
PUTTING ON THE BRAKES

PREVENTING HIV TRANSMISSION ALONG TRUCK ROUTES



and

**University of Washington
Center for Health Education and Research**

A research-based field
resource supported by the
The Synergy APDIME Toolkit
www.synergyaids.com

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Foreword

Putting On the Brakes: HIV Transmission along Truck Routes in the Developing World is one of three research-based resources focusing on HIV transmission settings developed by The Synergy Project (funded by USAID). Two other documents in this series include:

- *Keeping up with the Movement: Preventing HIV Transmission in Migrant Work Settings*
- *Room for Change: Preventing HIV Transmission in Brothels.*

These resources are primarily intended for HIV/AIDS program implementers working with population groups in high-risk transmission settings. Extensive research formed the basis for these documents, and findings can be used to help design new programs, or to evaluate and revise existing interventions, in a range of transmission settings.

All three documents in the series can be used in conjunction with The Synergy APDIME Toolkit. This user-friendly electronic toolkit includes resources, tools, worksheets, and guidance for assisting program managers in Assessment, Planning, Design, Implementation, Monitoring and Evaluation of effective HIV/AIDS responses worldwide. Readers are also invited to make use of the Synergy APDIME Toolkit Library, a searchable database that provides access to over 700 annotated resources, all of which were reviewed for the development of Synergy's resource documents on transmission settings.

Both can be accessed on the following website:

www.synergyaids.com

About The Synergy Project

The Synergy Project is supported under a five-year contract by the United States Agency for International Development (USAID). The project is designed to assist other projects and programs. Support is provided by the Synergy Project to programs worldwide to ensure the increased use of effective and sustainable responses to reduce HIV transmission, and to mitigate the impact of AIDS in resource-poor settings.

One of the Synergy Project's major activities has been the development of an on-line toolkit to help program managers and implementers through the following programming stages: Assessment, Planning, Design, Implementation, Monitoring and Evaluation (APDIME) referred to as the APDIME Toolkit. This Toolkit is a comprehensive resource to support USAID missions, field workers, consultants, and program managers throughout the developing world.

The Synergy Project is implemented by TvT Associates/Social & Scientific Systems Inc., with support from The Center for Health Education and Research (CHER) at the University of Washington, Seattle.

TvT Associates is division of Social and Scientific Systems, Inc., based in Washington D.C. It provides services in program and project evaluation, strategic planning, policy analysis, and technical assistance.

CHER, affiliated with the University of Washington, Seattle, is a multidisciplinary team of education, communication, and healthcare professionals devoted to enhancing health and quality of life for individuals and communities through education, training and research.

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Acronyms and Abbreviations

AIDS	Acquired Immunodeficiency Syndrome
AIDSCAP	AIDS Control and Prevention Project
AMREF	African Medical and Research Foundation
AusAID	Australian Agency for International Development
BAP	Bhoruka AIDS Prevention Program, previous name of Bhoruka Public Welfare Trust (India)
BCC	Behavior Change Communication
BPWT	Bhoruka Public Welfare Trust, formerly called Bhoruka AIDS Prevention Programme
DFID	Department for International Development
FGD	Focus Group Discussion
FHI	Family Health International
HIV	Human Immunodeficiency Virus
IDI	In-Depth Interview
IEC	Information, Education, and Communication
IMPACT	Implementing AIDS Prevention and Care project
STI	Sexually Transmitted Infection
SW	Sex Worker
TIR	Targeted Intervention Research
USAID	United States Agency for International Development

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Transmission Settings, Part II – Truck Routes
The Synergy Project

I. INTRODUCTION

Historically, prevention efforts have been dominated by the perspective of AIDS as a disease affecting specific groups of individuals, with particular high-risk behaviors. However, it is now more widely understood that behaviors of individuals, and the health outcomes, are directly affected by the larger social, political and economic contexts in which individuals live and work. The situation of truckers and truck routes is no exception, and demands particular attention to the contextual setting of STI and HIV transmission. Sweat and Denison (1995) argued for an approach to HIV programming that takes the broader structural context into consideration. They noted that ‘while the relationship between social, structural and environmental factors and HIV/AIDS risk is now better understood, HIV prevention interventions that operate on these levels are sorely lacking.’ Nearly five years on, this situation remains very much the same.

This document forms one of three research-based resources on HIV prevention among groups of individuals living and working in high-risk transmission settings. The purpose is to help encourage practical consideration and analysis of the contextual causation of HIV risk in the design of interventions. The approach is based on Sweat and Denison’s description of four levels of causation of HIV risk affecting individual behaviors, applied to each of three major transmission settings. This document focuses on truck route settings, while two other documents examine brothel-based sex work and migrant settings. Each document considers specific issues relevant to the four levels of risk causation in each transmission setting; case study examples of structural interventions addressing various levels of causation; and summary recommendations for the design of effective interventions.

The process of drafting *Putting on the Brakes* included reviewing and synthesizing hundreds of studies and interventions related to truck routes (and similar settings) and the populations and stakeholders that form part of these settings. These population groups include truck drivers and their assistants, women who live or work near truck stops (including sex workers¹), shop owners, trucking company owners and staff, government ministries, community leaders, and others. This publication describes the varied environments of truck routes in developing countries as they relate to HIV transmission. It discusses the realities of the people who live and work along the highways, including some of the social systems, cultural structures, and economic challenges

¹ Throughout this document, the term *sex worker* refers to female sex workers (SW), unless otherwise stated. Male sex workers are rare along truck routes in much of the developing world; Pakistan is one exception.

that exist. It discusses common themes and problems, as well as variations, that exist across countries and settings.

Levels of risk causation

Sweat and Denison (1995) referred to four levels of risk causation: super structural, structural, environmental, and individual. These four levels have been re-labeled for general field-level usage, and in this document are also referred to as societal, community, institutional and individual (see Table I-1 for definitions).

Figure I-a, illustrates contributing factors for HIV risk within these four levels of causation, clarifying the broader context relevant to truck route settings. All of the contextual levels in the diagram affect individual behaviors and therefore individual health outcomes. Analyzing any high-risk transmission setting in this way can help design more effective HIV prevention and care efforts.

Table I-1. Definitions of Levels of Causation of HIV Risk

Causal Level	Definition
Societal (super structural)	Macro social and political arrangements, resources, and power differences that reflect social inequalities.
Community (structural)	Laws, policies, and standard operating procedures; relationships between people and sectors who are formally or informally connected to a particular transmission setting, e.g. the migrant work setting.
Institutional (infrastructure /environment)	Individual living and working conditions; resources and opportunities; recognition of individual, structural, and super structural factors. E.g. access to appropriate health care services and family support.
Individual (targeted groups of individuals)	How the infrastructure and broader environment is experienced and acted upon by individuals.

Adapted, Sweat and Denison 1995

Implications for program design

While truck routes are transmission settings, they represent structures and systems that equally provide opportunities for multiple entry points for HIV/AIDS prevention and care. However, around the world, typical intervention points for HIV/AIDS programs continue to focus on targeted groups of individuals, their behavior, and/or their health problems (see Figure I-b). Programs that address truck route settings most often focus on the behavior of individual truckers, their assistances and sometimes the sex workers involved along route. They target condom use and health-seeking behaviors related to STIs in order to reduce risk. What this approach lacks is a broader consideration of the contextual issues that influence behavior. This means that the involvement of key stakeholders and gatekeepers at each of the four levels of risk causation is also often lacking.

