

Health, wealth, AIDS and poverty – the case of Cambodia¹

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Introduction

This paper explores the nature of the HIV/AIDS epidemic in Cambodia, its impact on the country's development and its effect on the 40 percent of Cambodians who live below the poverty line. It views AIDS within a wider health context, and explores the socio-economic factors that underlie both the epidemic's development and the shape of the country's response. Finally, it examines Cambodia's options going forward, arguing that future responses will be needed along three tracks – those specific to AIDS; those specific to health; and those with a broad development focus.

Part 1: Health in Cambodia

Health standards in Cambodia are poor, as might be expected from its inadequate standards of human development. It ranks 121st in the human development index, ahead of only Laos and Bangladesh within Asia. It has a life expectancy at birth of only 56.4 years (of which only 85 percent are likely to be healthy⁵) and unexceptional levels of educational attainment, with an adult literacy rate of only 71 percent. Arguably, Cambodia's economic indicators are even worse than its human development ones. GDP is only US\$1,361 per capita, ranking thirteen places *below* its human development index.⁶

Like many of its other problems, Cambodia's poor health is a reflection of a history of conflict, which stretches back for half a century. Over this period, Cambodia has, at times, been exceptionally open to outside influence; at others, it has existed in almost total isolation. The health system was largely disassembled by the Khmer Rouge, with Cambodians having, at best, access to facilities run by untrained staff.⁷ During the period 1975-1979, when there was also a serious famine, around 1 in 4 children died before reaching the age of 5, while ill health, malnourishment and overwork were the primary causes of death of the large numbers of adults who died prematurely.

Rapid health improvements followed the ousting of the Khmer Rouge by the Vietnamese army in January 1979. There is worrying evidence, however, that these are not being sustained. Under-five mortality dropped by around a third in the early 1980s to approximately 133 per 1000 live births. There was a more gradual improvement during the rest of the decade, to around 119 per 1000 live births, but the figure is now believed to have worsened to around 125 per 1000 live births. Infant mortality has shown a similar pattern, with rates now thought to be around 6 percent higher than their low point.⁸ Recent data also

⁵ World Health Organization, World Health Report 2000.

⁶ Human Development Report 2001. Ministry of Planning (1999): Cambodia Human Development Report. Ministry of Planning. Cambodia.

⁷ According to a study of the village Prasath, in the Kompong Speu province: "the Khmer Rouge set up a 'hospital' at the Pongro pagoda building a few km away staffed by inexperienced and untrained doctors. Villagers had many jokes to tell about the medicines offered there. They were of the opinions that these medicines were prepared by the doctors themselves using coconut water and palm sugar, among other things. People referred to these medicines as *thnam arch tonsay* (rabbit-dropping medicine) because of their appearance." The study also points out that villagers were afraid to admit they were sick, in case they were killed by the Khmer Rouge for faking illness. Krishnamurthy, Veena (1999): The Impact of Armed Conflict on Social Capital- A Study of Two Villages in Cambodia. Social Services of Cambodia. Cambodia, March.

⁸ These data are taken from the Cambodia Demographic and Health Survey 2000 (CDHS 2000). They rely on women's recollection of the sex, month and year of birth of their children, as well as their current age or date of death. The data is therefore likely to be less reliable for events further back in time. However, the data is supported by the 1998 National Health Survey (NHS 1998) and the 1998 Census. At all data points, CDHS 2000 shows slightly higher levels of mortality than NHS 1998. Given that events in the recent past are likely to be well remembered, this suggests that CDHS is likely to be more accurate. Most important, however, is that the trend is the same in both datasets, with indicators of infant and under five mortality worsening.

suggests that childhood vaccination rates are lower than previously believed, although this may well be due to over-reporting than any deterioration in this indicator.⁹

It is not currently possible to determine why some health indicators are deteriorating, but it is likely that economic pressure, especially in rural areas, and the highly unsatisfactory state of Cambodia's health systems are at least partially responsible. While the Khmer Rouge effectively outlawed money and the subsequent Vietnamese-backed regime emphasized equality, the rural economy has become increasingly cash-based, with high levels of debt, chronic rice shortages in 17 percent of communes,¹⁰ and a growing gap between those who are increasing their land holdings and those who are becoming landless. According to an Oxfam survey, 13 percent of families in rural Cambodia are now landless, with half of these believed to have lost their land in the last two decades.¹¹ Landlessness is also believed to be increasing rapidly. Some studies, meanwhile, claim that social capital has been harder hit by the rise of the cash economy than it was by years of conflict.¹² Access to common property resources has declined,¹³ while exchange of labour is believed to have become less common.¹⁴ Meanwhile, the new economic structures are weak, with poorly functioning markets, inadequate use of technology, degraded infrastructure, and lack of credit all posing problems.¹⁵ It is unsurprising if the growing vulnerability of large numbers of people, at a time of rapid economic change, has had a negative impact on health standards.

The Cambodian health system is, itself, increasingly cash dependent. Cambodians privately spend US\$30 per head per year on health, compared to government expenditure of around US\$1.¹⁶ This extraordinary situation has two main causes. First, access to the health system is severely limited, especially outside urban areas. Only 53 percent of the population are thought to have adequate access to health care services, with the average village 3 km from the nearest public health care clinic.¹⁷ As a result, most Cambodians look in three directions for front-line medical care. All involve expense for treatment that is seldom effective:

- Legal and illegal pharmacies are probably the main source of health care in Cambodia. They offer widespread access to drugs, many of which are unavailable “over-the-counter” in developed health systems. Drugs are often prescribed without diagnosis and the patient often (if not usually) leaves with the wrong medication, the wrong dosage, the wrong usage instruction – or all three.
- Traditional healers appear to be the next most important providers of health services. These services can be expensive, especially due to the belief that different treatments

Cambodia Demographic and Health Survey 2000 Preliminary Report. MEASURE DHS+, ORC Macro. Calverton, Maryland, US, November.

⁹ Cambodia Demographic and Health Survey 2000

¹⁰ The United Nations World Food Programme (2001): Identifying Poor Areas in Cambodia- Combining Census and Socio-Economic Survey Data to Trace the Spatial Dimensions of Poverty. The United Nations World Food Programme. Phnom Penh, February.

