literacy, access to water, sanitation and health services, and malnutrition, figure 4a).

Yet these global associations need to be interpreted cautiously. They do not lead to simplistic conclusions about the relationship between AIDS and poverty. A closer look at associations between AIDS and socio-economic well being within continents yields a different picture. For example, though figure 1a shows a negative global correlation between HIV prevalence and average income, figure 1b shows that within Africa, the correlation has the opposite sign: high HIV prevalence nations tend to be the wealthier countries. In fact, two of Africa's wealthiest nations, Botswana and South Africa, also have the two highest HIV prevalence rates. We also find that there are essentially no statistically significant correlations between HIV prevalence and either income or poverty measures across countries within any other continent outside of Africa. Figures 1c, 2c, 3c, and 4c, illustrate these relationships for Asia, though none of them approach statistical significance. Within Asia, and within every other continent outside of Africa, AIDS seems income neutral. Thus, despite the misleadingly simple global correlations, there are no easy interpretations.

Studies have attempted to impose structure on ideas linking poverty and HIV, and to empirically test them. The United Nations Development Programme (UNDP) background paper, prepared for the UN General Assembly Special Session on HIV/AIDS in June 2001, argues that the spread of HIV/AIDS has already jeopardized economic growth by causing "falling labour quality and supply, more frequent and longer periods of absenteeism, [and] losses in skills and experience, resulting in shifts towards a younger, less experienced workforce and subsequent production losses...[its effects felt] throughout the economy, from the macro-level to the household."

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<sup>22</sup> US Census Bureau data reported in CNN (1999): Life expectancy in Africa cut short by AIDS. Cnn.com, 18 March

Research early in the epidemic failed to substantiate this intuitively plausible link: AIDS seemed to have little influence on per capita income growth during the period 1980-1992.<sup>23</sup> However, AIDS has since had a significant impact on life expectancy in many countries. This may soon begin to act as a drag on growth.<sup>24</sup> More recent studies show that the macroeconomic effect of AIDS is growing in the worst affected areas. One study predicts that Caribbean gross domestic product (GDP) could be reduced by 4.2% by 2005 as a result of the disease,<sup>25</sup> while Kenya's GDP is forecast to be 14.5% lower by 2005 than it would have been without AIDS.<sup>26</sup>

Studies predicting general economic immiseration as a result of the epidemic deserve to be interpreted cautiously, however, especially in Asia and Pacific, which has not experienced an epidemic of the ferocity felt in sub-Saharan Africa. It is difficult if not impossible to disentangle the economic stagnation that may be caused by HIV/AIDS from that produced by a host of other debilitating features of the African landscape such as civil wars, corrupt governments, undeveloped institutions, inadequate education, and other health problems.<sup>27</sup> Further, the lack of data on AIDS rates and poverty rates over time precludes an analysis of the effect of the progress of the epidemic on aggregate poverty.

However, it would be equally rash not to attend to the problem of AIDS at a national level. Modern development thinking increasingly emphasizes the interactions between sectors, with 'virtuous spirals' developing as, for example, improved health and education lead to enhanced growth, which in turn increases both the availability of investment for these sectors and the capacity to ensure that increased investment delivers value.<sup>28</sup> The opposite is also possible, of course. Deterioration in one area acts as an invisible drag on others.

Also, regardless of whether the spread of HIV/AIDS has an impact on aggregate measures of wellbeing, it clearly has an impact on the prospects of poor individuals infected with the virus, and the households to which they belong. For this reason, HIV/AIDS needs to be given careful consideration in any poverty reduction strategy.

Early in the epidemic, it seemed that, in many areas, AIDS primarily affected the wealthy and better educated - perhaps because they had more access to commercial sex, and lived in countries with better infrastructure and more mobile populations. Figure 1b showing a positive correlation between HIV prevalence and per capita incomes seems to lend support this view. Yet there is evidence that, as the epidemic matures, HIV/AIDS is becoming increasingly concentrated in poor populations. A typical sequencing works thus: mobile populations, engaging in high-risk behaviour, spread the disease back to a poorer population at their place of origin. While the wealthier groups learn to protect themselves, the poor remain vulnerable. UNAIDS has found that the best-educated people in Africa's worst affected countries "may be shifting towards less risky behaviour",<sup>29</sup> and in the early

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<sup>23</sup> Bloom, David, and Ajay Mahal. 1997. "Does the AIDS epidemic threaten economic growth?" *Journal of Econometrics* 77(1):105-24

<sup>24</sup> Bloom, David, Neil Bennett, Ajay Mahal, and Waseem Noor. 1996. "The Impact of AIDS on Human Development." Draft. New York: Columbia University, Department of Economics. A recent US Centers for Disease Control and Prevention study has shown how the disease has ended up hitting African Americans and Hispanics much harder than the white population in the US. African Americans make up 12% of the US population but 37% of US AIDS cases. CDC (2001): HIV/AIDS among African Americans. 2001.

<sup>25</sup> Theodore (2000)

<sup>26</sup> Hancock et al. (1996); David E Bloom, Ajay Mahal and River Path Associates (2001): HIV/AIDS and the Private Sector – A Literature Review. American Foundation for AIDS Research (AmFAR), 2001, forthcoming.

<sup>27</sup> Bloom, David E., Lakshmi Reddy Bloom, and River Path Associates, 2000, "Business, AIDS, and Africa," in Africa Competitiveness Report 2000/2001, New York: Oxford University Press

<sup>28</sup> Agosin, Manuel and David E. Bloom. 2000. Globalisation, Liberalisation, and Sustainable Human Development: Analytical Perspectives. Draft. Geneva: UNCTAD.

<sup>29</sup> UNAIDS.2000a.Report on the Global HIV/AIDS epidemic .Geneva,pp.26-36.

1980s in Brazil, three-quarters of people newly diagnosed with HIV/AIDS had a secondary or university education; by the early 1990s this share had fallen to one-third.<sup>30</sup>

In sum, the cross-country data show that at the global level, poorer countries have higher HIV prevalence. Interpreting this association is not straightforward, however. The fact that Africa is very poor and has most of the world's HIV accounts for much of this association. In addition, there seems to be no relationship between national rates of poverty and HIV within any of the continents, except in the case of Africa where we find the opposite relation: wealthier countries, on average, have higher HIV prevalence.<sup>31</sup> The same tale can be told of associations between measures of the epidemic and other macroeconomic magnitudes such as per capita incomes or various measures of income distribution such as Gini-coefficients. Intuitively sensible global associations between, say, high income inequality and high HIV prevalence disappear at the intra-continental level, and reverse themselves in Africa. The true nature of the relationship between HIV/AIDS and macroeconomic aggregates may be more complicated than simple models suggest, and the scarcity of good-quality data on the relevant magnitudes strains our ability to uncover this relationship.

#### *The micro level:*

At the micro level, things are little clearer. A series of recent small-scale studies outlines the extent of the effect of AIDS on households, and household data from Cambodia and Vietnam (discussed in more detail in Part 3 of the paper) suggests that poverty and a lack of education increase people's risk of infection. Household income in the poorest quarter of households in Botswana is likely to fall by 13% because of HIV/AIDS.<sup>32</sup> A World Bank study in Tanzania, Cote d'Ivoire and Thailand found that people with AIDS were more likely to seek medical care and incur out-of-pocket medical expenses than people who died of other causes. Household expenditures were also much higher.<sup>33</sup> One-third of rural families in a study in Thailand experienced a halving of their agricultural output as a result of AIDS. Another 15% had to remove their children from school. Families spent on average US\$1,000 on medical care in the last year of the patient's life – the equivalent of average annual per capita income. Another study by FAO and UNAIDS found that agricultural output of small farmers in some parts of Zimbabwe may have fallen by as much as 50% in the past five years because of AIDS. And in a survey of urban households infected with HIV in

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<sup>30</sup> Parker, R.G. 1998. 'Historic Overview of Brazil's AIDS Programmes and Review of the World Bank AIDS Project'. Family Health International/AIDSCAP. Processed. In Ainsworth, M., Semali, I. "Who is most likely to die of AIDS? Socioeconomic correlates of adult deaths in Kagera Region, Tanzania." Cited in Ainsworth, M., Fransen, L., Over, M. (Eds). 1998 *ibid*

<sup>31</sup> It is possible, however, that the negative correlation between AIDS and poverty in Africa can be partly explained by the fact that the virus hit Botswana, one of the continent's richest countries and the country with the highest AIDS rate, at precisely the wrong time. The early stages of development are a particularly dangerous time for HIV transmission. At this time populations become more mobile, transport infrastructure improves, and previously poor people find themselves with disposable income that newly-mobile workers may decide to spend on sex workers. The late 1980s saw rapid economic development in Botswana, with dramatic growth in employment accompanying a tenfold increase in exports, and it appears that Botswana's policy makers may have been devoting attention to economic growth rather than sustainable human development just at the moment that AIDS struck (it is possible that a similar situation occurred amongst black South Africans – South Africa being another high-income/high-HIV African country which drives the negative AIDS-poverty correlation). Poorer African countries, on the other hand, may have been too weak, infrastructurally and developmentally, for the virus to spread so dramatically. By the time their development began, awareness of AIDS was higher.

<sup>32</sup> World Bank (2000) *ibid*

<sup>33</sup> World Bank (1997) *ibid*

Cote d'Ivoire, the outlay on school education halved, food consumption decreased by 41% per capita and health expenditure more than quadrupled.<sup>34</sup>

There are many intuitive reasons why the poor are likely to end up bearing the brunt of the disease. The poor are less able to protect themselves. They have less access to information about health risks<sup>35</sup> and, even when information on HIV does get through to poor communities, they may still fail to take preventive measures if they do not understand the messages or if they do not perceive the risk to be more significant than the other problems they face on a day-to-day basis.<sup>36</sup> As Alex de Waal, commenting on the long-term nature of the disease, has said, "If AIDS is the only disaster that threatens, it is likely that individuals and communities will take action against it. But when AIDS is only one disaster among many, it is not the highest priority."<sup>37</sup>

Health services, too, are often out of reach of the poor. Along with physical obstacles such as an absence of clinics, bad roads and limited access to transport, the poor frequently have a difficult relationship with health officials, many of whom are poorly paid themselves and attempt to extract bribes from their most vulnerable patients.<sup>38</sup> Even where they can access health services, therefore, the poor may be reluctant to use them, and may prefer to turn to alternative, less effective forms of medicine. The problem of health access for the poor can exacerbate the spread of HIV. If people who may be vulnerable to HIV infection do not present for testing, a valuable opportunity is missed to deliver prevention messages and condoms. STDs, a key factor in the spread of the virus, may go untreated. And those who are HIV-positive will be unaware that they are continuing to spread the disease.