A structural approach to intervention design, however, seeks to address multiple levels of HIV risk causation, considering not only targeted groups of individuals, but also their partners, families, and communities; the infrastructure and institutions that impact their daily lives; and the legal, political, and economic realities that constitute their society (Senderowitz 2000; Sweat and Denison 1995). This approach implies multiple intervention points (Figure I-c) that, together, aim to address key enabling factors that influence individual behavior.

This document will help program managers and implementers establish a framework for better understanding the levels of risk causation in truck route and other transmission settings. Key issues arising from the detailed exploration of truck route settings in Section II can be used in the design of new interventions, and/or to improve existing interventions.

Figure I-a: Individuals within a Context

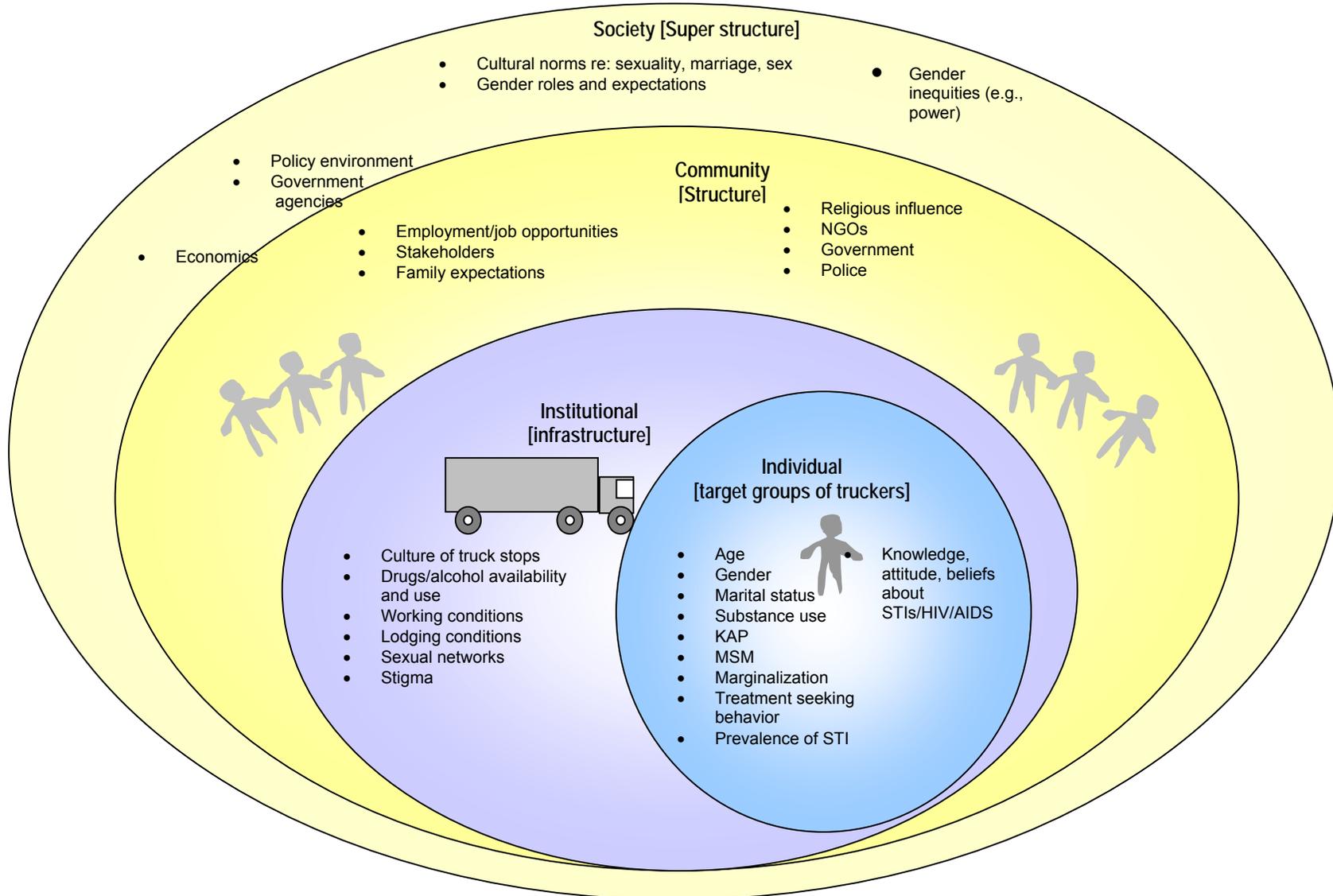


Figure I-b. Typical Intervention Points for HIV/AIDS Prevention and Care

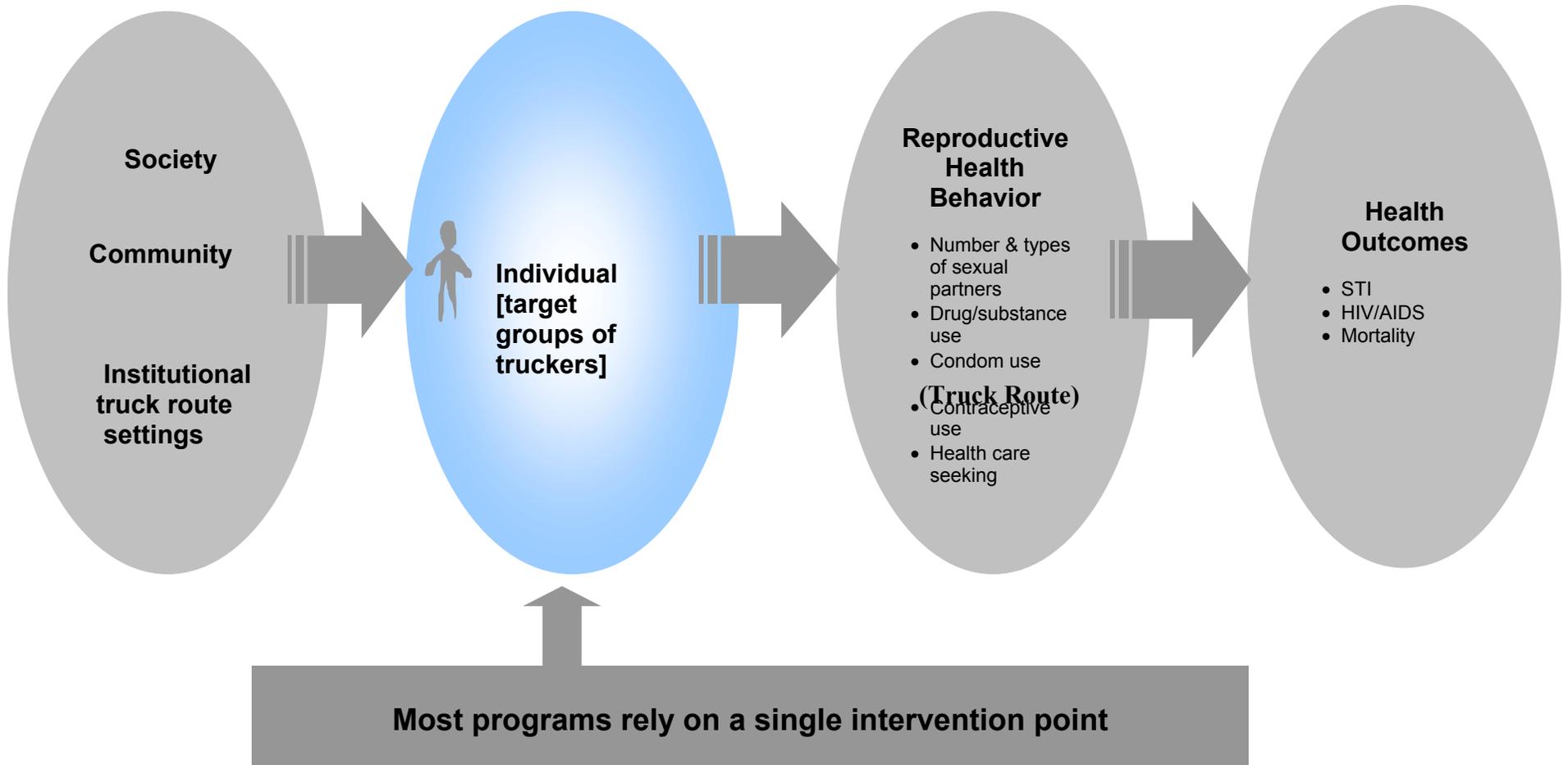
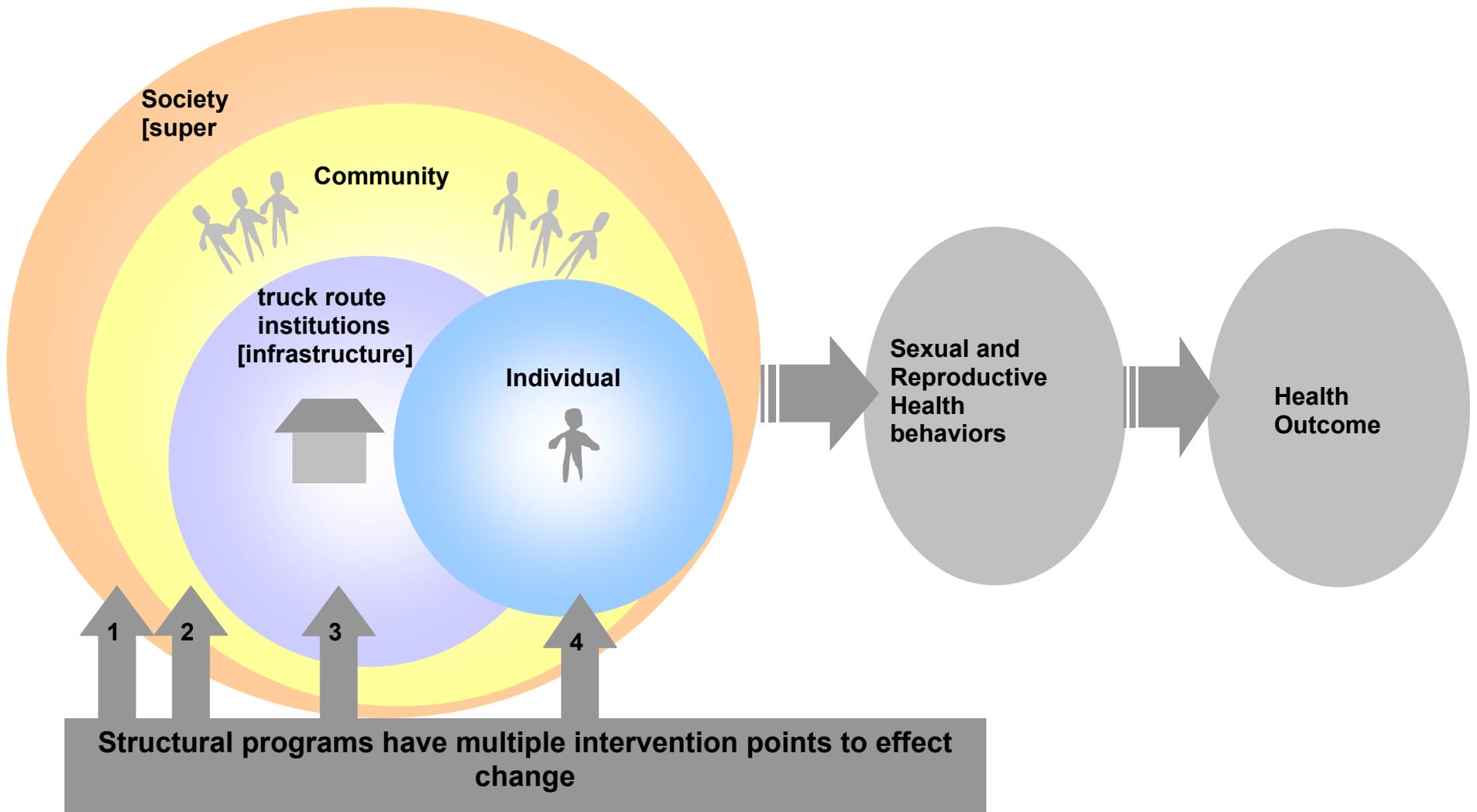


Figure I-c. Optimal Intervention Points for HIV/AIDS Prevention and Care



Truck routes as transmission settings

In many developing countries, the first populations found to be affected by the virus were those living and working along truck routes. Researchers following trends in the HIV epidemic, particularly of the developing world, noticed that the virus traveled from high- to low-prevalence areas along the same routes that trucks traveled. Changes in prevalence were also documented from urban to rural areas along truck routes. These trends existed in countries where HIV/AIDS was a serious problem, as well as in countries that had been relatively free of the disease.

HIV transmission was discovered along truck routes from Zambia, Zimbabwe, Malawi, and Mozambique to South Africa (Lacerda et al. 1997). HIV was also noted along the Mombasa highway from the Indian Ocean in Kenya to Congo (formerly Zaire). Truck drivers are the most visible people who move along these routes between countries, regions and areas. A driver might travel from Dar es Salaam across Tanzania