¹¹ Oxfam GB; (2000): Cambodia Land Study Project; Oxfam & Ministry of Health; 26 July 2000

¹² Krishnamurthy, Veena (1999): The Impact of Armed Conflict on Social Capital- A Study of Two Villages in Cambodia. Social Services of Cambodia. Cambodia, March.

¹³ Royal Government of Cambodia; (2000): Interim Poverty Reduction Strategy Paper - Draft for Discussion; 2 September 2000

¹⁴ Nishigaya, Kasumi (Advisor on Gender and Development Japan International Cooperation Agency) (1999): Poverty, Urban Migration and Risks in Urban Life Labour Seminar: Empowerment of Garment Factory Workers. Japan International Cooperation Agency. Tokyo.

¹⁵ Royal Government of Cambodia; (2000): Interim Poverty Reduction Strategy Paper 2000

¹⁶ WHO (2000): WHO Country Cooperation Strategy: Cambodia

The Who country Cooperation Strategy (CCS) defines the broad framework for WHO's work with the Royal Government of Cambodia for 2001 – 2005. WHO. Cambodia.

¹⁷ Royal Government of Cambodia; (2000): Interim Poverty Reduction Strategy Paper 2000

should be tried until a cure is finally achieved, although many traditional practitioners do charge according to the patient's perceived ability to pay.¹⁸ For serious illnesses, traditional medicines are unlikely to have more than a marginal impact on the eventual outcome.

- Private medical practitioners and facilities are also thought to rarely offer a cost-effective service. According to the World Health Organisation (WHO), efforts to tackle the problem of poor quality and exploitative health care have currently been limited. Although legislation has been passed, there is no capacity for implementation.¹⁹

The second cause of high levels of private expenditure on health is that supposedly free public health services are seldom what they seem. Cambodian public servants – including health workers – are paid a wage that is below subsistence levels. Unofficial charges, or bribes, are therefore levied throughout the system. One hospital, funded by an overseas NGO, prides itself on being corruption-free. It has only achieved this, however, by paying its staff what they would earn in salaries *and* unofficial payments if they worked at a public hospital.²⁰ Widespread corruption, of course, is a major reason why public levels of trust in the public health system (and in state action more generally) are reported to be low.²¹ It is also the result of a seldom-mentioned link between poverty and health, as the poverty of those *providing* health care results in a degradation of the health system. As well as accepting bribes, many full-time health workers also work full-time in private practice, or have jobs that are unrelated to their professional qualification.

Economic hardship and poor quality health systems interact with each other, of course. Poor health increases poverty:²² a 2000 study commissioned by Oxfam found that 44.6% of the landless in Cambodia had lost their land due to serious illness of a single family member.²³ This poverty increase forces many people from the labour market, having an especially severe impact on the arduous pursuit of rice farming. It also results in children, especially girls, being withdrawn from school to act as carers or to help with income generation. The poverty-health interaction is even stronger in the reverse direction, with medical care accounting for around 30 percent of *all* household expenditure,²⁴ and an inability to respond to major illness is probably the most important cause of vulnerability for Cambodian families. In order to meet health expenses, families are forced to borrow and, ultimately, to sell their assets. The sale of major assets often comes at the end of a cycle of increasing indebtedness, with families borrowing at high rates of interest in order to buy drugs. Finally, economic hardship encourages short or long-term migration. This has long increased vulnerability to malaria, as people move from areas with little malaria to those where it is common.²⁵ However, it is with the advent of HIV/AIDS that the potential for interaction between disease and migration has been most fully realised in Cambodia.

¹⁸ Collins, William (2000): *Medical Practitioners and Traditional Healers- A Study of Health Seeking Behaviour in Kampong Chhang, Cambodia*. Centre for Advanced Study. Phnom Penh, Cambodia, January.

¹⁹ WHO (2000): *WHO Country Cooperation Strategy: Cambodia*

²⁰ Meet the Professor, Robert Colebunders, *Anti-retroviral Therapy in Resource Poor Settings*, Saturday, 7 April 2001 Sunway Hotel, Phnom Penh, Cambodia. Sihanouk Hospital / Prince Leopold Institute of Tropical Medicine. Cambodia.

²¹ USAID/Cambodia 2001, for example, reports that sick children are not taken to receive medical advice from health centres on account of the poor standard of treatment available, while *Voices of the Poor* provides an international perspective on how strong a disincentive corruption is to the use of health systems by poor people.

²² For a full discussion of this link, see Bloom, David, and David Canning. 2000b. "The Health and Poverty of Nations: From Theory to Practice." Paper presented to the WHO Commission on Macroeconomics and Health, November.

²³ Oxfam GB; (2000): *Cambodia Land Study Project*; Oxfam & Ministry of Health; 26 July 2000

²⁴ WHO (2000): *WHO Country Cooperation Strategy: Cambodia*

²⁵ Krishnamurthy, Veena (1999)

Part 2: AIDS in Cambodia

HIV was first detected in Cambodia in 1991, with 2.8 percent of Cambodians now HIV positive, the highest prevalence rate in Asia.²⁶ The genesis of the epidemic reflects the strengths and weaknesses of Cambodia's rapidly developing society. As Cambodians have attempted to respond, meanwhile, the interaction between epidemic and society has become two-way and increasingly complex.²⁷

The roots of the Cambodian HIV/AIDS epidemic can be found in the country's emergence from the relative isolation of the Vietnamese-backed Heng Samrin government. The United Nations Transitional Authority in Cambodia (UNTAC) arrived in the country in March 1992 to ensure the implementation of the Agreements on the Comprehensive Political Settlement of the Cambodia Conflict, signed in Paris on 23 October 1991. It was granted full authority by the Cambodian Supreme Court to govern the country and continued in this role until the end of its mandate in September 1993, when it handed over authority to the new democratically elected government, operating under a new constitution.²⁸ The United Nations operation involved approximately 22,000 military and civilian observers. During this period, large numbers of refugees were re-settled, the Cambodian economy (especially in Phnom Penh) experienced a boom, and there was significant (and ongoing) market liberalisation through an IMF-inspired Structural Adjustment Programme.²⁹ The sex industry also grew explosively, fuelled by foreign peacekeepers (a high percentage of whom admitted contact with sex workers) and newly-prosperous Cambodians with money to spend. The economic development was uneven, however, with uneducated rural women benefiting least. As a result of this, a plentiful source of supply was created to meet the growing demand for commercial sex.³⁰