The poor are also more likely to be forced by hardship and marginalisation into making sub-optimal choices.<sup>39</sup> Poor women may be forced to turn to sex work, for example, and poor sex workers can more easily be forced, by the threat of competition, into unprotected sex.<sup>40</sup> Poor men, who can barely afford to buy food for their families, are unlikely to spend scant resources on condoms. And poor communities, where social breakdown is often rife, are less able than wealthier, more cohesive groups to mobilise against the threat of AIDS. China's Henan province has recently seen an alarming outbreak of HIV as poor farmers sold blood to local health authorities – the often-contaminated blood was pooled and, once the plasma had been extracted, injected back into the sellers, who proceeded to spread the virus to their communities. Some villages in the province have HIV prevalence rates of over 60%.<sup>41</sup>

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<sup>34</sup> UNAIDS (2000) *ibid*

<sup>35</sup> Van Landingham et al (1997), in a study in northern Thailand, have shown that poverty and illiteracy make people unaware of the benefits of safe sex and condom use. Van Landingham, M., Grandjean, N., Suprasert, S., and Sittitrai, W. 1997. Dimensions of AIDS knowledge and risky sexual practices: a study of northern Thai males. *Archives of Sexual Behavior* 26(3): 269-93.

<sup>36</sup> Lau and Thomas (2001) show how less educated men among those who travel from Hong Kong to China are more likely to have sex with commercial sex workers. Lau, J. and Thomas, J. 2001. Risk behaviours of Hong Kong male residents travelling to mainland China: a potential bridge population for HIV infection.

<sup>37</sup> Alex de Waal (2001): *AIDS: Africa's Greatest Leadership Challenge*. <http://www.justiceafrica.org>

<sup>38</sup> Paul Farmer, 1999: *Infections and inequalities*. University of California Press; Deepa Narayan, with Raj Patel, Kai Schafft, Anne Rademacher, Sarah Koch-Schulte (1999): *Can anyone hear us? Voices of the Poor*. Poverty Group PREM, World Bank, December

<sup>39</sup> World Bank (1997): *Confronting AIDS: Public Priorities in a Global Epidemic*, A World Bank Policy Research Report, Oxford University Press, 1997. Chapter 4. pp. 173-233.

<sup>40</sup> Hanenberg, R. and Rojanapithayakorn, W. 1998. Changes in prostitution and the AIDS epidemic in Thailand. *AIDS Care* 10(1): 69-79.

<sup>41</sup> BBC News (2001): *Bad blood spreads AIDS in China*. 30 May. *Financial Times* (2001): *Chinese AIDS sufferers in mass protest*. 23 November.

A further concern for those interested in poverty reduction should be the additional – and sometimes unbearable – burden that caring for someone with AIDS places on already poor households. Although the link from AIDS to poverty is not yet obvious at a national level, the link at an individual level is clear. People with AIDS are subjected to a long and ultimately hopeless illness, in which they will be unable to work for protracted periods of time. Patients frequently are not provided with diagnosis or prognosis, however, and many spend large sums on treatment of marginal or no worth (one study in Cambodia found expenditures equal to many times an extended family's annual income, funded by sale of assets and debt at high rates of interest).<sup>42</sup> The effects of one illness can therefore be widespread, as a family, for example, sells its land, removes one or more children from school, and diverts expenditure away from other essential areas. A cycle of impoverishment is also common, as a family member leaves home to find work, becomes infected, and returns home when sick, thus further draining the family's assets and encouraging another family member to migrate. Again, in this case, it is helpful to see AIDS in the context of other health issues, rather than in isolation. The effects of AIDS are especially pronounced in that it disproportionately affects adult wage earners, is responsible for creating large numbers of orphans, and still attracts considerable stigma and discrimination. However, ill health in general has always been a potential source of catastrophe for the poor and for those emerging from poverty, with one study in Cambodia showing that 45 percent of landlessness cases had been caused by ill health.<sup>43</sup>

A further effect of HIV/AIDS felt by the poor is the increase in tuberculosis (TB) rates caused by AIDS. People with HIV are extremely vulnerable to TB infection, which causes the death of a third of people with AIDS worldwide.<sup>44</sup> UNAIDS has attributed one third of the increase in TB cases over the last five years to HIV. However, with HIV pushing the spread of TB, TB infection rates are increasing even among HIV-*negative* people. The World Bank has estimated that "about one out of four TB deaths among *HIV-negative* people would not have occurred in the absence of the HIV epidemic."<sup>45</sup> TB affects the poor to a much greater extent than the rich (and, like AIDS, it is a long-term, costly disease), so AIDS, by pushing up TB rates, has an adverse equity impact on the health status of the poor – an impact that has the potential to increase over time. Other opportunistic infections may show a similar pattern.

Another area of concern is the possibility that measures that help reduce poverty may be unsuccessful because they increase the vulnerability of the beneficiary population to AIDS. Disease feeds on change, with migration and the breakdown of social structures especially important in creating the conditions by which HIV spreads. Development, of course, also relies on change and it is unsurprising that it is often areas where development is occurring that develop into hotspots for the disease. Inward investment, for example, brings factories and much-needed jobs. However, the workers that migrate to these jobs are likely to have increased numbers of sexual partners, whether they are men visiting sex workers, women engaging in informal sex work to supplement their income, or men or women experiencing a form of sexual "liberation" freed from the norms of their place of origin.<sup>46</sup>

If a country is moving up the economic ladder, its cities are likely to be the first signs of progress. Development, while enriching some, can increase inequality within countries, and inequality may be a key factor in the transmission of infectious diseases, particularly that of STDs.<sup>47</sup> Figure 2a, which shows a global correlation between inequality as measured by the Gini Index and HIV prevalence, shows that AIDS is no exception to this pattern. Inequality within countries leads to increased migration, as the rural poor (and particularly

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<sup>42</sup> AIDS in Rural Families study

<sup>43</sup> Oxfam study

<sup>44</sup> CDC (2001): The deadly interaction between TB and HIV. CDC website.

<sup>45</sup> World Bank (1997) *ibid*

<sup>46</sup> Martha Ainsworth (1999): AIDS, Development and the East Asian Crisis. Plenary address to the 5<sup>th</sup> international Conference on AIDS in Asia and the Pacific. Kuala Lumpur, October 25

<sup>47</sup> See Paul Farmer (1999) *ibid*

rural men) move to cities and other areas where wealth is centred. Several studies have demonstrated the risks to labour migrants. One showed how labour migrants have higher infection rates than non-migrants, regardless of the HIV prevalence rate at the site of departure or destination;<sup>48</sup> high HIV rates have also been recorded in areas of high out-migration in Mexico, Ghana, Ecuador, and West Africa;<sup>49</sup> and the STD prevalence rate of 70% among India's long-distance lorry drivers shows the dangers of the migration routes themselves.<sup>50</sup> Once in their place of work, the dangers to these migrant workers can be manifold. Away from their wives, casual sex becomes tempting – and sex industries tend to grow up to satisfy the demand. With large numbers of men patronizing small numbers of sex workers, the risk of infection is high. Eventually, these workers return to their wives, and the infection is passed on. A 1993 study of villages in Senegal found that 27% of men who had travelled in other African countries were HIV-positive, while of the 414 men living in neighbouring villages who had not travelled abroad in the last 10 years, only one was infected.<sup>51</sup>

Migration rates among women, too, are increasing in Asia.<sup>52</sup> Many of Asia's sex workers, for example, are migrants, who, after some time working away from home, often return to their villages to settle down and start families. Many, of course, have been infected with HIV. Migrant textile workers – most of whom are women - are another vulnerable group.

Linked to migration and inequality is the growth of urbanisation in poor countries. Between 1950 and 2000, the growth of urban populations in less developed regions averaged 3.71% per year. In rural areas in these regions, annual population growth was just 1.47%. In the next 30 years the rural population is projected by the UNDP to stop growing, while urban growth will continue at 2.31%.<sup>53</sup> William McNeill has claimed that epidemics are unique to urban or urbanising societies: "Bacterial and viral diseases that pass directly from human to human... are the diseases of civilization par excellence: the peculiar hallmark and epidemiological burden of cities and of countryside in contact with cities."<sup>54</sup> Migration from rural areas to cities can exacerbate the problems of the poor. Studies have found that the probability of having a non-regular sexual partner is higher in urban than rural areas; commercial sex is more common in urban areas; and STD rates are higher.<sup>55</sup> All of these, as we have seen, can be strong risk factors for HIV transmission, and highlight the need for policy to take into account the potential negative effects of urbanisation and development.

Those planning and facilitating development, therefore, face the challenge of turning risks into opportunities. An army, for example, can be an exceptionally effective tool for

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<sup>48</sup> Josef Decosas and Alix Adrien (1997): Migration and HIV. AIDS, 11 supp. A, 1997

<sup>49</sup> Joseph Collins and Bill Rau (2000): AIDS in the context of development. UNRISD Programme on Social Policy and Development Paper Number 4. December 2000

<sup>50</sup> Harvard University (1995): Harvard AIDS Review, Fall 1995

<sup>51</sup> F Kane et al (1993): Temporary expatriation is related to HIV-1 infection in rural Senegal. AIDS, 7, 1993, cited in Rau, Collins (2000) *ibid*

<sup>52</sup> Hugo, G (2000): "Migration and women's empowerment", in Women's Empowerment and Demographics – Moving Beyond Cairo (eds) H Presser and G Sen, Oxford University Press, London

<sup>53</sup> UNDP (1999): World Urbanisation Prospects 1999: Key findings. Available at <http://www.undp.org/popin/>

<sup>54</sup> WH McNeill (1976): Plagues and Peoples. Anchor Books. New York

<sup>55</sup> Deon Filmer (1997): The socio-economic correlates of sexual behaviour. In World Bank (1998): Confronting AIDS: Evidence from the developing world. European Commission 1998; Jean-Claude Deheneffe, Michel Carael, Amadou Noubbissi (1998): Socioeconomic determinants of sexual behaviour and condom use. In World Bank (1998) *ibid*.

spreading all kinds of sexually transmitted disease. On the other hand, it is also possible for an army to offer poor young men a standard of health education and health care beyond any they have experienced in their childhood. As well as a more effective army, the latter may lead to significant benefits for poverty reduction as soldiers seek and achieve similar standards of health for their partners and children.

Increasing urbanisation, trade corridors and high rates of sex work are all found to varying degrees in Asia's developing countries. Poverty rates, too, are extremely high in some areas, particularly in South and South-East Asia. These factors have led to fears that HIV rates in Asia may mushroom to African levels, with poor, uneducated populations spreading the virus unchecked by strong health systems and government institutions. In the next section of the paper, we track the history of the disease in Asia and its likely effect on economies as a whole and the poor in particular.