to Zambia, and then return home to a small, isolated village in the dry hills of Tanzania. Another may take several trips from Calcutta to Bombay and back, then take a short break at his home deep in the rice fields of India. In addition, truck drivers were known to have unprotected sex with multiple sex workers during their travels.

Thus, truck drivers became a key target group for studies of HIV incidence. A study conducted with truck drivers passing through Kenya found an overall HIV sero-prevalence rate of 27% (Bwayo 1994). As part of this study, the HIV rates of drivers of different nationalities were compared to the rates for a general sexually active urban population in their country. For Kenyans, 19% of drivers tested positive for HIV compared to 3% of the general group. For Ugandans, 36% of drivers tested positive compared to 15% of the general group. For Rwandans, 51% of the drivers tested positive vs. 21% of the general group. Other studies in East Africa found that truck drivers' HIV and other STI prevalence rates were significantly higher than their non-truck driving male counterparts (Carswell, Wilson and Howells 1989; Nguma, Leshabari and Mpanglile 1990 in Podhisita et al. 1996).

People working with HIV prevention programs began to believe that truck drivers were playing a major role in transmitting HIV – that these drivers were, in fact, *importing* HIV infection as well as other STIs across borders and into rural communities, and to people who were previously uninfected. Thus, truck drivers are often seen as a *bridge population*, or one through which HIV reaches the larger population, particularly people who are considered at low risk. For example, a

Situations Reviewed

In this Document

The process of preparing this document included reviewing the situation of truck routes throughout the developing world, including in the following countries:

Bangladesh	
Brazil	Nepal
Cambodia	Nigeria
Cameroon	Pakistan
China	Philippines
Cote d'Ivoire	Senegal
Ghana	South Africa
India	Tanzania
Kenya	Thailand
Laos	Uganda
Malawi	Vietnam
Mozambique	Zambia
Myanmar	Zimbabwe

trucker who has unprotected sex with a SW, then does the same with his monogamous wife, could act as a *bridge* for HIV infection.