The Cambodian HIV epidemic is fuelled primarily by heterosexual sex, with injecting drug use and sex between men relatively minor factors. In 2000 there were 72,000 adult women and 87,000 adult men living with HIV, with prevalence rates among different groups showing wide variations: 31.1 percent of direct commercial sex workers (those who work in brothels) were found to be infected in the latest sentinel survey, compared to 16.1 percent of indirect sex workers (who usually have other jobs, but also sell sex) while 3.1 percent of police officers, and 2.3 percent of pregnant women at ante-natal clinics were also reported to be living with the disease. Prevalence rates are currently dropping, however. There were 210,000 people living with HIV in 1997, compared to 169,000 in 2000, indicating that more people are now dying of the disease each year than are becoming infected. Rates have fallen among almost all sentinel groups and most rapidly among the most high-risk groups. This is probably the result of information campaigns on the dangers of AIDS and the growing use of condoms, especially the socially marketed No 1 condom, of which over 1.3 million are now sold each month.³¹ The 100% Condom Use campaign, which has been piloted in two provinces, will soon be launched nationally. It is a more sophisticated version of the pioneering Thai campaign and aims to ensure that condom use is universal in brothels. It can be expected to continue to drive down prevalence rates in both the direct and indirect commercial sex industries.

²⁶ UNAIDS (2000).

²⁷ For a full discussion, 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"

²⁸ Cambodia – UNTAC. Department of Public Information, United Nations. 31 August 1996. See: <http://www.un.org/Depts/DPKO/Missions/untac.htm>

²⁹ Nishigaya, Kasumi (1999)

³⁰ Godwin, Peter, Wantha, Seng Suth, Vun, Mean Chhi: The HIV/AIDS Epidemic in Cambodia: the Contribution of the Health Sector; Espace, Populations, Societies, 2000-2

³¹ UNAIDS (2001): Country Profile- The Situation and the Response in Cambodia (4th Edition). UNAIDS.

As the epidemic matures, serious questions are being asked about the extent to which HIV will continue to “bridge” into the general population. James Chin’s influential work on the epidemiology of the epidemic in Asia suggests that such spread will be limited in countries where a limited pool of sex workers provides the majority of extra-marital sex to a limited number of clients, and multiple partnering is uncommon. In these circumstances, even if a client infects his wife, the wife will have very limited opportunities to spread the disease (except to her children) while she confines her sexual activity to her marriage. Attention is therefore focusing on various bridging groups, who have sex with both high and low risk groups, and the potential they have to propel the epidemic beyond the epidemiological dead ends described by Chin. Perhaps the most important of these groups are garment factory workers, who are typically young females who have migrated from rural areas to find work. Cambodia’s garment manufacturing industry has grown explosively since 1996, when Cambodia achieved Most Favoured Nation Status from the World Trade Organization and Generalized System of Preference status from the USA, which allowed it favourable trade access to many world markets. The industry has since received substantial foreign direct investment (FDI), mainly from other Asian investors, with 72,573 people employed in the industry in 1999, of whom 80 percent are women.³² Most of these women are under the age of 30, and most had left rural areas for the job, because of lack of opportunities in their villages or the inability of their families to support them.³³

The crucial question for this group is to what extent a change in economic situation would influence a change in sexual behaviour. Clearly, garment factory workers live quite different lives from those they would have lived in their villages. Even though they are only paid meagre wages, out of which many remit considerable amounts to their families, the women have unprecedented access to cash and report this as the most important positive factor in their new lives. Even remitting cash to their families helps increase their status and improves their self-esteem. While some women live with relatives who have helped them find work at the factories, many live in collective dormitories, encouraging a measure of cross-generational identification that would have been highly unusual in their places of origin. Many of the women have regular sex partners, with most taking about six months to strike up a relationship in a gradual process that starts with meeting men in groups. Some of the women are sexually active, hiring cheap rooms by the hour in order to ensure privacy. These signs of a minor sexual revolution are made worrying by low levels of understanding of the risks of sex, at least as reported by the 1999 study.³⁴ Although most of the women interviewed had heard of AIDS, they tended to think that the disease was only a problem for ‘prostitutes and clients of brothels’ and had little awareness of the extent of the epidemic, or the risk they themselves faced. They had barely any knowledge of other sexually transmitted diseases (STDs).

³² Nishigaya, Kasumi (1999)

³³ Nishigaya, Kasumi (1999)

³⁴ According to BSS 1997 (First Round): “Little is known in Cambodia about types of sexual partnerships that are non-marital and non-commercial... The norms about sexual behaviour for unmarried women describe an expectation that women have only formal partnerships such as fiancé or a husband. In the study mentioned above, however, young urban women reported having “sweethearts” and “lovers” with whom they are sexually active.” The BSS found that 15.9 percent of working women had ever had a sweetheart, with 8.9 percent of women having one in the last year. 24.3 percent of single men had had sweethearts in the past year. According to the BSS 2000, there is little agreement among researchers as to what actually constitutes a sweetheart: “The meaning of sweethearts in Cambodia is still not understood; therefore, it is not clear if these are casual partners or pre- or extra-marital partners.” It only studies men, finding that 66 percent of men report ever having a sweetheart, with 40 percent of these men having had sex with their sweetheart. Only 10 percent of men reported having a sweetheart in the past year. Clearly, this is an area in which further research is needed. However, suspicions that some kind of sexual revolution is underway seem justified, especially when matched against the claim from an anthropological study cited in BSS 1997: it is “unthinkable in the Cambodian cultural context for there to be open sexual relationships, apart from the episodic acts with sex workers, between young couples.” Gorbach, Pamina M. (1997): The Cambodian Behavioural Surveillance Survey, First Round. Cambodia Behavioural Surveillance Study Team. Cambodia.