### Part 3: AIDS, Asia and future prospects

HIV reached Asia and the Pacific in the mid-1980s. According to UNAIDS, East Asia and the Pacific currently has 640,000 people living with HIV/AIDS, an adult prevalence rate of 0.07 percent. There were 18,000 deaths in 2000. South and South-East Asia, meanwhile, has 5.8 million people infected with the virus, an adult prevalence rate of 0.56%, while 470,000 people died in 2000.<sup>56</sup> While there are doubts about the quality of the data (with persistent worries about under-reporting in countries such as China), UNAIDS describes the epidemic as “simmering at low levels,” as it neither grows to African levels as alarmists had predicted nor shows clear signs of stabilisation. Indeed, while Asia’s infection rate (along with that of the former Soviet Union) is growing faster than anywhere else in the world, this is largely because rates in many African countries have reached saturation levels. The large populations of many Asian countries, however, mean that even relatively low adult HIV prevalence rates such as India’s 0.7% translate into large numbers of infected people – India currently has 3.7 million people living with HIV/AIDS.<sup>57</sup>

Within Asia, there are wide variations in infection rates. So far, adult prevalence rates have only risen above 1% in Cambodia (2.77%), Myanmar (1.99%) and Thailand (1.85%), and rates even in these countries appear to have peaked in the mid-1990s.<sup>58</sup> Many other countries in Asia have rates below a tenth of one percent. In East Asia and the Pacific, the epidemic has been largely confined to vulnerable groups. Only 13% of HIV-positive adults in the region are women, implying a low rate of heterosexual transmission. In South and South-East Asia, meanwhile, women comprise 35% of infected adults. Although low rates of premarital and extramarital sex have so far largely shielded the mainstream population,<sup>59</sup> there are pockets of high infection within countries. Rates are so high among certain vulnerable groups (China’s injection drug users and Cambodia’s female sex workers, for example<sup>60</sup>) that the Asian Development Bank has warned that “many Asian countries are potential incubators for a rampant spread of the infection” if the virus succeeds in crossing over into mainstream groups.<sup>61</sup>

There continue to be disputes about the extent to which AIDS is likely to spread beyond vulnerable groups, however, with James Chin leading those who believe that there are relatively few routes for transmission from vulnerable communities to the general population, making unlikely an epidemic of anything approaching African proportions (Africa’s prevalence rate is 8.8 percent).<sup>62</sup> However, a study conducted in Thailand found that 17% of low-income men aged 17-45 can be included in the “bridging” population (those who have sex with both sex worker and non-sex worker partners), and that these men are more than twice as likely as other men to be HIV-positive and more than three times as likely to have other STDs. Moreover, “bridging” men use condoms less than 30% of the time with commercial sex workers and less than 1% of the time with women in the general population. The authors of the study concluded that, as a result of the bridging population, 30 women in the general population were potentially exposed to HIV per 100 sexually active men in the last year (with 9 women exposed in each additional year).<sup>63</sup>

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<sup>56</sup> UNAIDS Dec 2000

<sup>57</sup> UNAIDS (2000): Epidemiological Fact Sheets by Country. Available at [http://www.unaids.org/hivaidsinfo/statistics/june00/fact\\_sheets/index.html](http://www.unaids.org/hivaidsinfo/statistics/june00/fact_sheets/index.html)

<sup>58</sup> WHO (2001): HIV/AIDS in Asia and the Pacific Region – 2001. UNAIDS (2000): Report on the global AIDS epidemic. UNAIDS June 2000. Cambodia figure for 2000; Myanmar 1999; Thailand 2001 estimate.

<sup>59</sup> WHO (2001): HIV/AIDS in Asia and the Pacific Region – 2001.

<sup>60</sup> CDC (2001): The global HIV and AIDS epidemic, 2001. MMWR Weekly, 1 June; UNAIDS (2000): Epidemiological Factsheet: Cambodia. UNAIDS

<sup>61</sup> Edward Haugh and Indu Bhushan (2001): AIDS: Asia’s lull before the storm? Asian Development Bank 2001. Available at [http://www.adb.org/Documents/Periodicals/ADB\\_Review/2001/vol33\\_3/AIDS.asp](http://www.adb.org/Documents/Periodicals/ADB_Review/2001/vol33_3/AIDS.asp)

<sup>62</sup> James Chin (2000): HIV/AIDS Projections for Asia (draft paper)

<sup>63</sup> Morris M. Podhisita C. Wawer MJ. Hancock MS (1996): Bridge populations in the spread of HIV/AIDS in Thailand. AIDS. 10 (11): 1265-71, 1996 Sep.

However, even low percentage rates of HIV in a country with a population the size of Thailand's (61 million) translate into many deaths per year. UNAIDS reports 66,000 AIDS-related deaths in Thailand in 1999,<sup>64</sup> which compares unfavourably, for example, to the 20,000 annual deaths in road accidents.<sup>65</sup>

The dangers are not limited to Thailand. A study of Hong Kong men who travel to China concluded that this group (and particularly the less educated, non-business travellers) had strong potential to be a bridging population in Hong Kong.<sup>66</sup> Data from urban areas in India has shown that rates among pregnant women— a low-risk, monogamous group unlikely to indulge in high-risk behaviour - are rising, suggesting that the virus is beginning to cross over to the general population.<sup>67</sup> Although there is unlikely to be a dramatic increase in infection rates in any Asian country, therefore, many Asian societies will face sustained, low-level pressure as a result of AIDS, with certain areas and certain groups within those societies providing an ongoing challenge to policy-makers.

The epidemics in most Asian countries, with the exceptions of Cambodia, Thailand and Myanmar, are comparatively under-developed relative to the situation in Africa. There is evidence, however, that new groups are becoming more vulnerable to infection, even as the initial vulnerable groups (principally commercial sex workers and their clients) learn to protect themselves.<sup>68</sup> Evidence from Bangladesh, Nepal, Indonesia and Vietnam all suggests that the least educated are increasingly at risk, with knowledge that condoms prevented transmission markedly lower among women with no education than among those with primary education. The latter, in turn, knew less than those with secondary education or higher.<sup>69</sup> Education is clearly a vital factor for the prevention of HIV transmission: a study of Thai males showed that men with a good understanding of the inefficacy of inappropriate prevention strategies and the mechanics of contagion patronise commercial sex workers significantly less frequently than men who have a poor understanding of these areas. Those with a weaker understanding were mainly men of low socio-economic status. The poor, who are unlikely to have received a strong general education, are therefore less likely to be aware of the dangers of AIDS.<sup>70</sup>

Although no comprehensive national study yet exists to show whether AIDS disproportionately affects the poor within a country, smaller-scale studies back up the notion that the link is strengthening in Asia. A household study in Thailand found that people from the poorest and least educated households were most likely to be infected with HIV.<sup>71</sup> A study in India found that a household's socio-economic status was a significant contributing factor to its likelihood of being infected with HIV.<sup>72</sup> Ethnic and marginalized groups in Southeast Asia have been shown in one study to be most vulnerable to HIV/AIDS.<sup>73</sup> And low income has been linked to heightened risk of infection in Sri Lanka –

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<sup>64</sup> UNAIDS (2000): Thailand Epidemiological Factsheet. UNAIDS, Geneva. 2000.

<sup>65</sup> GRSP Road Safety (2001): Annual Report. Global Road Safety Partnership. June.

<sup>66</sup> Lau JT, Thomas J (2001): Risk behaviours of Hong Kong male residents travelling to mainland China: a potential bridge population for HIV infection. *AIDS Care*. 13 (1): 71-81, 2001 Feb.

<sup>67</sup> UNAIDS data cited in DFID (2001): DFID's response to HIV/AIDS in Asia and the Pacific. DFID. Unpublished.

<sup>68</sup> Field trip conducted for this paper.

<sup>69</sup> Demographic & Health Survey Data, Macro International. 2001

<sup>70</sup> VanLandingham M. Grandjean N. Suprasert S. Sittitrai W. (1997): Dimensions of AIDS knowledge and risky sexual practices: a study of northern Thai males. *Archives of Sexual Behavior*. 26(3):269-93, 1997 Jun.

<sup>71</sup> S Pitanyon, S Kongsin and W Janjareon (1997): The economic impact of HIV/AIDS mortality on households in Thailand. In D Bloom, P Godwin (eds) (1997): *The economics of HIV and AIDS – the case of South and South East Asia*. Oxford University Press.

<sup>72</sup> A Basu, D Gupta and G Krishna (1997): The household impact of adult morbidity and mortality: some implications of the potential epidemic of AIDS in India. In Bloom, Godwin (eds) (1997) *ibid*

<sup>73</sup> M Thant (1993): The economic implications of AIDS in Southeast Asia: Equity considerations. In D Bloom and J Lyons (eds) (1993): *Economic implications of AIDS in Asia*. UNDP Regional Program Division, Regional Bureau for Asia and Pacific.

people on low incomes were less aware about the risks of the epidemic, and low-class Sri Lankan sex workers were found to be less likely to use condoms than higher-class ones.<sup>74</sup>

Recent Demographic & Health Survey data surveying adult women in Cambodia, the country with the most advanced epidemic in Asia, emphasises the extent to which Asia's poor are at greater risk of HIV infection than better off sections of society<sup>75</sup> (see **appendix 2**). The poorer and less educated women are more likely to be sexually active at young vulnerable ages, are less likely to have been tested, or know where to be tested for HIV, are less likely to have spoken with their spouses about avoiding AIDS, and in general have a much weaker knowledge of the factors that cause and prevent transmission of AIDS. Their access to the media is more limited, and their behaviour, in terms of the age at which they first have sex and frequency of condom use, puts them at greater risk.

As well as the wealthy, more educated groups are also likely to know more about AIDS and practise less risky behaviour. Data from Vietnam show similar links between wealth and education and sexual behaviour and knowledge about HIV/AIDS (see **appendix 3**).

Both Cambodian and Vietnamese data suggest that wealth and education are positively correlated with reduced risk factors for AIDS. More specifically, the Cambodian and Vietnamese data show that wealthier and better educated women are more aware of the existence of modern contraception and of the benefits that condom use brings in reducing HIV risk, have more access to condoms, and are more likely to ever have used condoms.

Interestingly, the data also suggest that wealth and education have *independent* effects – so one is not simply a proxy for the other. In other words, a well-educated but poor population will be able to protect itself against AIDS in a similar way to a richer group. Kerala in India, for example, with its notably well-educated population, has much lower HIV prevalence rates than neighbouring states with similar or higher per capita income such as Tamil Nadu, Karnataka and Andhra Pradesh.<sup>76</sup> Even if a country is not experiencing short-term economic growth, therefore, investment in education can provide health improvements that act as a long-term driver of development.