Truck routes facilitate the *importing* of HIV infection from high-prevalence countries and regions to low-prevalence areas, as well as from populations who had been identified as practicing high-risk behavior to the general population. The spread of HIV along truck routes is not just about the movement of large numbers of people from one place to another, it is more a reflection of *a way of life* along highways. People who live and work along truck routes are exposed to HIV and other STIs. One study actually identifies truck drivers as an occupational group at high risk for contracting HIV (Bwayo 1994).

The geographic spread of HIV along truck routes happens through the behaviors of some individuals connected to truck routes. The word *individuals* is used because even high-risk sexual behaviors of specific truck drivers are not the sole factor in HIV transmission along truck routes. To understand the issue of HIV transmission along truck routes in the developing world, one must look at the milieu of truck routes. One must consider all of the people who live and work along the routes, and the socioeconomic realities of the people as well as their attitudes and behaviors. One must also understand that in this particular situation the dominant social norms may be different from the culture at-large. Throughout this process, one must look at what is similar to the larger society and what is different.

***“I’ve seen my friends,
most of them in Uganda,
they have died because
of that thing (AIDS). This
... is now killing people
here in Kenya.”***

**Truck Driver, Kenya
(Levine 2001)**

In many countries, commercial sex is a common part of life along truck routes. In a review of characteristics of truck drivers from several Asian and African countries, truckers reported that they engage in sex with commercial sex workers. Average frequency varied from low in Nigeria; to 31% and 43% in the past year in Kenya and Thailand, respectively; to 64% in Zimbabwe while traveling; and 97% ever in India (Marck 1999). Commercial sex, however, as it is generally defined, is only part of the sexual network that exists at truck stops and border crossings. Both men and women who live

and work at these settlements often have other regular sexual partners, in addition to their husbands and wives, and men sometimes have sex with other men. Some wives of truckers, who are left behind for months at a time, also have other sexual partners. Programs that focus primarily on the commercial relationships at truck stops therefore are missing significant sources of HIV transmission. In fact, perhaps because of the efforts of AIDS prevention programs, condom use during commercial encounters is increasing in some places, while consistent condom use with regular partners remains very low.

The multiplier effect

Mobility of people along truck routes presents opportunities for rapid distribution of STIs, including HIV. Stops along major truck routes are generally homes to merchants, bar and restaurant owners and workers, young men who service the trucks, and women. Some of the women are sex workers; others sell goods or work in the restaurants and bars and may have sex with truckers either occasionally or regularly. Often, sex workers themselves are a mobile population. Nepali SWs are taken to northern India, Laotian SWs to Thailand. Many of the people who frequent truck stops are from rural areas, either near the stop or far from it. Still, they return to their villages and homesteads regularly. Then there are the truckers – the men who drive the large trucks, and their assistants. Truck stops and border crossings have their own culture, different from the surrounding regions. In many places, this culture includes a lot of sexual activity, including unprotected sex.

All of the people who participate in high-risk behavior along truck routes are potentially at risk of contracting HIV. When they have multiple partners, who also have multiple partners, many people potentially contract HIV. It is important to dispel a widespread myth here. Truck routes as efficient transmission settings for HIV does not mean that truckers themselves necessarily have a higher rate of infection than other sectors of the population linked to truck routes, as the quote from Jeff Marck illustrates.

“... long-distance truck drivers have nowhere been shown [to be] highly infected groups at the time they contributed most to the geographical spread of HIV. Even with 2% or less [of a given trucker population] infected, they spread HIV to sex workers and other categories of women in their region’s furthest rural places. And those women, especially the sex workers, and in some cases wives, pass it on to the larger community.” (J Marck 1999)

How to Use this Document

This document is divided into four main sections:

- 1) The **Introduction** (above), which outlines the importance of developing structural approaches to the design of interventions among population groups in high risk transmission settings. The introduction also provides an overview of truck routes as a particular transmission setting.
- 2) The **Key Issues** section, which describes four levels of risk causation in truck route settings and helps the reader to gain a deeper understanding of the realities of these settings. Overall, it also helps to provide a framework for the design of structural interventions, where each of the four contextual levels described above should be taken into account.
- 3) The **Case Study Interventions** section, which discusses solutions attempted in several different settings, past and present, both successful and unsuccessful. Programs are linked to the intervention issues identified in the Key Issues section.
- 4) The **Conclusion** which synthesizes the two previous sections, summarizing key issues related to the risk of HIV transmission in truck route settings and common themes in effective interventions.

Citations database

References are included at the end of this document. The publications listed here are only a small portion of the publications and grey literature reviewed by the Center for Health Education and Research, at the University of Washington, Seattle, during the research and writing process. Readers are encouraged to make use of the Synergy APDIME Toolkit Library, a searchable citations database which provides access to over 700 annotated resources, including those reviewed for the development of Synergy's resource documents on transmission settings.

The searchable database can be accessed via the following website:

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II. KEY ISSUES

Levels of Risk Causation in Truck Route Settings

This section explores levels of risk causation in depth, to help increase understanding of the contextual factors influencing behaviors along truck routes, and incorporation of these factors in the design of interventions. Through understanding the key issues behind societal, community, institutional, and individual levels of risk, program planners can adopt a more effective approach to problem solving.

Note: The men who travel along the truck routes of the developing world include drivers and assistants. This publication uses the term *truckers* to refer to both drivers and assistants, except when the distinction is important.

Level One: Societal [super structural] Context

Causal Level	Definition	Key points
Societal [super-structural]	Macrosocial and political arrangements, resources, and power differences that reflect social inequalities.	<ul style="list-style-type: none"> • Highways are a worldwide industry. • They are linked closely to a highly mobile sex industry. • Border crossings offer key points of contact between truckers and sex workers. • Gender issues play out along truck routes, as in all aspects of society. • Many women lack the resources and ability to provide for themselves and their families. • Women lack power to convince male partners to use condoms. • Women who are not identified as SWs, including wives and girlfriends of truckers, are not targeted for services and education. • Truckers are stigmatized, and at the same time stigmatize others – female sex workers.

Highways connect cities, regions, and countries throughout the world. At roadside stops along the way, vendors sell goods to the people hurrying past. Restaurants feed the hungry, and bars quench the thirst of the drivers and passengers. Highways are a worldwide industry.

Truck routes follow major highways. The trucking industry contributes to local economies, as truck drivers and assistants use local services while en-route. In many developing countries, truck routes are vital to the rural economies of the areas they pass through. While the characteristics of these routes, including the roadside settlements, vary somewhat between countries, there are many similar features.

Truck routes start and end at a large base or depot, often in a port city or urban area. Truckers come to this base to wait for a load or for instructions; it is a transitory place for most of the people who congregate there. Many of the truckers live far from their work base. Sometimes they sleep in the garage of terminals while they are waiting for their next trip. Businesses designed to serve the needs of the men who work for the trucking companies are often within easy walking distance. These include low-cost hotels, barber shops, food stalls, bars, and brothels.