The rapid progress of the Cambodian HIV epidemic – seemingly from first case to maturity in only 10 years – poses difficult challenges for those working to combat it. However, successful efforts are being made to further drive down rates of infection, even though a certain level of infection will inevitably persist in the absence of a vaccine or a rapid, cheap cure with few side effects. In addition, even as HIV prevalence declines, the number of AIDS cases will continue to increase. As Peter Godwin, Seng Suth Wantha and Mean Chhi Vun predicted in 1999: “At some time in the next decade the incidence of HIV will start to decrease; that means fewer and fewer people will become infected: the epidemic will stop spreading. This will partly be due to the success of programmes to prevent the spread of HIV, partly due to the natural epidemiology of the disease, and partly due to changing socio-economic conditions. Soon after this the prevalence of HIV will first plateau, and then start to decrease; there will slowly be fewer and fewer infected people. By this time the focus of the national response will have to change: it will no longer be focused only on preventing the spread, because this will have been achieved. It will be focused on mitigating the impact; for this will be the next challenge.”³⁵

Part 3: The poverty-AIDS link in Cambodia

Recent Demographic & Health Survey (DHS) data from Cambodia, the country with the most advanced epidemic in Asia, clarifies the extent to which Asia’s poor are at greater risk of HIV infection.³⁶ The DHS surveys a nationally representative sample of women of child-bearing age and the households they belong to about demographic characteristics, household structure, educational attainments, and many aspects of reproductive health, including histories, behaviours, and knowledge. It also contains a survey module of questions about AIDS and other sexually transmitted diseases. It therefore contains a wealth of valuable information on these women's behaviour and knowledge that bear on their possible risk and exposure to the epidemic. An analysis of systematic variations in survey responses by socio-economic status is instructive:

- Among young women aged 15-19, those from the poorest households are 50% more likely to be sexually experienced, and therefore at higher risk of HIV than those from the wealthiest
- Though most women know about condoms and have access to them, women from the wealthiest households are twice as likely to practise safe sex and almost twice as likely to know of the AIDS-preventive benefits of condom use than those from the poorest
- Although 30% of all surveyed women 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
- Wealthier women are more exposed to the media (TV, radio and press) than poorer women
- Wealthier women are less mobile, and therefore at a lower risk for HIV infection, than poorer women
- Married women from the wealthiest households are more than 50% more likely to have spoken to their spouses about trying to avoid AIDS than their counterparts from the poorest households

Education is also positively correlated with better knowledge and less risky behaviour. Analysis of DHS data from Vietnam shows similar correlations between wealth and education on the one hand, and sexual behaviour and knowledge about HIV/AIDS on the other. Both Cambodian and Vietnamese data broadly suggest that wealth and education are positively correlated with reduced risk factors for AIDS, in particular through higher condom use and greater knowledge of its AIDS-preventive benefits.

³⁵ Godwin, Peter, Wantha, Seng Suth, Vun, Mean Chhi: The HIV/AIDS Epidemic in Cambodia: the Contribution of the Health Sector; Espace, Populations, Societies, 2000-2

³⁶ Demographic & Health Survey Data, Macro International. 2001

The poor, therefore, do appear to be at greater risk of HIV infection than wealthier segments of Cambodian society. While there is at present little evidence that this risk is translating into higher HIV rates (more detailed studies are required to substantiate the link), studies from elsewhere in Asia suggest that the disease is likely to end up hitting the poor hardest (see companion paper for full discussion). Poverty reduction efforts, therefore, will increasingly have to take into account the potential impact of AIDS. In the next section, we discuss whether the impact of AIDS will affect the development prospects of Cambodia as a whole.

Part 4: The impact of AIDS

An analysis of the current and future impact of AIDS on Cambodia is made difficult by a paucity of data. A study by the United Nations estimates economic costs of around \$2 billion by 2006, based primarily on the number of adult workers who are likely to die of the disease.³⁷ The study, however, does not account for the possibility that many of these workers will be easily replaced in the labour force, so it may have over-stated costs. Other research has had little success in measuring the macro-economic impact in a country with an epidemic running at the level likely to be experienced by Cambodia over the next decade.³⁸

This does not, of course, mean that the impact of the epidemic will be negligible. First, AIDS will continue to contribute to Cambodia's generally poor health, while diverting resources away from solving other pressing health problems. The interactions between health and economic growth *are* significant, with Cambodia desperately needing to complete its demographic transition from high to low fertility and mortality if it is to prosper in the modern economy.³⁹ Large families in Cambodia are already significantly more likely to be poorer than small ones, and their children are more likely to experience poor health and to receive comparatively little education – critical indicators both for their and for the country's future prosperity. Evidence of significant unmet demand for contraception from Cambodian woman – and very recent efforts to meet this demand – suggests that family sizes are probably already starting to decline.⁴⁰ However, the experience of other countries suggests that perceptions of general improvements in health are decisive to parents choosing smaller family sizes. A growing number of people sick with AIDS in the general population will do little to aid such a perception.

Second, the epidemic is certain to increase poverty in households with a family member suffering from AIDS, with the disease having the potential to condemn even relatively comfortable households to abject poverty. The connection between ill health and landlessness has already been discussed and there is evidence that this connection is particularly strong when ill health is caused by AIDS. People with AIDS are frequently not tested for HIV and, if they *are* tested, both diagnosis and prognosis is commonly withheld. As a result, families make ruinous expenditure on health care, which they fund by selling assets or borrowing at high rates of interest, using assets as security. In one study of eight families in the province of Banteay Meanchey, only one patient was initially diagnosed with the disease, with most believing that the illness could be cured and two being advised by

³⁷ Study on Economic Costs of AIDS on Cambodia, Report by Charles Myers and Dr Sok Bunna, February 1999

³⁸ See the companion paper for a detailed explanation of this issue.

³⁹ For the boost favourable demographic conditions gave development in some Asian countries, see Bloom, David, David Canning, and Pia Malaney. 2000. "Demographic Change and Economic Growth in East Asia." Population and Development Review. For a full discussion of the interactions between health and development, see Bloom, David, and David Canning. 2000a. "The Health and Wealth of Nations." Science 287(February 18): 1207, 1209.