The United Nations Conference on Trade and Development (UNCTAD) and the United Nations Development Programme (UNDP) joint *Programme on Globalisation, Liberalisation, and Sustainable Human Development* has highlighted the need to see development policy as a framework, where economic growth, liberalisation, and sustainable human development can work in tandem to promote virtuous spirals, where gains in one area create corresponding gains in the others. While a balance focusing on all three areas is needed, governments must not attempt to act on too many fronts. Rather, they should seek “strategic points of entry”, which can act as a trigger for virtuous spirals of development progress.<sup>77</sup> For countries with limited resources and undeveloped economies, education on AIDS would appear to be a strategic point of entry with the potential for long-term collateral benefits, which would first impact on a nation's health and ultimately on its poverty rates and the economy as a whole.

Government-level response to AIDS in Asia has been mixed. Many political leaders have not acknowledged that HIV/AIDS is a threat to their countries, and few have put in place strategies for action at a national level. Some programs that have been put in place, such

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<sup>74</sup> Bloom, David et al (1997): Socioeconomic dimensions of the HIV/AIDS epidemic in Sri Lanka. In Bloom, Godwin (eds) (1997) *ibid*

<sup>75</sup> Demographic & Health Survey Data, Macro International. 2001

<sup>76</sup> 1999 HIV figures taken from US Census Bureau: HIV AIDS Profile: India. Available at <http://www.census.gov/ipc/hiv/india.pdf>. Per capita income figures taken from Discover India website. Available at <http://meadev.nic.in/states/mp/mp.htm>

<sup>77</sup> Agosin, Manuel and David E. Bloom. 2000. *Globalisation, Liberalisation, and Sustainable Human Development: Analytical Perspectives*. Draft. Geneva: UNCTAD.

as Bangladesh's program to "disperse" communities of illegal sex workers, may actually contribute to the spread of the virus, and others, such as Vietnam's "Eradication of social evils" policy, could potentially raise the stigma surrounding AIDS and hamper more enlightened efforts.<sup>78</sup> A recent WHO report, which describes most of the national strategies that are in place as "underfunded", attributes the weak response to a lack of resources which means that governments face a difficult choice over whether to prioritise prevention or treatment programs. Donor support, meanwhile is inconsistent and has led to a "patchwork" of HIV projects that only involve very small areas, with no national coverage. The report recommends that governments and donors should focus particularly on female sex workers and intravenous drug users – the two groups most at-risk in the region.<sup>79</sup>

Thailand is seen by many as a beacon in the fight against HIV. As with many other Asian countries today, the early spread of the infection in Thailand was slow and was connected mainly to sex workers. Many therefore predicted that AIDS would not become a serious problem. However, the late 1980s saw an alarming rise in infection levels among vulnerable groups, with rates among injecting drug users in Bangkok rising from 1% to 30% in less than a year from 1987 to 1988, and rates among sex workers showing similarly sharp increases. These rises were quickly followed by reports from all fourteen of Thailand's provinces of HIV infection in men attending STD clinics and pregnant women, and it was clear that the epidemic was beginning to cross over into the mainstream population. By 1992, HIV rates among pregnant women had reached 2.3%.

The Thai government responded to the threat of AIDS with a range of measures including introducing a reliable sentinel surveillance system, promoting condom use in commercial sex via "100% Condom" campaigns, expanding STD treatment and implementing mass media campaigns. The government AIDS budget expanded from US\$18,000 in 1988 to US\$81 million in 1996.<sup>80</sup> Results were impressive. HIV prevalence rates among sex workers in Bangkok declined from 13 to 7% between 1994 and 1997; patronage of commercial sex workers declined by 48% from 1993 to 1996;<sup>81</sup> and rates among pregnant women declined to 1% in 1997.

Even in Thailand, though, the epidemic has largely been contained rather than reversed, and there are worrying signs that infection rates are beginning to rise again after years of steady decline: among intravenous drug users, prevalence increased from 43% to 51% between 1999 and 2000; the rate in pregnant women rose from 1.53% to 1.76% over the same period; and HIV rates among sex workers outside Bangkok remain at over 20%. Although the campaign was successful in that fewer Thai women now practise prostitution, the latter are now being replaced by foreign women, who are likely to be more mobile than their Thai counterparts and therefore more likely to spread the virus. In order to continue to control the epidemic, the Thai authorities will have to adapt their programs to the changing nature of commercial sex.<sup>82</sup> Cuts in the government budget for HIV/AIDS prevention activities, therefore, seem to have been premature.

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<sup>78</sup> DFID (2001) *ibid*.

<sup>79</sup> WHO (2001) *ibid*

<sup>80</sup> UNAIDS (1998): Relationships of HIV and STD declines in Thailand to behavioural change. UNAIDS Best Practice Collection. UNAIDS; DFID (2000): A strategic response to HIV in Asia. DFID, unpublished. February 2000.

<sup>81</sup> Mills S. Benjarattanaporn P. Bennett A. Pattalung RN. Sundhagul D. Trongswad P. Gregorich SE. Hearst N. Mandel JS (1997): HIV risk behavioral surveillance in Bangkok, Thailand: sexual behavior trends among eight population groups. AIDS Control and Prevention Project, Family Health International. AIDS. 11 Suppl 1:S43-51, 1997 Sep.

<sup>82</sup> Hanenberg R, Rojanapithayakorn W (1998): Changes in prostitution and the AIDS epidemic in Thailand. Family Health International. AIDS Care. 10 (1): 69-79, February 1998; Thai working group on HIV/AIDS projection (2001): Projections for HIV/AIDS in Thailand 2000-2020. Division of AIDS, Department of Communicable Disease Control, Ministry of Public Health. February 2001

In sum, then, a balanced view of the effect of AIDS on Asia's prospects should be encouraged. Predictions of significant general economic immiseration are likely to prove alarmist. However, AIDS will have a range of direct and indirect impacts across a broad swathe of a nation's life and, without intervention, the vast majority of these impacts will be negative.

The challenge to policy-makers, therefore, is to design the kind of policy interventions that will do more than narrowly tackle AIDS impacts, but instead see the opportunities that action against the virus presents to make improvements that will have broad and beneficial collateral impact. Curricular reform, aimed at improving health education, will potentially contribute to improvements across the education system, while efforts to improve the way the government system copes with AIDS can help build capacity to meet other cross-cutting problems in our increasingly "joined up" world. Use of condoms will protect against other sexually transmitted diseases (STDs), which will in turn reduce the rise of drug-resistant strains encouraged by the common practice of self-medication with antibiotics.<sup>83</sup> The final part of this paper provides more specific recommendations for Asia's policy-makers, focusing on those areas whose relevance to governments and donors is not limited to individual countries, but can be applied across the region.

### **The Case of Cambodia**

2.8 percent of Cambodians are HIV positive – the highest prevalence rate in Asia. First detected in 1991, the virus spread rapidly, moving beyond the early vulnerable groups and into the general population. The Cambodian epidemic is fuelled primarily by heterosexual sex, and the rapid growth of the country's sex industry in the 1990s initially caught policy makers unawares (see companion paper for full details). In 1997, an estimated 210,000 Cambodians (out of a population of 11 million) were living with HIV, and in 1999 the Government predicted that the virus could prove more devastating than the Khmer Rouge regime, which, between 1975 and 1979, killed 1.7 million Cambodians.

Since 1997, however, the alarming spread of HIV/AIDS has been reversed. By the end of 2000, the number of people living with AIDS had fallen by nearly a fifth, to 169,000, indicating that more people are now dying of the disease than contracting it. Government action focused on prevention of HIV transmission has been pivotal to Cambodia's efforts to combat AIDS. Public information campaigns and programs aimed at sex workers have combined to both improve knowledge of the dangers of AIDS and dramatically increase condom usage. The 100% Condom Use campaign, which aims to make condom use universal in brothels, will soon be launched nationwide and is expected to drive transmission rates down still further.

Cambodia's focus on improving knowledge and access to condoms is particularly relevant to the country's poor who, as in the rest of Asia, are likely to bear the brunt of the virus. Household data from 2001 suggests that the poorest segments of Cambodian society, whose knowledge of AIDS is weaker than that of wealthier groups, are more likely to engage in behavior that puts them at risk of HIV infection. Poor women have sex earlier than wealthier women, practice unprotected sex more often, are less aware of the AIDS-preventive benefits of condom use and are more mobile. While there is as yet no evidence to show that this translates into higher HIV rates among the poor, studies from elsewhere in Asia indicate that it is only a matter of time before the virus becomes concentrated among the least wealthy, least educated segments of the population.

Cambodia's poor are the least able to cope with the health shock of AIDS. With limited access to public health services, poor families are forced to turn to expensive private sources of health care, from often-incompetent pharmacists to traditional healers. Even when they can access public

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<sup>83</sup> A US national Institutes for Health (NIH) and CDC panel convened in June 2000 found that, while data on the effectiveness of condoms in preventing STIs is as yet incomplete, their effectiveness in preventing HIV infection in women and gonorrhoea in men is proven.

provision, health workers are often so underpaid that corruption becomes inevitable. As a result, families make ruinous expenditure on health care, which they fund by selling already-limited assets or by borrowing at high rates of interest, using assets as security.

Economic development and the changes (increased migration and infrastructure development, for example) that accompany it may in many cases exacerbate the problems of poor people. Cambodia's economy has in recent years undergone rapid liberalization. Economic growth has been steady, but progress on human development has lagged behind, leading to fears that deteriorating health and education indicators may begin to erode economic gains. AIDS is part of the problem here, but it can also be part of the cure. Cambodia's response to AIDS has been impressive, with the establishment of the National AIDS Authority (NAA), which promotes action against AIDS across government, the clearest signal of the Government's determination to treat the disease as not just a health issue, but a multi-sectoral social problem. Obstacles to AIDS prevention go beyond health sector weakness. Working with donors and NGOs, public sector reform, governance and reaching the poor are all AIDS-related issues that will also be critical to the overall development process.

AIDS offers an opportunity to broach these issues in an innovative way. Collaboration with NGOs and the private sector to increase access to anti-retroviral drugs (ARVs) and condoms can help develop distribution networks that boost Cambodia's health infrastructure as a whole. The private sector, by educating its employees, can also have a big impact on AIDS awareness. Public education campaigns, meanwhile, can have positive feedback effects on the country's education system, and in particular on its ability to reach poor segments of society. And assessment of the health risks around development projects – exemplified in the new FAO/UNDP “Staying Alive Along Route 5” program - can ensure the sustainability of poverty reduction.

Finally, women are at the centre of Cambodia's health problem. Maternal mortality is high and lack of education leaves many women unable to ensure the health of their families to the standards they would wish. Lack of economic opportunities has helped fuel the sex industry, while the low status of women leaves them extremely vulnerable if sex outside marriage continues to become more common in Cambodia. Action to improve the status of women will be beneficial to Cambodian women themselves; have a positive impact on Cambodian society; help improve health standards of women and their families; and have a fundamental impact on the nature of the AIDS epidemic. AIDS threatens poverty reduction efforts in Cambodia, but concerted and sustained efforts to involve the poor, and particularly poor women, and give them the tools to improve their health in the long-term will have far-reaching positive impacts on development efforts.