Along the highways, roadside settlements spring up to provide services to truckers passing through. Truck stops are important meeting places for drivers and their assistants. They break up the monotony of long drives and provide an opportunity to interact with other drivers as well as people working at the stops. Since driving is often dangerous, due to the risk of accidents and – in some countries, banditry – these stops offer a respite from the stress of being on the highway.

Truck stops offer fuel and repair services for the trucks, as well as bars and restaurants for the truckers. Sometimes they also offer hotel rooms, although truckers from some countries report that many truck stops do not have places for them to sleep or clean up – unless they share a room with a sex worker (SW). Truck stops generally lack any type of recreational facilities besides bars. There are few places that truckers can go for entertainment or relaxation that are not centered around alcohol and SWs.

The more permanent residents of these settlements may be financially dependent on the truckers passing through, but this does not always mean that they appreciate the truckers. Truckers who participated in recent studies report that community members in the truck stops and border areas often treat them with hostility, blaming them for the high rates of HIV in their communities (Bikaako-Kajura 2000).

“..when we had just started parking here, several community members were strongly opposed...they feared that we were going to steal their women.”

**Driver in Uganda
(Bikaako-Kajura, 2000)**

When highways intersect countries, there are border crossings. In some countries, for example India, there are border stops between states that operate as inspection and tax collection posts. Border crossings are often major stops, particularly for truckers who often must wait for goods to clear customs. Border areas often include thriving border towns that serve the needs of those waiting on either side. Sometimes they must stay in the border towns for significant periods of time, several days or longer. In Zimbabwe, for example, the processing of paper work requires truckers to stay at border areas for up to 10 days at a time (IMPACT 2000). Besides drinking alcohol and visiting sex workers and other women, truckers have few recreational or social options. Truckers are a captive audience at these stopping points, and female sex workers often go to border areas for work.

Gender issues play out along truck routes as they do in all aspects of society. Truck routes are male-dominated worlds. UNAIDS defines gender as "what it means to be male or female, and how that defines a person's opportunities, roles, responsibilities, and relationships" (Whelan 1999). Along truck routes, it plays out like this – men have money, women have little or no money; men have real or perceived power, women have little power; men are moving through, women are stationary or have limited movement; men drive big trucks to make a living, women compete with each other to sell something to the men.

“Here it is not easy for a woman to face a man and tell him to use a condom. Women tend to be on the receiving end, they wait for the man to suggest condom use.”

**Kenyan SW
(Cameron et al. 1999)**

The literature review for this publication indicated that female partners of truckers in the majority of countries reviewed do not use condoms regularly. The reasons vary from lack of information and access to distrust of condoms to loss of income or fear of retribution.

A South African study found that SWs who were successful in convincing clients to use condoms reported that they made less money, lost clients, and were physically abused (Laukamm-Josten 1998). They were paid half of their fee if they requested the client to use a condom. Similar findings were noted in other developing countries. Studies in India found that some SWs were beaten by their clients when they requested that a condom be used (Asthana 1996).

Links with the sex industry

The distinction between women who are and who are not SWs is unclear along many truck routes in the developing world. Many of the women who live in truck stop settlements have moved there from surrounding rural areas in order to find a way to support themselves and their families (see next subsection, *Economic Realities*). They might exchange sex for goods or money occasionally or even regularly, but they do not consider themselves SWs and would not be easily identified as such. This publication defines *sex workers* as women who would identify as such, yet includes information about other women who are based at truck stops because they are potential casual or regular partners of truckers.

“Finding sex workers is almost easier than finding goods [for freight]”.

Research efforts and projects that focus on women who are self-defined as sex workers often miss partners of truckers. Yet these non-SW female partners are part of the sexual network that exists along many truck routes and, therefore, key to the patterns of STI/HIV transmission. See Individual Context below.

Many studies have focused on self-identified sex workers who work along truck routes. Walden et al. (1999) identified different situations of SWs along truck routes in Malawi. Some work in bars as cleaners, barmaids or attendants and have rooms behind the bar. In exchange for accommodation, the women are expected to work in the bar and encourage customers to buy drinks. Women can take customers to their rooms to have sex, and bar owners or managers do not receive part of the fee. Other SWs work “freelance” – i.e., they are not employed by a bar and solicit where they wish. They generally rent rooms to meet with their clients. About 64% of the SWs interviewed reported that they have regular boyfriends in addition to paying clients.

A South African study of SWs who worked at truck stops found that the women had an average of 17 short jobs and 3 overnight sessions each week. In addition, most SWs had 1-3 regular clients at any given time, as well as noncommercial sexual partners including husbands (Abdool-Karim et al. 1995).

Fierce competition among women for clients not only drives prices down, it adds to women’s lack of power. For example, it is difficult at times for a woman to insist that her client use a condom when other women are offering unprotected sex. While SWs use group support for other issues they face (e.g., police raids), competition for clients prevents them from standing together to demand condom use.

Furthermore, most sex workers have several “regular” partners or repeat customers. It is more difficult for women to ask these men, with whom they have long-standing relationships, to use condoms.

Mobility of the sex industry

Many sex workers move regularly from place to place. Sometimes this is by choice, other times not. In many countries, men prefer *new* women. When SWs move every few months, they are always new to the clients who regularly stop at a particular settlement.

SW mobility occurs across borders as well as within countries. Women from Cambodia, Laos, Myanmar, and Vietnam work in Thailand. Nepalese women work in India. Women from Ghana work in the Cote d’Ivoire. They return to their own countries carrying HIV with them. When women stay within their own country to work, they almost always work in a region other than the one of their birth in order to be anonymous. They return to their homes, often in rural areas, for occasional visits. This movement is of particular concern when the women work in a high HIV prevalence country or region and then return to a low HIV prevalence area.

“We abide all kind of problems because there is no place else we can go to.”

**South African Sex Worker
(Abdool-Karime et al. 1995)**

In order to keep their trade from their families, SWs generally move to a different region. Often they move from rural areas to more concentrated areas. Sometimes, they move to an area where

traditions and even languages are different. For example, Nigerian SWs who work at truck routes are usually from ethnic groups other than those of the region where they work (Orubuloye and Oguntimehin 1999).

Lack of power among sex workers

A major issue related to condom use is the lack of power of SWs and the women along truck routes. Generally these women work alone rather than in brothels and do not have the support of brothel policy to aid in negotiating condom use. They compete, rather than support each other, so they generally don't have a unified voice. And they need the money. When a client refuses to use a condom, a SW has few options. She either loses the money or she accepts the client's wishes.

Women have little power to negotiate safe sexual practices, and often feel they have no choice. Several factors contribute to women turning to sex work: low education, scarcity of jobs, low pay, and being a wage earner for the family (including children who are living with relatives). Risk of HIV infection is, in part, a consequence of lack of social and economic power.

Treatment-seeking behaviors

Women are even less likely to go for treatment for an STI than men are (Orubuloye et al. 1993). First of all, many women with STIs are asymptomatic. Or, they may have symptoms and not know what they mean. Even if they are aware that they might have an STI, fear and stigma attached to seeking care keeps many away from treatment. Facilities are often not accessible. The staff of many government and private clinics often treat SWs with disrespect or even disdain.