⁴⁰ Ministry of Health: National Centre for HIV/AIDS, Dermatology and STI: 100% Condom use in Cambodia: The Strategy

doctors working in the Western tradition that they should spend money on traditional remedies.⁴¹

In fieldwork conducted for this paper, a 38-year-old woman we interviewed had spent considerable sums of money on traditional medicine, suffering side effects that she believed had nearly killed her. She commented “AIDS is about being poor forever – about resources that are gone forever.” Another 38-year-old woman had borrowed money to fund health care because she had become unable to work. She reported paying 4 percent interest *per day*. A 37-year-old female, meanwhile, had spent US\$25 on the services of a traditional healer who advertises in the Phnom Penh media. She was forced to sell her house and now rents it from the person she sold it to. She is US\$26 in debt, roughly a month’s income. Even one wealthy woman, who works for an NGO, was reported to be spending *all* her relatively generous salary on health care. Such serious levels of poverty have a marked impact on the prospects of all members of the household, of course. One woman had withdrawn all but one of her children from school, in order that the eldest could work as a shoe-shiner.

It is hard to estimate the cumulative cost of this burden of care. Bunna and Myers estimate total hospital costs of US\$291 in 1999. However, Mike Merrigan suggests that this may be an underestimate, reporting families spending US\$50-US\$88 *per dose* of traditional medicine and US\$28-\$75 for a single dose of Western medicine.⁴² According to the World Health Organisation, 12,000 people are likely to seek care and support annually, with dramatically higher numbers of AIDS patients needing treatment within the health system over the next ten years. Clearly, without any response, the impact of such a number of people spending so much money will be great. However, there are already increasing efforts to provide cheap home care and there is potential for further effective response, with improvements in diagnosis and prognosis, combined with education for carers as to appropriate responses, helping to ensure that available resources are spent more widely. The possibility of attempting to ensure wide access to sophisticated drugs such as anti-retrovirals (ARVs) further complicates the situation.⁴³ Currently, ARVs are available in Phnom Penh pharmacies, though it is likely that they are rarely taken in anything that even approximates the recommended fashion (a failure that increases the risk of drug-resistant strains of the virus developing). Again, however, wider, but more carefully controlled, access to these drugs could have a positive impact, as the availability of effective treatment helps boost the country’s inadequate medical infrastructure.⁴⁴

The third area where AIDS could have a significant impact on Cambodia’s prospects is if it becomes a disincentive to general development efforts or if it makes some development measures less favourable to the poor. Cambodia’s Interim Poverty Reduction Strategy Paper, published in September 2000, notes that, while it is important to invest in rural areas where the majority of poor people live, urban investment to create productive employment for surplus rural labour must form part of any poverty reduction strategy.⁴⁵ At present, however, insufficient new jobs in urban areas are being generated to meet the needs of the many young people joining the labour market, with the result that more people are competing over the same amount of agricultural land. The government therefore strongly favours further urbanisation.

⁴¹ Merrigan, Mike (2001)

⁴² Monthly incomes ranged from \$20-\$75. Merrigan, Mike (2001)

⁴³ For a discussion of the issues surrounding access to AIDS treatment and care, see Bloom, David E. and River Path Associates. 2000. “Something To Be Done: Treating HIV/AIDS” Science, Vol. 288, 23 June 2000.

⁴⁴ Sihanouk Hospital Centre of Hope, Newsletter #45 March – April 2001; Phnom Penh, Cambodia

⁴⁵ Royal Government of Cambodia; (2000): Interim Poverty Reduction Strategy Paper - Draft for Discussion; 2 September 2000

Currently, AIDS is raising doubts about this policy. Economic migrants are among the most vulnerable to HIV. Away from their families, men are more likely to visit sex workers, while men and women are more likely to have sweethearts. Many are forced to return home if they become sick, thus further impoverishing the families they left home to support. Major infrastructure projects, funded by overseas donors, are open to similar criticism. Already, the Asian Highway (Route 5) is regarded as having the potential of massively increasing the risk of AIDS as it is improved and resurfaced. However, without improved infrastructure, it seems impossible that Cambodia will solve the many other problems it faces. Policies must therefore be developed that allow development programmes to proceed, but in ways that have positive, not negative, impacts on health.

Part 5: The response in Cambodia

The Cambodian government responded with relative speed to the AIDS epidemic, although its action was arguably not as decisive as Thailand's. Many donors have also been involved, with the huge donor interest in the country best seen as the second (and smaller) wave of support for the country's transition to a market economy. There is widespread respect for the government's pragmatism in its response and Cambodia has not suffered the same levels of official denial experienced by some African countries. Currently, donor, NGO and government voices within Cambodia are united in hailing a "paradigm shift," whereby AIDS is no longer seen as primarily a medical or public health issue, but is viewed as a multi-sectoral social problem.

Emblematic of this distinction is the confusing presence of two "national" AIDS bodies. The National Center for HIV/AIDS, Dermatology and STD (NCHADS) is situated within the Health Ministry; it is the older body and has responsibility for a "health" response to AIDS. The National Aids Authority (NAA), meanwhile, was created by political accident but has survived and is evolving into a cross-cutting body promoting (but not executing) action against AIDS across government. While the remit of the two bodies is clear, there is some hostility between the two organisations. Considerable progress will therefore be needed if they are to accept inevitable fuzzy areas where division of responsibility is unclear, and avoid competing for government and donor funds. Arguably, the onus is on the NAA, which is the newer organisation and must demonstrate the practicality and value-added of the multi-sectoral approach. The ADB is currently engaging in a capacity-building exercise within NAA and is helping develop the NAA's strategy. This is one of many new HIV/AIDS strategies and it remains to be seen whether the strategies will prove compatible and – most importantly – be amenable to implementation.

While much of the Cambodian response to the epidemic has been described as first rate, HIV/AIDS continues to expose *general* weaknesses in what is a very new social and governmental system. There are a number of key problems, of which none are specific to AIDS and only one of which is specific to health:

- Working with donors. The donors have offered much of value to Cambodia, although donor support brings its own problems. Historically, donors have been poorly co-ordinated, indulging in battles for territory, although there have been serious efforts to solve this problem⁴⁶. Donor attempts to move "upstream" have also had some unwelcome side effects, as donors fight to influence government strategy in order to increase their power, prestige and control. Most donors are committed to yielding influence to the government as it builds capacity with their help. However, knowing when and how to pull back has not proved easy.