#### Part 4: AIDS *within* health *within* development

This paper has underlined the importance of health to a country's development and its vital role in improving the lives of the poor. It has stressed that AIDS should be treated as one of many health problems, rather than in isolation – but that there should be broad action at all levels of societies to ensure that general health standards are improved.

An attempt to consider AIDS *within* health, and health *within* development, will mean facing many different problems in different countries. However, some consistent areas can be identified:

- The need for peace, stability and good governance. War leads to sudden increases in mobility, the destruction of infrastructure, and the diversion of human capital from development to destruction. Peace and political stability, guaranteed by strong democratic institutions, must therefore be the foundation of any broad effort to tackle AIDS. Even within a peaceful society, the importance of effective governance cannot be over-emphasised. At every level, the ability to make effective decisions and execute them is essential, especially when governments are expected to attempt ambitious cross-sectoral programmes, rather than simple vertical interventions. AIDS crosses not only sectors, but borders – trade corridors and high rates of sex work make this fact especially important in Asia. Donors should implement cross-country and regional projects, recognising the existence of international public goods in the form of policy research and the generation and dissemination of knowledge. The wider view that donors are able to take can counter the tendency of national governments to overlook such areas.
- The need for data-driven decision making. Part of the process of improving governance involves ensuring that decisions are made using data that are reliable, relevant, and available. A genuine multi-sectoral approach requires judgements to be made about the competing claims of quite different interventions – a process that can only intensify as issue after issue attempts to “mainstream” itself across government. Only data and clear processes can begin to discriminate between competing claims in any rational fashion and ensure that interventions are demand and client driven – responsive to the particular context rather than being generalized prescriptions. Ongoing measurement of the effectiveness of interventions also enables policy-makers to keep track of the changing nature of the HIV virus: Although Thailand has achieved remarkable results in reducing HIV rates among sex workers and their clients, the profile of the virus is currently changing, with rates among children and drug users on the rise and rates among pregnant women either stable or rising in most areas.<sup>84</sup> Only reliable surveillance can alert governments to these changes and inform their prioritisation strategies, and only consistent policy can ensure that gains are not reversed.
- The need to build broad partnerships. Donors should work with governments to initiate and inform policy dialogue related to AIDS. Government – in its broadest sense – has traditionally been atomised, with government ministries working in narrow channels, each cultivating a constituency of interested professionals, lobby groups and, more recently, NGOs. In developing countries, these divisions have often been mirrored and emphasized by intense competition among donors for influence and the “right” to spend funds on pet projects. Broad action on a subject like AIDS requires a concerted attempt to break down these barriers and to take a cross-sectoral approach. Alliances should be sought whereby larger donors and governments, which traditionally work with big budgets and therefore big projects, have the flexibility to work with NGOs and grass

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<sup>84</sup> World Bank (2001): Thailand's response to AIDS: Building on success, confronting the future. World Bank Thailand Social Monitor V.

roots organisations, which have on-the-ground access to poor communities. Action will also require a clear assessment from government of where it can act effectively, and where it is better facilitating action from the private or civil sectors.

- The need for health sector reform. There are a growing number of people in the Asia/Pacific region who are in need of AIDS care and this is exposing the weakness of the health systems in many countries. Health sector reform therefore becomes increasingly urgent and it, in turn, should be seen in the context of broader public service reform in many countries. For example, in some countries where public servants are paid extremely low wages, many charge the public unofficial fees for their services to survive. Such institutionalised corruption bedevils *all* government initiatives and dramatically distorts a country's health service. Without some attempt to tackle these problems, many improvements in the lives of poor people and those ill with AIDS will happen despite, rather than because of, government action. Developed nations could also play a role in health sector reform in the developing world, perhaps by giving aid or loans that are tied to reform and the targeting of poor parts of the population.
- The need for private sector involvement. It may be more cost-effective for companies to protect their workers against disease than to replace them. And at a broader level, private sector actions may have an impact on firms' local communities. Simple, inexpensive actions, using the private sector's skills and networks, can have far-reaching effects. The drug nevirapine, for example, has been shown to be effective in reducing mother-to-child transmission of HIV during labour and through breastfeeding.<sup>85</sup> Pharmaceutical company Boehringer Ingelheim provides this drug free to developing countries. If nevirapine is offered to all pregnant women in vulnerable populations, the promise of preventing HIV transmission to their babies is likely to encourage many more women to present for HIV testing. At the same time, the women can be given information about the virus along with other health risks. The relatively simple, cost-effective distribution of nevirapine can thereby have the much wider effect of indirectly strengthening the knowledge of these key gatekeepers of family health.<sup>86</sup>
- The need for special consideration of the role of women. Although men suffer disproportionately from HIV everywhere except Africa, women remain key to fighting the epidemic. Their education is vital to ensuring better health for whole families, while their empowerment will give them a better chance of avoiding infection with HIV as the epidemic matures and their risk of infection continually increases. Women are also likely to bear the main burden for providing care, and the World Bank has recommended micro-insurance programs to help women to fend off health shocks.<sup>87</sup> Perhaps more than any other intervention, progress towards national targets for the major indicators of female welfare (i.e. educational attainment, maternal mortality and general health status, role in the labour market, access to birth spacing technologies and use of condoms etc.<sup>88</sup>) has the potential to deliver benefits to a country's fight

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<sup>85</sup> UNAIDS Asia Pacific Intercountry Team Bangkok, UNICEF East Asia Pacific Regional Office, WHO Thailand (1999): Large-scale Implementation for the Prevention of Mother To Child Transmission of HIV: Issues for South East Asia and the Pacific. Technical Update No. 1. Prevention of Mother To Child Transmission of HIV. November 1999

<sup>86</sup> For more information on the donation programme, see <http://www.viramune-donation-program.org/en/program/index.cfm?c=countries>

<sup>87</sup> World Bank (2001) *ibid*

<sup>88</sup> The World Bank, recognising the importance of promoting gender equity, has recommended support for farming and microenterprise among women as a key to empowering women. World Bank (2001): Attacking poverty with a three-pronged strategy. World Bank Policy and Research Bulletin, Vol 12, no 1. January-March 2001

against AIDS, its attempt to improve health standards, its poverty alleviation work, and its general development.

- The need to increase the participation and involvement of poor people. Targeting of vulnerable populations has been, and will continue to be a valuable strategy in the fight against AIDS. However, the adoption of this strategy has been encouraged by the fact that most of these groups have been concentrated in urban centres (often, indeed, in the capital). If governments are to take seriously the possibility that AIDS epidemics will become “stuck” in poor populations even as overall prevalence rates decline, they will need to confront a generalised inability to target poor people. Both geography and politics have played a part here. Rural areas have always been neglected, mainly due to distance, while the poor generally exert the least political pressure and therefore can easily be ignored. Risk areas such as trade corridors should be the focus of knowledge campaign aimed at the poor, but strategies to encourage participation remain the sustainable long-term answer, especially as prevention campaigns switch from the provision of information to an attempt to give people the tools to understand the risks they face and to make better decisions, both individually and collectively.<sup>89</sup>
- The need to take account of HIV risks *caused by* development efforts. Urbanisation and migration/mobility are common outcomes of poverty reduction programs which are strongly connected to increased HIV rates. Infrastructure improvements, such as new roads and dams, can also increase risks – for those who build them, those who benefit from them and those who are displaced by them. Other apparently positive steps, such as cracking down on opium production or implementing 100% condom use campaigns, can also have unintended adverse consequences. Burning opium may drive up the price of the drug and cause a shift from smoking to injecting, and high-profile condom use campaigns may drive the problem of STDs and HIV infection underground. HIV impact assessment should be incorporated into development planning to ensure that the success of projects is not reversed by an increase in HIV rates – if a likely risk is identified, HIV prevention messages to construction workers working on the new roads, for example, would help to limit the danger.
- The need to consider the impact of AIDS on institutions and donor strategies. Poverty reduction is the key goal of donor organisations such as the World Bank and Asian Development Bank (ADB) and health and governance, too, are a major focus of the international donor community. Poverty reduction, health and governance are all potentially vulnerable to the impact of AIDS and, as such, donors must account for its effects on their strategies. The virus puts pressure on Asia’s health systems, tests regional co-operation through its cross-border nature, undermines progress towards economic and gender equality and weakens civil society as a whole, with potentially disastrous effects on social stability. Donors, many of whom have been the object of increased criticism of late over the ineffectiveness of their investments,<sup>90</sup> should use their influence to mainstream AIDS into developing country government thinking, through dialogue with ministries, loan conditions, and direct interventions for prevention and care programs. Without such efforts, the effectiveness of their other programs is likely to be further curtailed. Action on AIDS in Asia offers an opportunity for under-fire donors to “promise small and deliver big” – with small-scale investments likely to produce broad beneficial effects.

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<sup>89</sup> World Bank (2001): *ibid*

<sup>90</sup> William Easterly (2001): *The failure of development*. Financial Times 7 September; Financial Times (2001): *The World Bank: A world of complaint*. 27 August.

## Conclusions

The extent of the link between poverty and HIV/AIDS remains uncertain. While early indications suggested that the better off were more vulnerable to HIV since they could more easily afford to pay for sex and drugs, 95% of people currently living with HIV/AIDS live in developing countries, which make up 80% of the world's population. Although this figure might at first glance appear to be suggestive of a link between AIDS and poverty, it is a figure which is heavily distorted by Africa, home to 13% of the world's population but 72% of those living with AIDS. Asia, on the other hand, whose people make up 60% of the global total, is host to just 18% of HIV infections. Indeed, while data examined for this paper suggests a link from poverty to AIDS at the global level, there is, so far at least, no intra-continental correlation in Asia.

In the absence of strong macro-level data on links between AIDS and poverty, policy makers are forced to rely on intuitive reasoning backed up by small-scale studies. There is some, albeit scattered, evidence that the rich learn to protect themselves against AIDS more quickly than the poor. Because of this, and the fact that AIDS arrived in Asia after it had hit Africa, the character of Asia's epidemic is likely to be different from that in Africa. While the virus hit Africa's rich before knowledge of its dangers and means of transmission was widespread, the wealthier segments of Asian societies were forewarned of the risks and therefore had time to protect themselves.<sup>91</sup> Health problems in general are greater amongst the poor, and other infectious diseases such as TB, cholera, malaria and flu tend to hit the poor harder than the rich. A poor standard of education, lack of access to health systems and the context in which the daily battle to afford necessities places health all contribute to increased vulnerability to infectious disease among the poor. AIDS is no exception. Poor women are more likely to turn to sex work than rich women, and this is the clearest direct link from poverty to AIDS – a link not shared by other major infectious diseases.<sup>92</sup> Other professions at higher risk due to their mobility and proximity to sex workers, such as long-distance lorry drivers, soldiers, and migrant industrial workers are also likely to be entered into by lower-skilled individuals.