Stigma

Truckers are beginning to associate HIV/AIDS with SWs, and this seems to be leading them to casual sex with people who they perceive of as *clean*. A project in India found that truckers there began visiting SWs less often, but were having more relations with relatives and neighbors (Majumdar and Rao 1999). In these relationships, condoms are rarely used. So, sex with SWs may be decreasing, but sex with many casual partners is not (Majumdar and Rao 1999).

“If you can stay up to 8 p.m. you’ll see terrible women... plenty of them, ah, plenty of them ... they are surviving because of drivers.”

**Truck Driver, Kenya
(Levine 2001)**

Economic Realities

Though not supported by research findings, it is possible that women who exchange sex for goods or money along truck routes are different from other sex workers. For many of the women at truck stops, exchanging sex for money is a last resort; they can find no other way to support their families. In many places, if a woman performs one sex act per week, she will earn enough money to feed her family.

Even when women are aware of the dangers of HIV/AIDS, they have no alternatives for earning the money they need to survive. Many are illiterate and are from rural areas with few options for employment. In some cases, the poverty that these women face is not unique to them, but a result of their country's faltering economy.

Women with regular partners become economically dependant on these partners. This dependence may contribute to the women being less willing to negotiate condom use (Jackson et al. 1997). This is of particular concern considering that men are less likely to use condoms with their regular partners because they feel safe in these relationships.

SWs at a truck stop in South Africa reported that they rarely used condoms with clients because clients will pay less money for sex with a condom. In addition, they reported that clients are more likely to physically abuse (beat or rape) them if they ask a man to use a condom. Because sex with condoms brings a lower price, sustaining earnings would require more clients; however, competition for clients limits this option (Abdool-Karim et al. 1995). In another study in South Africa, SWs who knew they were HIV+ reported that they continued to work at the truck stops and practice unsafe sex. They still needed the money to support themselves and their families (Morar and Ramjee 2000).

“As barmaids and waitresses, we earn a miserable monthly income ... this can hardly cover rent for my two-roomed house ... yet I have several other needs like food, medical care, school fees for my children ... Why should I not look for other opportunities that are available and can supplement my income?”

22-year-old Ugandan barmaid (Bikaako-Kajura 2000)

Profile of the Working Context of a Truck Driver

'I am a 48-year-old heterosexual man from Kericho District in Kenya. I am married and have five children. When I was 23, I first started to work for a German trucking company. I was a turn-boy, a helper of a driver, for two years. Then I got a license and started driving. I worked for them for 19 years before the company had problems and I was let go. [Then] I was hired by a French trucking compan.

I generally depart from Mombasa (in the east of Kenya) and then drive to Uganda. I pick up loads in Mombasa, which are usually containers filled with cooking oil, coffee, etc.

I take 3 to 4 trips a month and drive [every day] including on Saturdays and Sundays during those trips. On the road, I drive with my turn boy starting at 6 a.m., and our company requires us to end our day at 6 p.m. We try to find a safe place, like a border city, to park the truck at night. If the weather is not cold, one of us sleeps in the bed of my truck, and the other sleeps in a lodging or guesthouse. I get an allowance of 3,000KS per trip. When I can sleep in the truck, I can save some money.

In the evenings, I sometimes go to a bar to get a drink. There are many women at bars who sell sex out of poverty. We have a certain number of days to complete each trip. When we can finish them quicker, I have time to see my family. Between the trips, I spend time in the port to wait for clearance and loading.

The worst thing about this work is the salary and discrimination against truck drivers. The company pays me 10,000 KS monthly, which is not enough for school fees for my children. I don't want people to know that I am a truck driver because people everywhere think that we are killers because of AIDS.

Our supervisors mistreat and mistrust us as well. There is plenty of danger on the road, including thuggery by bandits and road accidents. If I get sick on the road, it is hard to receive proper treatment. I usually see my family twice a month, one day each time. I do not feel good about not seeing family, but I should respect the work so as to keep my family going on...' Profile based on Interview (Levine 2001)

Level Two: Community Context

“The employers are only preoccupied with maximizing profit. They are completely disinterested in what the truckers encounter during the trip.”

***Truck assistant in Uganda
(Bikaako-Kajura, 2000)***

Causal Level	Definition	Key points
Community [structural]	Laws, policies, and standard operating procedures; relationships between people and sectors who are formally or informally connected to a particular transmission setting, e.g. the migrant work setting.	<ul style="list-style-type: none"> • Institutional and policy changes could improve working conditions which would reduce the transmission of HIV along truck routes. • Trucking companies appear hesitant to get involved in efforts to educate truckers or to provide incentives for safer behaviors. • Truck driver unions and associations are also be in a position to influence peer pressure and the sexual culture of truckers, but do not take the initiative to do so. • Ministries of immigration and commerce have the power to reduce risk prevalent at border crossings and other layovers by speeding up procedures, but are not motivated to do so. • Key stakeholders and gatekeepers have often not been identified or integrated into HIV prevention activities.

Despite their variance from the surrounding society, truck stops and border crossings are communities; they have systems and leaders and personalities like any community. Information about the truck route community comes more from reviewing interventions (see *Interventions* section, this publication) than from reviewing the research. Typically, research has focused on target groups like truck drivers without looking beyond i.e. the communities along truck routes. When program designers or researchers expand their vision, they often find surprising information. For example, a recent study in Uganda that sought to gather information about truckers’ sexual culture in a specific region (Gysels 2001) found that *middlemen* were crucial to the interaction between truckers and women, including sex workers, at the truck stops. These

middlemen are men who stay at the truck stops, buy goods from the drivers (or help the drivers find a buyer), and introduce truckers to local women for casual sex. More research is needed on the community structures that exist along truck routes.

Truck stops, including border crossings, are populated by the people who run or work in the restaurants, bars, and service stations and by others looking for work. The stops are often in remote locations, far from urban centers or even villages. Young men and women from the surrounding area are drawn to these settlements in search of a job and source of income. The men come looking for daily work, often physical labor. Because there are few options for making money, women often offer to exchange sex for money at truck stops. Some women meet truckers at the bars where they also sell drinks, others meet the men while they walk through the parking areas hawking food or drink or other goods. Some women stand by the roadside near the truck stops, waving down the trucks.

While these stopovers include a wide range of services for truckers and others, they often lack health services. Even when clinics, pharmacies, or other sites that provide health-related services are available, truckers and sex workers may choose not to visit them for treatment. For the truckers, part of the issue is access. Truckers are usually at the stops only at night, and while the driver is free to roam around, the assistant generally must stay with the truck. For the women, the clinics are often seen as hostile environments. Many health workers treat SWs with indifference or disdain; and these negative attitudes are enough to keep clients away.

Truckers, assistants and people who work at settlements and border crossings often behave differently than they might at home. Prevailing norms from the larger society, or even in surrounding villages, have little place here. Truck stops and border crossings are transitory places – people come and go, usually in a few hours or a few months, sometimes in a few years. Truckers, the most transitory people at the stops, are generally anonymous. When they do have a few hours to relax, they are often surrounded by alcohol, potential sex partners, and other truckers encouraging them to enjoy the available sources of entertainment. Alcohol flows freely and drugs are often available. In some countries, gambling is common. Women offering sexual services surround them.

Sexual activity is often readily available at transportation depots, truck stops, and border crossings. Studies from multiple countries report that a high percentage of truckers, women who live and work near truck stops, and young men who are temporary workers at the settlements have multiple partners and engage in unprotected sex. Accordingly, a high prevalence of STIs, including HIV, is reported. Even when the incidence of HIV is not high, the incidence of STIs and other indicators of risk for HIV is high.