⁴⁶ See, for example, UN Country Team (2001): Common Strategy 2001-2005- The UN country Team (UNCT) Supporting the National Response to the HIV Epidemic in Cambodia. UN. Cambodia, May.

- Endemic weakness in the health sector. The weakness of the health system has already been discussed. The health ministry has also been weak and has found it difficult to establish an agenda. Attempts to develop a sector-wide approach (where the government sets a strategy and then asks the donors, as one group, to fund it) have foundered. There is a growing feeling that the health ministry's weakness vis-à-vis the rest of the government is also a serious problem, as it is unable to catalyse a broad approach to the epidemic⁴⁷. There are some hopeful signs, however. A substantial World Bank health sector loan seems to have strengthened the Ministry, which has had considerable free rein in spending the money. Capacity generally seems to be increasing, if only centrally and among the higher echelons of government officials.
- General political weakness. Corruption is a major problem throughout Cambodian society, both "small" corruption as inadequately paid Civil Servants supplement their salaries⁴⁸ and "big" corruption, as the powerful skim off huge sums. A Public Sector Reform Programme has been agreed, which is mainly intended to pay fewer civil servants better salaries. The programme is unlikely to be implemented, however, at least until after elections in 2003. The public sector is bloated by the fact that many posts (including ministerial ones) are doubled up, with a representative from each of the two main political parties (CWP and FUNCINPEC) occupying each post. This highlights the ongoing cost imposed on Cambodia by its political divisions and should also remind all those working to combat AIDS that serious political upheaval presents perhaps the most serious risk of a significant increase in the prevalence of HIV and of poverty.
- Inadequate focus on rural areas. In the UNTAC period and beyond, disproportionate funds have been spent in Phnom Penh, with little evidence that the government is able to make any impact on the lives of its desperately poor rural citizens. Many villages had their social systems severely compromised by the Khmer Rouge-forced migrations and there is evidence that the move to a cash economy may be an even more severe challenge to rural social capital. Rural areas currently have no elected local government structure, totally inadequate education and health, and infrastructure that is either crumbling or has been made unsafe by land mines. Intensive donor-supported work attempting to improve local governance and NGOs are helping to build local capacity. However, much of the work is piecemeal and rural areas will be vulnerable to health, economic and natural resource shocks for years and probably decades to come.

Responses to these problems offer real challenges to those advocating a multi-sectoral approach. Should action to "fix" the health system be given priority over "vertical" interventions to address specific AIDS problems? To what extent can health specialists be effective when tackling general developmental issues? Is there a danger that a valuable focus on the epidemic *itself* will be lost, as a multi-sectoral approach grows ever wider? These questions will be addressed in the concluding section of the paper, as we explore the role of AIDS *within* health *within* development.

Part 6: AIDS *within* health *within* development

⁴⁷ The World Health Organisation has an opposing view of the strength of the Ministry of Health, stating in its Country Cooperation Strategy Paper that "The Ministry of Health is now acknowledged to be one of the strongest ministries." Ref. WHO (2000): WHO Country Cooperation Strategy: Cambodia
The Who country Cooperation Strategy (CCS) defines the broad framework for WHO's work with the Royal Government of Cambodia for 2001 – 2005. WHO. Cambodia.

⁴⁸ As the UK International development Minister, Clare Short, said to a recent House of Commons enquiry: "We should just have the humility to think, if we were an extremely lowly paid civil servant in a developing country, where your salary will not feed your family, you would take payments, you would have to. You cannot go home and say, 'Sorry, children, I'm a very moral person, there's no food tonight'" Ref International Development - Fourth Report of the House of Commons International Development Committee, 22 March 2001

There is growing consensus in development about the need for countries to adopt a balanced portfolio of policy options. 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*, for example, describes three partially overlapping spheres of policy development.⁴⁹ *Sphere One* covers integration into the global economy and the liberalisation of markets; *Sphere Two* addresses the needs for economic growth; and *Sphere Three* concerns sustainable human development. The framework argues that balance between these spheres can result in virtuous spirals of mutually reinforcing development. Uncontrolled liberalisation, however, can impose significant human development costs and often leads to disappointing economic growth. The absence of economic growth, meanwhile, tends to undermine the sustainability of human development gains and lead to political tensions that make maintaining liberal policies impossible.⁵⁰ Human development, meanwhile, is the ultimate end of all development programmes, while well-educated, healthy populations, and an effectively run democratic society, are vital to economic growth.

Given the turbulence of Cambodia's recent history, it is unsurprising that Cambodia displays distinct policy "lopsidedness", where action in one sphere has outstripped progress in one or more of the others. In Cambodia, the economy has been liberalized at great speed and, while there has been positive but not stellar economic performance, the country's human development indicators continue to be poor and may be even deteriorating as a direct consequence of liberal policies. According to the August 2001 International Monetary Fund (IMF) Country Report, donors are "cautiously supportive" of Cambodia's ongoing economic reform efforts. They report economic growth for 2000 of 5 percent, driven by strong activity in the garment and tourism sectors, and affected less than expected by severe flooding which damaged agricultural production. Inflation stands at 2 percent and the IMF predicts 6 percent growth for 2001, as well as agricultural recovery. It describes ongoing structural adjustment efforts and Cambodia's efforts to enter the World Trade Organization (WTO) and further liberalize its trade regime. "Trade liberalization..." it comments, "could have significant benefits, as Cambodia's preferential access can be used to generate export growth and investment from other countries."⁵¹

The news on human development is less encouraging, especially as troubles in the agricultural sector are likely to have a disproportionate impact on the poor. The IMF reports the government's commitment to fund increased social spending by cutting military expenditure and increasing the tax base. However it expresses concern over ongoing difficulties in the collection of trade taxes and non-tax revenue. It also notes the government's lack of capacity to allocate and spend money on public services, with slow spending in the early part of the year and "a rush of spending to meet budget targets for the social sectors." Finally the IMF mission to Cambodia stressed the importance of creating

⁴⁹ Bloom and Agosin, 2000. It is interesting to compare the Royal Cambodian Government's "Triangle Strategy." Agosin, Manuel and David E. Bloom. 2000. *Globalisation, Liberalisation, and Sustainable Human Development: Analytical Perspectives*. Draft. Geneva: UNCTAD.