The connection, therefore, is complex and far from clear-cut. Some risk factors for HIV are more prevalent among the poor but others are found more often among richer sections of society. It appears that there are *combinations* of factors, of which poverty is one (and mobility, multiple-partnering and use of sex workers others), which put some people at greater risk of HIV infection than others.

The question of the links *from* AIDS to poverty also remains largely unresolved. Inter-continental poverty differences predate the AIDS epidemic, and little time series data on poverty and AIDS exist. It is therefore difficult to test whether variations in AIDS prevalence rates over time are causing variations in poverty rates over time. Moreover, Africa, which dominates the global scene in terms of both poverty and HIV, is so beset by other problems that disentangling the specific role played by AIDS is made extremely complex. However, local studies point to a strong immiserating impact at the household level. With fewer savings and fewer assets to dispose of, this impact is felt more keenly by the poor. In many cases, AIDS is likely to cause vicious spirals, where it infects a member of a poor family, the family disposes of its assets and other family members are forced into high-risk activities to help cope with the disease.

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<sup>91</sup> Bloom, David E. and Jeffrey Sachs, "Geography, Demography, and Economic Growth in Africa," *Brookings Papers on Economic Activity* 2:207-295, 1998.

<sup>92</sup> This connection, however, is countered by the fact that poor *men* are less likely to be able to afford to visit sex workers than rich men, although the latter are more likely to use condoms. Also, the sex workers that serve the poor are more likely to have more partners, which may imply more open lesions due to sex trauma. On the other hand, though, the rich are more likely to have lengthier sessions with sex workers, which implies more trauma and possibility of transmission of bodily fluids.

Nearly one third of Asia and the Pacific's population live in poverty and, although some areas are well on their way to meeting the UN's target of reducing extreme poverty by half by 2015 (in China the number of poor fell from 360 million to 210 million between 1990 and 1998), others have actually seen increases in poverty rates in recent years. East Asia saw its impressive poverty rate declines from 1987 to 1996 reverse by 1998 as a result of the area's economic crisis; the number of poor in Central Asia grew steadily over the same period; and, while the percentage of poor in South Asia fell, this decline was not enough to keep absolute numbers from rising - with a poverty rate of 40%, South Asia is only 6 percentage points behind sub-Saharan Africa - the world region most ravaged by AIDS.

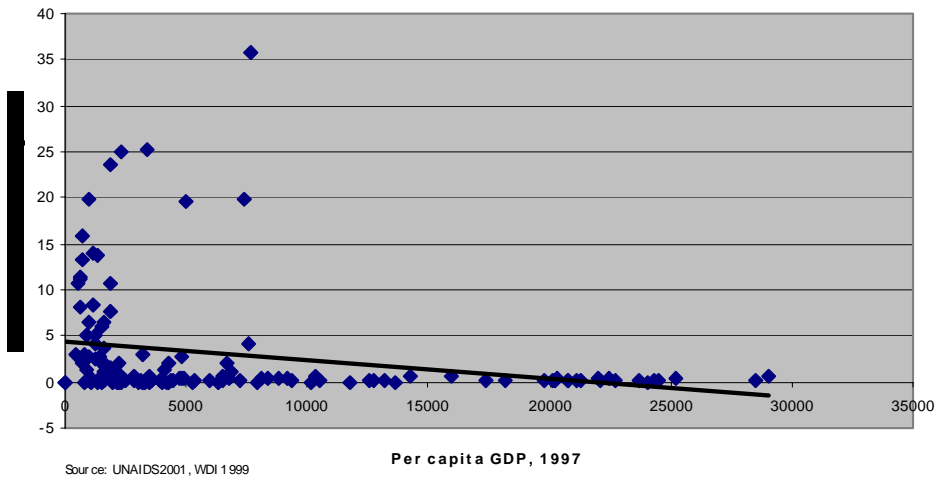
Although AIDS is unlikely to have a serious macro effect on Asia's poverty rates (HIV infection rates are low and, even if individuals are forced to withdraw from the workplace, the effect of this will be balanced by their being replaced by people who would otherwise be unemployed), it *will* have a broad range of impacts on a society's health. From pushing up TB levels to increasing the number of orphans, AIDS presents a challenge to development efforts. Some of these development efforts may indeed be *contributing* to the spread of HIV. If it goes unchecked, AIDS may also pose a threat to governance and institutional capacity, creating conditions rife for corruption and political instability – and, therefore, for further indirect negative impacts on the poor.

Policy, therefore, should focus on AIDS as part of a wider challenge to societies. All levels of society – governments, donors, NGOs, the private sector and poor communities themselves – should be brought on board in an effort to reform health systems to make them responsive to people's needs. Good governance and strong institutions are essential for successful poverty reduction efforts, action to improve health in general, and programs to tackle AIDS. AIDS in turn has the potential to act as a trigger for wider health improvements, which in turn can trigger development.

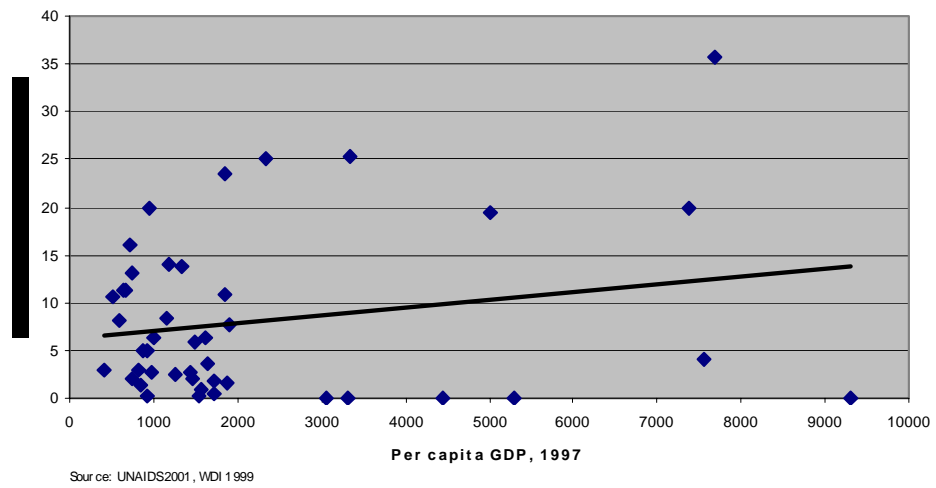
Whether action on AIDS has the potential to influence vicious or virtuous development spirals will be determined by policy. Without action, the number of poor will increase, development efforts will be hampered, and those who are already poor will be pushed deeper into poverty traps. Well-targeted, innovative policies, on the other hand, may have a collateral impact with far-reaching beneficial implications for the health of a society as a whole. AIDS, like health in general, is a test of the overall health of a society. Asia's policy-makers will determine whether their countries pass that test.