Gatekeepers and Stakeholders

Truckers and truck route communities contribute to larger systems. Governments, industries, and communities have much to gain from the trucking industry. They also have much to lose. While there are some outstanding exceptions, stakeholders have generally stayed on the side of the road when it comes to issues facing truck drivers and their sexual partners.

As might be expected, the structure of the trucking industry varies by country, from loose, informal structures to tight, government-controlled structures. Still certain types of gatekeepers and stakeholders exist in most countries, including:

- Government, as represented by ministries of transportation and commerce;
- Trucking companies – local, national, or international;
- Trucking associations, trade unions, and training institutions;
- Health providers (treating STIs and other illnesses);
- Community members.

Each has a specific type of influence over the risks facing truckers and their partners.

Government (including Ministries of Transportation, Commerce, Trade, and Immigration)

Government agencies have done little to address the issues truckers and their partners face. For example, inefficient bureaucracy can keep truckers at border crossings for days or weeks. Truckers passing through Uganda report that border authorities do not work on Saturdays or Sundays; other clearance points close at 4 p.m. (Bikaako-Kajura 2000).

Trucking Companies

Throughout the world, HIV/AIDS is affecting people in their most productive years, with the largest percentage of HIV infections among people under 40. Further, the children left behind by the death of one or both parents lose opportunities for education and training that would help them become the workers of the future. AIDS epidemics negatively impact the economic sector and will continue to do so for years to come. Due to the prevalence of HIV among truckers, the trucking industry will experience this impact even more than other sectors of the economy. A recent study in South Africa estimates that by 2005, there will be 403 AIDS-related deaths in the transport sector for every death due to another cause (Marcus 2000).

Trucking companies are beginning to experience the impact of HIV. One of Zambia's largest trucking companies has lost 39 of its 144 drivers to AIDS in the last three years (IMPACT 2000). Trucking companies are losing valuable – and trained – workers. When drivers become sick or die, the companies must train more drivers, which can take years. Companies that pay health expenses or insurance premiums are seeing these costs skyrocket for people with HIV. All of these impacts are expensive.

This is a particular problem for smaller companies. Much of the trucking industry is composed of medium to small companies. Eighty to 90% of the trucks driving along India's highways belong to unorganized sectors – small owners who own one or two trucks. They either coordinate the trucking details themselves or lease out their trucks and drivers to bigger companies (Bhoruka AIDS Programme, India n.d.). The situation is similar in the Philippines, where most of the trucks are privately owned. Companies are small businesses owned by families who also run other affiliated businesses. There are four associations of trucking companies in Manila (Uysingco 1995).

Trade Unions

Truckers' unions exist in many countries; however, the resources and strength of these unions vary. In South Africa, more than half of the truckers felt that unions were slow to deliver or did not deliver on promises and did not help solve problems (Marcus 2000). Trade unions in Uganda have few resources. They must depend on others to support the status of their workers (Bikaako-Kajura 2000).

Health and STI Service Providers

STI treatment, when it is available to truckers and their partners, is offered from government health clinics, private health clinics, and traditional healers. Many truckers and people who live along truck routes visit traditional healers for their health concerns. Still, researchers and implementers have rarely included these health providers in their work.

Community Members

The people who live at or near truck stops and border crossings are part of communities, much like any settlement of people. There are formal (e.g., village chiefs) and informal (e.g., opinion leaders) leaders as well as appropriate ways to access the leaders. The study in Uganda cited earlier in this publication (Gysels et al. 2001) found that settlements in southwest Uganda had middlemen who mediated between truckers and SWs. Much more attention is needed to the structure and process of the communities that exist along truck routes.

Working Conditions

Truckers spend most of their lives along truck routes. They spend days or weeks at a time waiting for loads or for clearances. Then they spend long hours driving across dangerous and often remote highways. They complain of monotony, exhaustion, and loneliness (IMPACT 2000). For South African truckers, an average workday is 16 hours; two-fifths of drivers in one survey worked continuously for 17 to 40 hours (Marcus 2000). Trucking is stressful. Drivers are responsible for their loads and the trucks they are

“I spent eight months without going home due to vehicle breakdown and found my wife had gone [to her parents’] home. She did not have any money for family maintenance.”

**Driver in Uganda
(Bikaako-Kajura 2000)**

driving. They need to get to a particular place within a specific time frame, with the cargo and truck in good shape. It is also dangerous. Truckers face many perils including traffic accidents, which are common and often deadly, and bandits who work the highways and threaten their lives and livelihood.

The nature of the work also puts truckers at risk for accidents, theft, disease (including malaria, cholera and other life-threatening diseases as well as HIV), and unfair jailings or fines. Even if they survive these dangers, they must deal with long, hot days on the road and boring nights in drab, dark settlements. Often, they are treated unkindly by residents and others who pass through the settlements.

Truckers complain that they are not given sufficient money for expenses. In some countries, truck drivers receive a set amount of money for each trip and must pay repair costs, police fines, and other unforeseen costs in addition to their personal expenses (such as food and lodging). An example of how this might affect HIV transmission is that in some places, spending the night with a SW costs a trucker less than half the price of a hotel room (IMPACT 2000). Or sometimes the only sleeping accommodation available in a stopover is with a sex worker (Mupemba 1999).

Two recent studies in Uganda and South Africa looked at working conditions of truckers in the context of HIV infection; both found that truckers perceived their work conditions as playing an important role in their risk-taking behaviors (Bikaako-Kajura 2000; Marcus 2000). The Ugandan truckers actually attributed their high-risk sexual behavior to the nature and conditions of their work, which they felt was characterized by insecurity, bureaucracy, health issues, family conflict, and unsatisfactory work terms and conditions (Bikaako-Kajura 2000).

In South Africa, truckers felt that the policies of their employers encouraged, even compelled, them to work long hours with few rests, and a third of the truckers interviewed reported unfair and inhumane treatment by their employers (Marcus 2000). Truckers then looked for sexual partners as a way to relieve fatigue and stress. Most truckers surveyed in South Africa felt that their work had a negative impact on their family life, caused loneliness, allowed them little time to rest, and was boring (Marcus 2000).

Truckers' work is dangerous, stressful, and lonely; they drink alcohol to relax, then are more likely to engage in risky behaviors. Compared to the very real dangers and uncomfortable conditions they face in their work every day, the threat of HIV or AIDS may seem very distant.

Mobility

Mobility is an essential part of a truck driver's life; during the long drives they are continually in motion. They can stop at any place along the way. Furthermore, they do not have a discrete port (like seamen) or place of work (like migrant workers) or set schedule. Truckers stay away from home for different lengths of time (see Table II-1). Indian truckers spend approximately 80% of

their time on the road; one trip might take as long as three or four months (Blairman 1988). Truckers in other countries might take seven-day trips or two-week trips.

Even when they are not on the road, the nature of their work often keeps truckers away from their home and families. The situation in the Philippines is typical. Many truckers are based in Manila while their families live in rural areas – either to take care of the family land or because it is more affordable. Even when their families live in Manila, their home is often too far from the truck base for truckers to go home each night. While each trip may only be 3-4 days in length, Filipino truckers are away from their families for months at a time (Uysingco 1995).

Being away from home often creates tension between truckers and their families. Sometimes they are not able to provide money to their families, and the families are left without needed resources (Bikaako-Kajura 2000).