According to the Interim Poverty Reduction Strategy Paper, "the first side of this strategic triangle is building peace, restoring stability and maintaining security for the nation and people. The second side of the strategic triangle is Cambodia's integration into the region and normalization of our relationships with the international community. This will allow Cambodia to attract more foreign assistance and Foreign Direct Investment (FDI) to support our ultimate objectives of development... The third side of the Government's strategic triangle is to promote development based on the favourable conditions created by the implementation of the policy directions mentioned earlier. The Royal Government of Cambodia (RGC) is conscious that promoting sustainable growth and poverty reduction is inextricably linked to reforms."

⁵⁰ Bloom, David E., and River Path Associates. 2000. "Social Capitalism and Human Diversity", in *The Creative Society of the 21st Century*. Organisation for Economic Cooperation and Development (OECD), Paris.

⁵¹ International Monetary Fund (2001): Third Review Under the Poverty Reduction and Growth Facility. IMF. Washington, July 3.

more effective mechanisms for spending money on health and education, as a sign of the government's commitment to comprehensive public expenditure reform.

The IMF's concern about Cambodia's human development performance should be shared by *all* Cambodian policy-makers, and not just those working in ministries with a direct human development remit. According to one study, around a third of countries displaying human development lopsidedness eventually moved towards virtuous spirals, with positive feedback between economic and human development. The other two thirds saw economic stagnation gradually start to erode human development gains. In contrast, however, none of the countries that showed the "economic growth lopsidedness," that Cambodia is beginning to display, moved to virtuous spirals.⁵² The lesson that growth is rarely sustainable, unless backed by broad human development strengths, is one that is particularly relevant.⁵³

It is within this context that future action to combat the Cambodian AIDS epidemic should be planned. Three principles are important. First, that while a multi-sectoral response is important, it is essential that this does not distract the health sector from continuing to make "bread and butter" health-based interventions. NCHADS bears heavy responsibility in this regard. Condom promotion, for example, has been vital in the fight against the epidemic. Although it is currently impossible to say to what extent increased condom use is responsible for declining infection levels, it seems certain that the social marketing of No 1 condoms has saved many lives. There is evidence, however, that an unwanted side effect of the current focus on sex workers has been to associate the No 1 condom with prostitution, with many Cambodians (male and female) regarding it as unsuitable for use in non-commercial sex. A new brand should therefore be launched, with the use of modern marketing techniques to make it desirable and socially acceptable, especially for a post-adolescent generation that is still forming its attitudes to sex.

NCHADS must also continue its work to ensure more effective care for AIDS patients and it would also seem important to undertake efforts to educate people living with AIDS as to how they can more effectively allocate resources to seeking treatment for their condition. Other NCHAD priority areas – such as more effective surveillance and testing, better sexually transmitted infection (STI) care, and measures to prevent mother-to-child transmission – should also be strongly supported.⁵⁴ NGO action will be especially useful in ensuring effective AIDS-specific action. The NGO sector has historically been weak in Cambodia, but it is now developing rapidly. NGOs can afford to be highly focused and specialised, and do not necessarily need to see the big picture. This can make them especially good at achieving very specific objectives. The growth of NGOs led by people living with HIV/AIDS should be encouraged, as experience shows the electrifying effect this can have on the fight against the epidemic, with the young South African activist Nkosi Johnson a valuable example in this regard.

As Peter Godwin and his co-authors have pointed out, however, much work to combat the impact of AIDS, should be health, rather than AIDS, specific. AIDS in Cambodia *is* a pressing problem, but it is only one problem within a much broader set of health issues. Ultimately it is vital that Cambodians achieve far better health standards - a future "victory" against AIDS will be a hollow one if life expectancy and infant mortality have not also improved. Here the Ministry of Health bears the main responsibility and it is to be hoped

⁵² Ramirez, Alejandro, Gustav Ranis and Frances Stewart. 1997. "Economic Growth and Human Development". Yale University Economic Growth Center Discussion Paper No. 787.

⁵³ In a very different context, see David E. Bloom, Ajay S. Mahal, Damien King, Fiorina Mugione, Aldrie Henry-Lee, Dillon Alleyne, Philip Castillo and River Path Associates (2001): Jamaica- Globalisation, Liberalisation and Sustainable Human Development Jamaica Country Assessment Study The UNCTAD/UNDP Programme on Globalisation, Liberalisation, and Sustainable Human Development. June.

⁵⁴ Ministry of Health (2000): Strategic Plan for HIV/AIDS and STI Prevention and Care in Cambodia 2001-2005. Ministry of Health. Phnom Penh, Cambodia, October.

that it continues to develop its capacity to lead interventions which donors are able to fund in a co-ordinated fashion, even if a strategic plan for the whole health sector is currently impossible to implement. The poor state of the Cambodian health service remains a major obstacle to the country's overall development and reform efforts in this area should be at the forefront of wider public sector reform.

The development of a new compact with the private sector should also be accorded priority. This will require action on many levels. Private sector practices that are clearly antithetical to the public good should be stamped out, wherever there is capacity to implement legislation against abuses. The widespread misuse of pharmaceuticals is a prime example, with Cambodia putting itself at risk of devastating consequences as drug resistance becomes ever more widespread. The Ministry of Health should also look to fulfil the potential of private sector health providers (including pharmaceutical sellers) to provide cost-effective care that complements the public sector health system. Indeed, governments can often be most effective when co-ordinating and regulating the actions of others, especially when their capacity is limited. Finally, the Ministry of Health would be wise to start looking to the broader private sector for support to improve health standards. Private companies have a considerable stake in their employees' welfare and have the ability to improve levels of health awareness, as well as providing distribution points for some kinds of health intervention. An AIDS and business campaign would make a good pilot in this area, perhaps focusing the same energy on the garment sector that the original 100 percent Condom Use programme concentrated on the businessmen who run the Thai sex industry.⁵⁵

As well as AIDS and health-specific initiatives, there is need for broad development action, undertaken with a regard for the likely health consequences. Attention must be directed towards the many links that run from health to development, with organisations such as the NAA and WHO having a major role to play in this regard.⁵⁶ However, the links from development to health are as important. Political upheaval – or at worst war – could quickly reverse all progress so far made against the epidemic. Achieving better governance in Cambodia, at both national and local levels, is therefore an overriding objective and one that is recognised as such by many donors. More generally, the government – and especially donors concerned with poverty reduction – need to pay increased attention to the notion of assessing health risks and opportunities in all their development activities. Increases in vulnerability to AIDS and other health problems are very often the unintended consequence of other, often benign, actions – with UNTAC the classic example (as peacekeepers helped to spread HIV). Assessment of risks to health should be a routine part of the change management process. This is an especially urgent issue for those interested in poverty alleviation, as almost all economic development has the potential to increase risk. Beyond risk, change should also be assessed for the opportunities to have a positive impact on general health. Joint work with the private sector, as discussed above, will be especially important if these opportunities are to be seized. The relationship between health and poverty is so strong that the development of a new industry, for example, will offer much more sustainable benefits if efforts to improve health standards of the new workers (as well as their skill levels) are included from the beginning.