# Appendix 1 – Cross-country relationships

### Figure 1a: HIV and Income, World



### Figure 1b: HIV and Income, Africa



### Figure 1c: HIV and Income, Asia

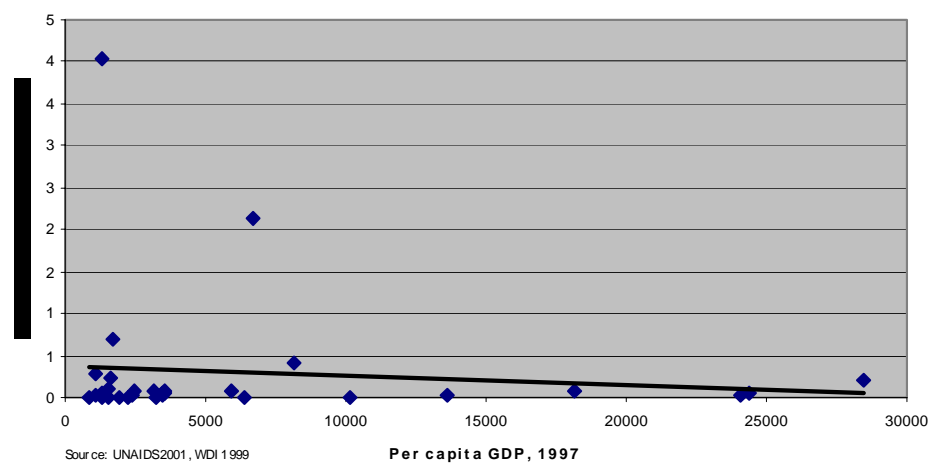


Figure 2a: HIV and the Gini Index, World

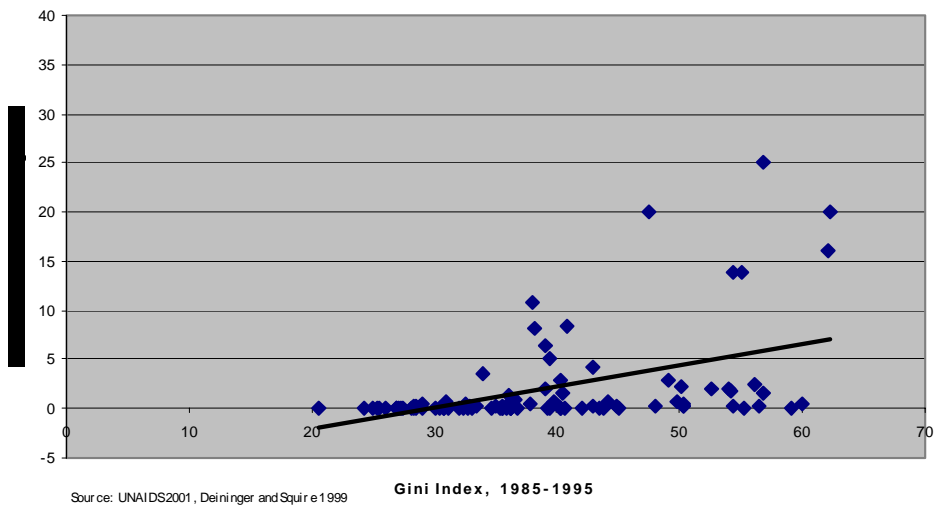


Figure 2b: HIV and the Gini Index, Africa

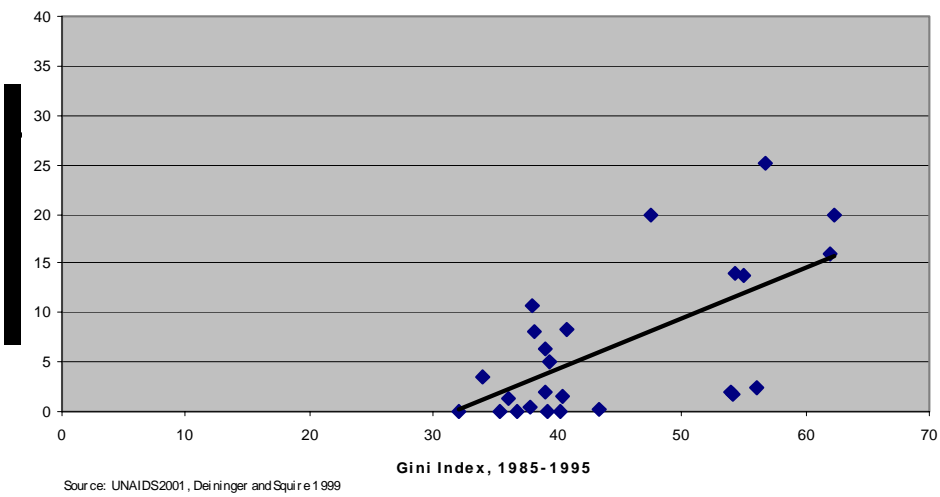
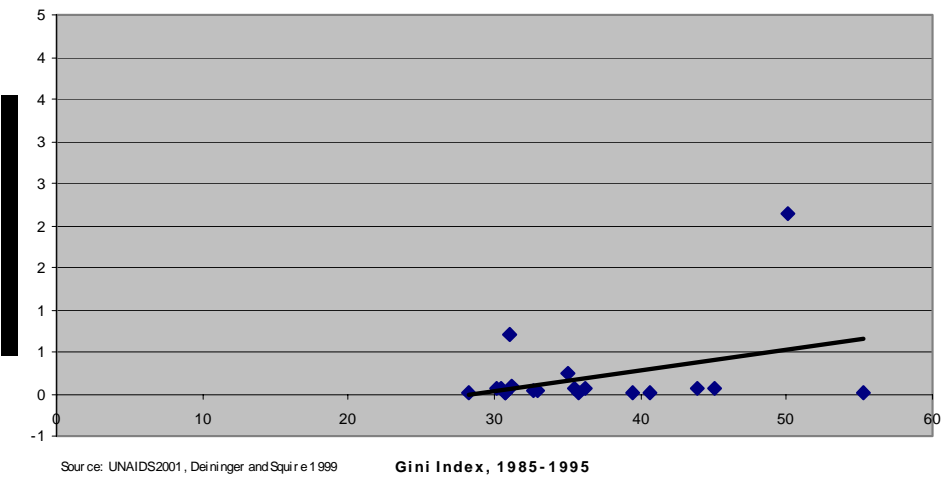
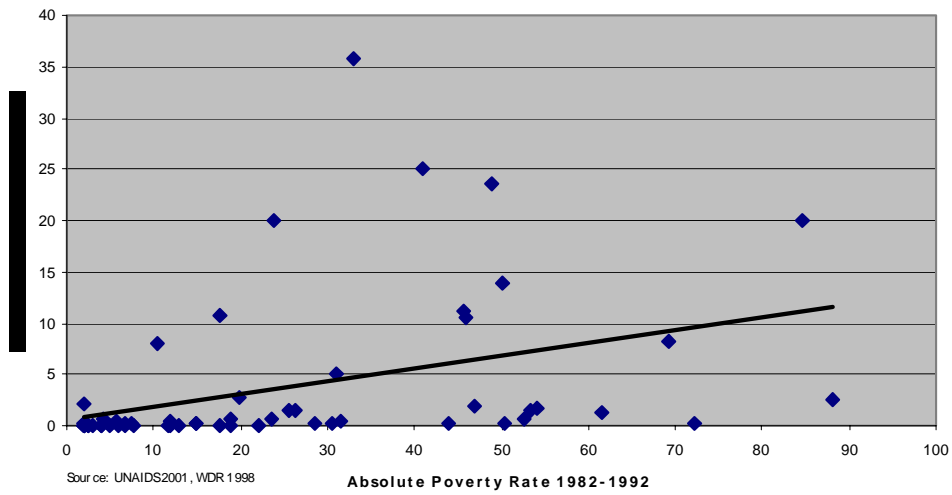


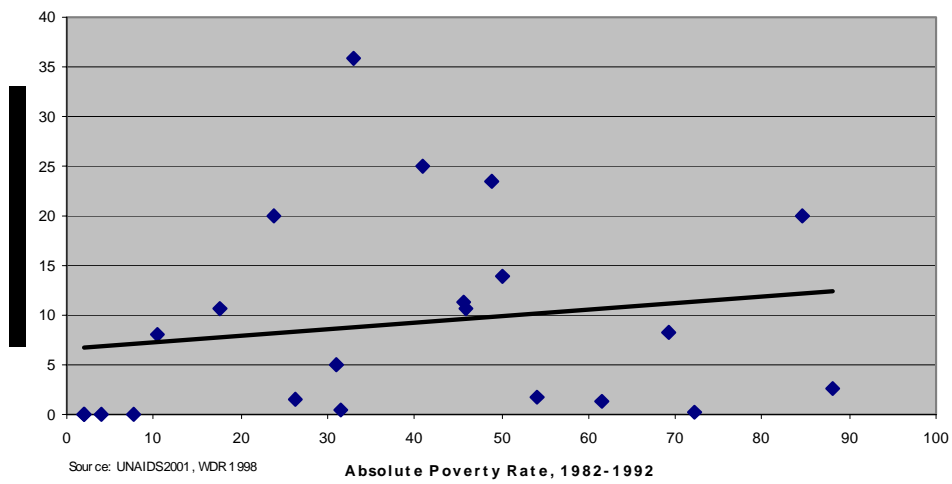
Figure 2c: HIV and the Gini Index, Asia



**Figure 3a: HIV and the \$1/Day Absolute Poverty Rate, World**



**Figure 3b: HIV and the \$1/Day Absolute Poverty Rate, Africa**



**Figure 3c: HIV and \$1/Day Absolute Poverty Rate, Asia**

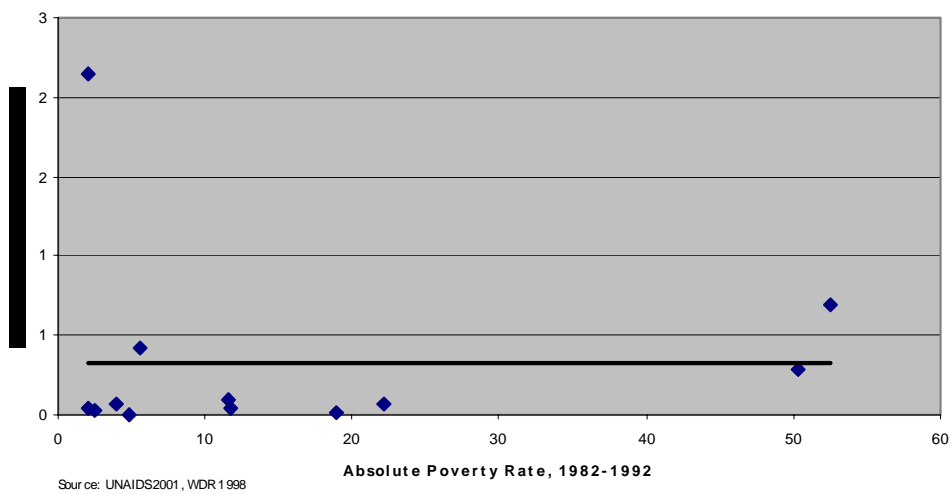


Figure 4a: HIV and the Human Poverty Index, World

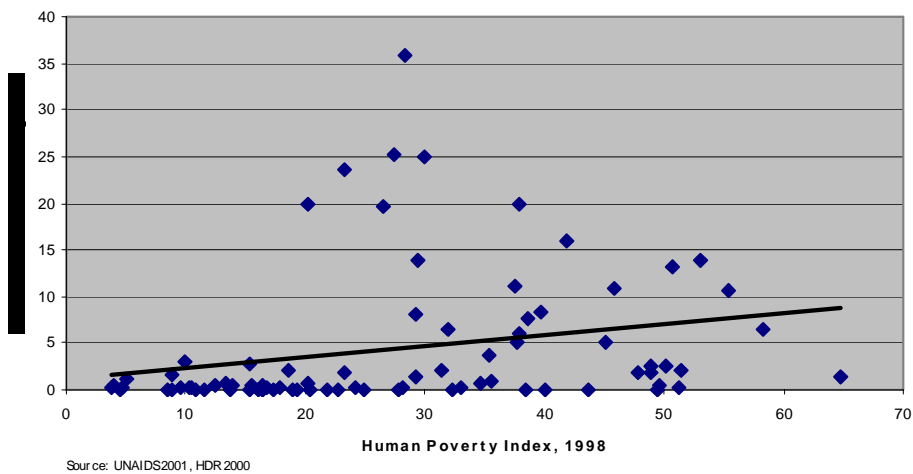


Figure 4b: HIV and the Human Poverty Index, Africa

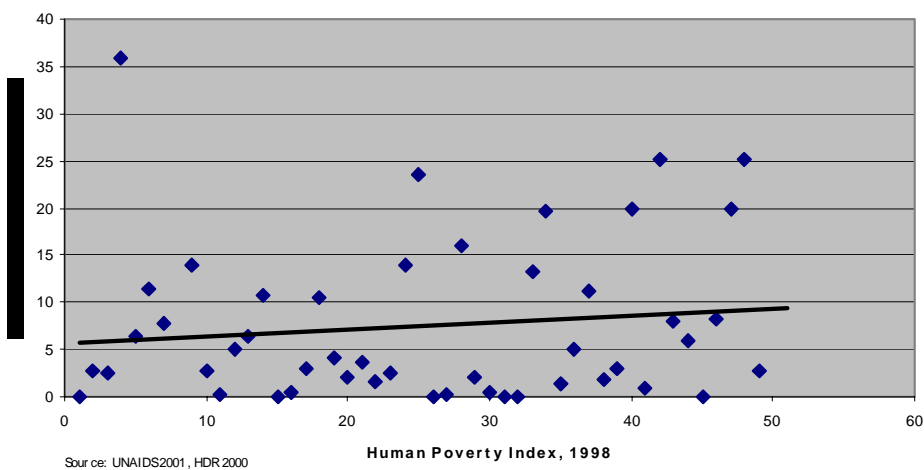
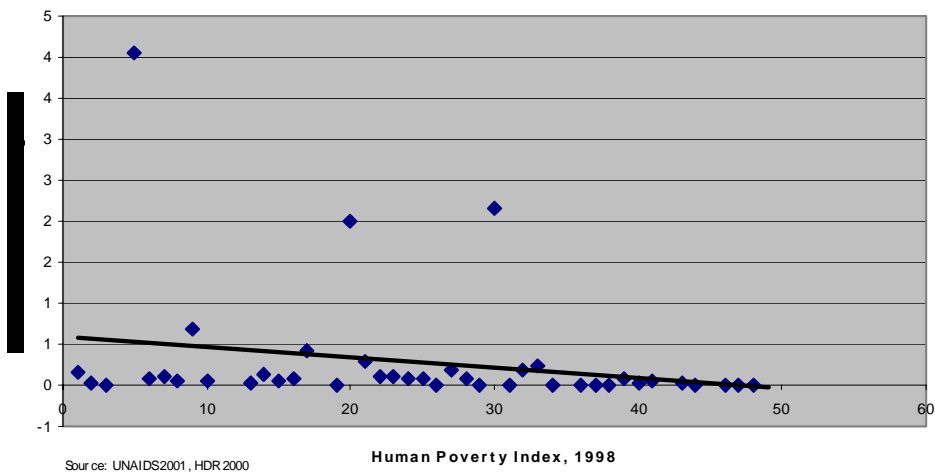


Figure 4c: HIV and the Human Poverty Index, Asia



## Appendix 2 – Variations in risk factors for HIV by wealth quintile: results from the Cambodia Demographic & Health Survey, 2000

### A. Analysis

The year 2000 round of the Cambodia Demographic and Health Survey is a nationally representative sample of 15,557 women of child-bearing age (15-49) and the households to which they belong. It includes information on demographic characteristics, asset holdings, and reproductive health. The last category includes information on reproductive histories, practices and beliefs, including some related to AIDS.