⁵⁵ For a discussion of the role of the private sector in the AIDS epidemic, see Bloom, David E., A. Rosenfield and River Path Associates. 1999. "A Moment in Time – AID\$ and Business", American Foundation for AIDS Research (amfAR); 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; also cite amfAR paper

⁵⁶ N.A.A.; (2001): National Strategic Framework for a Comprehensive and Multi-sectoral Response to HIV/AIDS 2001-2005. N.A.A. June 21, 2001 / WHO (2000): WHO Country Cooperation Strategy: Cambodia The Who country Cooperation Strategy (CCS) defines the broad framework for WHO's work with the Royal Government of Cambodia for 2001 – 2005. WHO. Cambodia.

Moves to increase participation at all levels of Cambodian society dovetail with the attempts to improve standards of governance, and also form a good fit with efforts to improve health standards. The huge impact that standards of general (rather than health) education have on health status is testament to the importance of individuals being able to assess risks to their families' health and develop their own strategies to mitigate them. New work by the Food and Agriculture Organisation (FAO) of the United Nations and the UNDP exemplifies this approach. "Staying Alive Along Route 5" builds on the FAO integrated pest management programme, which aims to help farmers improve their decision-making abilities and to think strategically about the management of their crops. In Farmer Life Schools, farmers are helped to identify the roots of their vulnerability to HIV infection and to tackle these causes, within an analysis of their situation and resources.⁵⁷ According to one participant: "I believe that, by attending the Farmer Life School, farmers learn to think critically about what they are doing in their daily life. They start analysing their habits and behaviour and determine what they can do to improve their lives and reduce their neglectful conduct."⁵⁸ A reviewer of the project, meanwhile, said he was "impressed at how farmers were able to work their way through complicated, and for the outside observer, rather hopeless situations and identify options and margins of manoeuvre within their own means."⁵⁹ Similar work could also be done within garment factories, for example, where one study expressed alarm at the very low levels of "life and communication skills" shown by many young garment factory workers.⁶⁰

Alongside improving governance and enhancing levels of participation, 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, men and children; and have a fundamental impact on the nature of the AIDS epidemic. Women are at the centre of the Cambodia's health problem, with maternal mortality still very high, and lack of education leaving 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. The Ministry of Women's and Veteran's Affairs has prioritised five areas for action in its Draft Action Plan on Women and HIV/AIDS: advocacy at all levels; providing resources for women on HIV/AIDS; providing formal and non-formal education on the epidemic; supporting women and families of AIDS victims; and providing wider counselling for women in Reproductive Health Programs.⁶¹ However, the status of this Ministry is currently low and it will need support if it is to push this programme and other more general ones into the mainstream of Cambodian life.

Conclusion

In this paper, we have examined the dynamics of the Cambodian HIV/AIDS epidemic, which is now maturing and seems to be plateauing, at least in part because of a relatively successful response from Cambodian society. We have argued that, however serious the epidemic, it does not stand alone – either in its action or its impact. We have therefore consistently attempted to see it as a part of Cambodia's wider health problems and to emphasize the complex interaction between health and development. The health of a people is a reflection of the strengths and weaknesses of the society they live in – and

⁵⁷ Du Guerny, Jaques (2001): Review Mission of Project- UNDP-FAO Mobilisation and Empowerment of Rural Communities Along the Asian Highway (Route 5) in Cambodia to Reduce HIV Vulnerability. Cambodia, 5-15 March.

⁵⁸ IPM; (2001): Community Staying Alive Along Route 5; IPM; Phnom Penh; January 2000

⁵⁹ Du Guerny, Jaques (2001)

⁶⁰ Nishigaya, Kasumi (1999)

⁶¹ Gray, Ingrid (1999): Expanding Response of the National HIV/AIDS/STD Programme in Cambodia- A Situational Analysis, Needs Assessment, and Draft Action Plan on Women and HIV/AIDS. Ministry of Women's and Veterans' Affairs. Cambodia, August.

HIV/AIDS is one problem that Cambodians must face as their society and economy struggles to overcome the problems of the *present*, as well as the past.

Action against the epidemic, therefore, must continue along three tracks: AIDS-specific, health-specific, and general development actions that include a far greater level of health awareness than has traditionally been displayed. Balanced development should be a priority for Cambodia, as current encouraging economic signs are unlikely to be sustained in the long run unless significant effort is put into investing in human development for the future. Populations do not become healthy and educated by chance. Certainly, health and education are in *demand* in societies rich and poor. But their *supply* requires heroic effort from all sections of society.⁶²

The major impact of AIDS, as we have seen, is likely to fall on Cambodia's poor. If vicious spirals are to be avoided – whereby a person is infected with HIV, the costs of care and lost labour push the family into, or further into poverty, forcing other family members to take actions that expose them to AIDS – the poor need better and deeper knowledge of the risk factors and prevention methods. A virtuous spiral, with education improving health knowledge, which in turn improves health and makes families more productive, should be the aim of policy-makers. Currently, AIDS threatens poverty reduction efforts in Cambodia, but concerted and sustained efforts to involve the poor and give them the tools to improve their health in the long-term will have far-reaching positive impacts on development efforts.

⁶² Appendices to this paper will include a complete listing of all those met by the team during their field trip to Cambodia.

Appendix 1 – 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, 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 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 2 – 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.

Appendix 3

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