We use information on household asset holdings to construct a measure of wealth that can be used to classify households by wealth quintile following a method based on principal components analysis proposed by Pritchett and Filmer (1998). Notes on this method are in section B of this appendix.

The following table show how AIDS related behavior and knowledge vary by wealth quintiles (Q1 is the poorest and Q5 is the wealthiest). Each row in the tables represents the fraction of the sample with non-missing data who answer "yes" to the given question. The fractions are shown for each quintile and for the total sample. The last column gives the p-value of a Pearson chi-squared test of whether the proportions in each row vary systematically across quintiles. All estimates have been adjusted for sample weights. Standard errors for these proportions that have been adjusted for clustering were computed but omitted from the table.

	Q1	Q2	Q3	Q4	Q5	Total	p. val.
Has had intercourse, age 15-19	0.148	0.121	0.144	0.140	0.102	0.127	0.043
Has had intercourse, age 20-24	0.607	0.574	0.595	0.583	0.437	0.548	0.000
Has used modern contraception (s)	0.192	0.250	0.259	0.304	0.414	0.295	0.000
Spoken with spouse about avoiding AIDS	0.542	0.649	0.667	0.723	0.846	0.705	0.000
Wants to be tested for AIDS	0.292	0.241	0.275	0.275	0.328	0.285	0.000
Knows where to get tested for AIDS	0.080	0.105	0.107	0.131	0.382	0.174	0.000
Knows AIDS-preventive benefits of condom use	0.469	0.548	0.640	0.693	0.838	0.664	0.000
Visited by FP worker in last 12 months	0.361	0.347	0.404	0.406	0.262	0.352	0.000
Visited health facility in last 12 months	0.111	0.117	0.141	0.144	0.202	0.148	0.000
At health facility, was told about FP	0.556	0.587	0.592	0.537	0.575	0.572	0.789
Knows source of FP	0.399	0.480	0.535	0.546	0.739	0.559	0.000

(s) sexually active subsample

## B. Notes on the construction of wealth quintiles

Our purpose is to assess whether behaviors and beliefs that may be risk factors for HIV vary systematically by socio-economic status. Since the DHS surveys only contain information on asset holdings, but not on expenditures, income, or consumption, socioeconomic status (SES) must be defined in terms of wealth. To construct an index of wealth, we follow the strategy proposed by Pritchett and Filmer (1998). The DHS contains information indicating whether households own or possess certain assets. Thus a household's collection of assets can be represented by an n-vector, where n is the number of assets being considered, and each element of the vector is a 1 if the household possesses that asset, and 0 otherwise. This vector is standardized by taking each individual indicator, subtracting its sample mean, and dividing by its sample standard deviation. The asset index is a weighted average of the individual elements in the standardized vector where the weights are chosen to maximize the variance of the resulting weighted average in the sample. Intuitively, doing so allows us to compute a scalar weighted average which parsimoniously "explains" as much variation in the n-dimensional asset vector as possible, akin to maximizing the explained sum-of-squares in regressions, though of course in this case, there is no dependent variable! Technically, this is called principal components analysis. We assign households to wealth quintiles on the basis of this index. Quintile 1 is the poorest and quintile 5 is the wealthiest.

In our case, the n-vector representing a household's wealth has n=36 indicators for whether it has each of the following:

electricity	car	own toilet w/ sewer/tank	private piped water	rain water source	other floor
radio	phone	own toilet w/o sewer/tank	public piped water	surface water source	plastic roof
tv	sewing machine	shared toilet	private well water	finished floor	natural roof
fridge	boat	trad. latrine	public well water	earth/sand/clay floor	iron/alum. roof
bicycle	motor boat	mod. latrine	tanker water source	wood floor	cement/concrete roof
motorcycle	oxcart	no toilet	bottled water source	houseboat	other roof

We assume economies of scale and do not adjust household wealth for household size. A woman's wealth quintile is simply the wealth quintile of the household to which she belongs.

### Reference:

Filmer, D. and Pritchett, L. 1998. Estimating wealth effects without expenditure data or tears: an application to educational enrollments in states of India. World Bank Policy Research Working Paper 1994. Washington, D.C.: Development Economics Research Group, The World Bank.

### Appendix 3 – Variations in risk factors for HIV by wealth quintile and educational attainment: results from a multivariate logit analysis of Demographic & Health Survey data from Vietnam and Cambodia

This section contains the results of logit regressions that measure variations in risk factors for HIV by wealth quintile and educational attainment using DHS data from Vietnam and Cambodia. Sections A and B contain results for Cambodia and Vietnam respectively.

Each row in the tables represents a logistic regression. The first column lists the dependent variable in each regression. Each of the dependent variables is binary. All regressions include dummy variables for wealth quintile (constructed using the methodology described in Appendix 2, section B), educational attainment, and 5-year age categories, as well as a constant. The educational categories are: no education, some primary education, completed primary education, some secondary education, completed secondary education, and higher education respectively. Results are presented in terms of odds ratios and their standard errors, adjusted for sampling weights and clustering. To simplify the tables, we only present the odds ratios for the wealthiest quintile, women with completed secondary schooling, and women with higher education. Empty cells in the table imply that the corresponding column variable is a perfect predictor of the dependent variable.

#### A. Cambodia

Var	Wealthiest quintile	Completed secondary schooling	Higher education
has access to condoms (s)	5.230 (1.711)***		
sexually experienced, aged 15-24	0.649 (0.091)***	0.439 (0.139)***	0.288 (0.131)***
knows about modern contraception	4.269 (0.708)***	5.144 (3.355)**	
has used modern contraception (s)	2.613 (0.266)***	0.595 (0.157)**	0.555 (0.316)
knows of AIDS-preventive benefits of condom use	3.846 (0.449)***	6.258 (1.961)***	5.868 (3.414)***
has spoken to spouse about trying to avoid AIDS	3.414 (0.393)***	4.467 (3.029)**	10.853 (11.280)**
been tested for AIDS	16.205 (7.982)***	5.536 (1.762)***	4.971 (2.352)***
wants to be tested for AIDS	1.014 (0.098)	1.775 (0.349)***	1.372 (0.444)
knows where to be tested for AIDS	4.184 (0.578)***	10.861 (2.471)***	28.918 (12.215)***
respondent has some say on contraception	0.570 (0.217)	0.525 (0.445)	
spouse ever pushed, shook, or thrown object	0.621 (0.164)*		9.120 (11.944)*
spouse ever slapped or twisted arm	0.604 (0.153)**		8.450 (11.417)
spouse ever forced sex	0.582 (0.245)		

(s): sexually active sample

B. Vietnam

	Wealthiest quintile	Finished secondary schooling	Higher education
knows about modern contraception		14.427 (16.621)**	
has ever used modern contraception	1.302 (0.367)	2.595 (0.804)***	2.484 (1.428)
knows of AIDS-preventive benefits of condom use	2.684 (1.157)**	3.462 (2.231)*	6.455 (4.684)**
used condoms in last intercourse	6.612 (3.098)***	0.874 (0.610)	2.403 (1.892)
has access to condoms	2.173 (0.770)**	15.313 (8.500)***	34.143 (36.623)***

## Section C: Discussion

Both Cambodian and Vietnamese data suggest that there are strong correlations between wealth and education on the one hand, and reduced risk for HIV on the other. What is more, wealth and education have independent effects in the sense that increased wealth reduces risk of HIV even after controlling for education, and vice-versa. Hence wealth and education are not proxies for each other.

More specifically, the Cambodia logits show that women from the wealthier quintiles have more access to condoms than those from poorer ones. The odds ratio for a woman from the wealthiest quintile (relative to a woman from the poorest) is 5.2. And everyone with at least a completed secondary education has access to condoms. In Vietnam, the corresponding odds ratio for the wealthiest quintile is 2.17. And for those with completed secondary schooling and some higher education, the odds ratios are 15.3 and 34.1 respectively, relative to women with no schooling.

With respect to knowledge about the benefit that condom use brings in reducing AIDS risk, the Cambodia data show that the odds ratio for women from the wealthiest quintile is 3.8, and for women with completed secondary and at least some higher education are 6.2 and 5.8 respectively. In Vietnam, the corresponding numbers are 2.6, 3.4, and 6.4.

Lastly, with respect to knowledge and use of modern contraception in general: in Cambodia, the odds ratio for women in the wealthiest quintile knowing about contraception is 4.2, while everyone with at least some higher education knows about modern contraception. In Vietnam, the pattern is even clearer: everyone from the wealthiest quintile and the highest educational attainment knows about modern contraception. With respect to ever having used modern contraception, the Cambodia results are a little puzzling. Despite the fact that the odds ratio of a woman from the wealthiest quintile having used modern contraceptives is 2.6, the odds ratios for women with at least completed secondary schooling hover at around .5. In contrast, the corresponding numbers for Vietnam are 1.3 for women from the wealthiest quintile, and roughly 2.5 for women with at least completed secondary schooling.

In conclusion, both Cambodian and Vietnamese data broadly suggest that wealth and education are positively correlated with better knowledge and behavior. They also suggest that wealth and education have independent effects, so one is not simply a proxy for the other. For the most part, the sizes of the correlations are roughly the same in Vietnam and Cambodia, though there are some instances when these effects seem considerably bigger for Vietnam than for Cambodia. For example, the effect of education on knowing about modern contraception is much larger in Vietnam: the odds ratio for someone with completed secondary education is 14.4 for knowing about contraception. In Cambodia, the corresponding number is 4.1.