Table II-1 Mobility of Truckers

Country & Sample Size	# of Days Away from Home
Brazil (n=300) (Lacerda et al., 1997)	55% average more than one week away per trip
India (n=N/A) (Marck* 1999)	average of 10 months away between visits home
Kenya (n=N/A) (Marck* 1999)	average of two weeks away between visits home
Nigeria (n=258) (Orubuloye et al. 1993)	average 5 weeks away per trip
South Africa (FHI/IMPACT 2000b)	14-20 days per month
Uganda (n=90) (Bikaako-Kajura 2000)	70% spent less than one week at home during past four months
Vietnam (n=200) (Beesey 1998b)	57% usually away from one to two weeks
Zimbabwe (n=N/A) (Marck 1999)	average of five days away between visits home

*Marck review article includes research from India, Kenya, and Zimbabwe from earlier dates.

Being away from home also impacts risk factors for HIV and other STIs. In Kenya, men who traveled more than two weeks each month had significantly more STIs than those who traveled less for work (Jackson et al. 1997). The same study found that men who reported having sex with their wives in the previous three months were less likely to seek other partners and less likely to become infected with an STI. The mobility of truckers contributes to their feeling lonely and isolated during the long trips. It also disrupts social ties and the norms that go along with these ties. See Individual Context below.

Level Three: Institutional [infrastructural] Context

Causal Level	Definition	Key points
Institutional [infrastructure, environment]	Individual living and working conditions; resources and opportunities; recognition of individual, structural, and super-structural factors. E.g. access to appropriate health care services and family support.	<ul style="list-style-type: none"> • Truckers have high rates of STIs. • There are many barriers to accessing treatment. • Many female partners of truckers with STIs do not get treatment either because they don't recognize that they have an infection, they are not able to access a health facility, or they have experienced health workers with negative attitudes.

STIs, including HIV

Truckers have high rates of STIs and HIV. A recent study of 320 male truckers in South Africa found that 56% were HIV-positive and 60% reported having had a different STI in the previous six months (Ramjee and Gouws 2000).

While the percentages are smaller in Asia and Latin America, where the epidemic started later, the numbers are growing rapidly – particularly in India and Vietnam. In India, the number of truck drivers who are HIV positive increased by about 30% between 1997 and 1999 (Bethapudi 2000). In Bangladesh, a national surveillance study found that the people with the highest prevalence of HIV were sex workers (SWs), long-distance truck drivers, people who had a history of sexually transmitted infections (STIs), and sailors (Islam et al 1999). A study of truckers in China found that the rates of chlamydia and gonorrhea were 10.2% and 7.8% respectively, compared with 5.6% and 1.9% for the general population (WHO 2001).

“Most of the drivers [I worked with] they are not there, they have died. And everybody has died because of that [AIDS], you understand.”

**Truck Driver, Kenya
(Levine 2001)**

Forty-four percent of truck drivers who participated in a study in Nigeria reported being treated for a sexually transmitted disease during their lives (Orubuloye et al. 1993). While HIV infection among Brazilian drivers is still relatively low, researchers found that almost 50% of the truck drivers had a past STI (Lacerda et al. 1997). A study with truckers in India found that 35% had an STI (Rao et al. 1999).

People who have a history of STIs other than HIV are vulnerable to being infected by HIV. Having an STI indicates that a person has engaged in high-risk sexual behavior, and implies he

or she could again in the future. People who have an untreated STI are at increased risk of contracting HIV – particularly people with ulcerative genital diseases such as syphilis, chancroid, and genital herpes. High rates of STIs among truckers add to the argument that truckers are at high risk of contracting HIV.

Barriers to Treatment

For truck drivers, many barriers exist for access to medical treatment. Along many truck routes, health centers are either not available or they are not open at night when the truckers are stopped. Moreover, while drivers have the flexibility to leave their truck during stops, assistants often must stay with the truck. Hence, even if a health facility at a truck stop existed, assistants may not have the option of seeking treatment.

Timely treatment of STIs not only minimizes risk of contracting HIV, but also provides health workers an opportunity to interact with the client and promote condom use, thereby possibly preventing high-risk behavior. Truckers generally do not seek treatment from qualified health workers – either for general illness or for STIs. On the occasions when truckers do seek treatment for STIs, they often do not return for follow-up (which is not surprising since they may be thousands of kilometers away on their appointment date).

A study with Filipino truckers who had a history of at least one STI found that none went to a government clinic, one-third went to a private clinic or doctor, one-third went to a pharmacy, and one-third treated themselves or went to a friend or relative (ASEP/PATH 1996). In Nigeria, 51% of truckers went to a modern doctor or hospital for treatment for STIs, 35% to traditional healers, and 14% to a pharmacist.

Drivers from many developing countries felt that a stigma is attached to attending a STI clinic. Clinics that only provide treatment for STIs, and are advertised as such, are likely to be rejected.

Many times, men who received treatment thought it was a negative experience. Indian truckers who had an STI felt shy and embarrassed about their infection. They reported that doctors looked down on them and treated them as “irresponsible” (Majumdar and Rao 1999). Feeling embarrassed also prevents truckers from telling their wives or other partners about their STI. Thus partners go untreated. Clinics have also found that truckers refuse to identify their partners for notification.

While treatment at established health centers is rare, some truckers *do* seek treatment and/or try to prevent STIs. Some go to traditional healers or non-trained health workers for STI treatment. Often these people are non-judgmental, and clients feel more comfortable visiting them. Some people also attempt to self medicate. For example, in India many drivers try to prevent STIs by washing their genitals after sex with *Dettol* (a common household disinfectant in India), soap and water, lemon juice, or their urine.

Condom Use

Truckers do not use condoms consistently. Among the reasons they give are lack of access – no condoms were available at the time of the encounter, or quality – they have had condoms break and therefore lost their trust in them. However, studies of truckers' condom use suggest that other dynamics are at play. Numerous studies around the world have shown that truckers are resistant to using condoms with their wives (or girlfriends) because then they would be admitting that they have sex with other people. See Individual Context, below.

Level Four: Individual Context

“After a difficult and nervous journey, we often seek the pleasure of going to drink with friends and relaxing with sex workers”

Vietnamese driver (Beesey 1998b)

Causal Level	Definition	Key points
Individual (targeted groups of individuals)	How the infrastructure and broader environment is experienced and acted upon by individuals.	<ul style="list-style-type: none"> Sexual networks vary between countries (and between ethnicities) and must be understood in order to understand risk behaviors among individuals. People along truck routes are reluctant to use condoms with primary and steady partners or with partners they perceive as “clean.” Sex between men occurs but is rarely acknowledged, hence, it is not being addressed. Machismo, alcoholism and substance abuse all reinforce sexual risk taking. Condom use within active sexual networks is as complex as the networks themselves.

A review of ten studies about truckers provides important background information (see Table II-1). The studies were conducted in Brazil, India, Kenya, Nigeria, Pakistan, the Philippines, Senegal, South Africa, Uganda, and Vietnam from 1993 to 2000. The sample size of these studies ranged from 75 to 556, with an average of 259/per study. Truckers’ ages averaged from 24 to 42, with assistants’ ages slightly younger. Most (54% to 81%) of the men were married.

Four of the ten studies inquired about religious background. In the Kenya study 40% were Protestant, 34% were Catholic, and 22% were Muslim; in the Nigeria study 81% were Muslim and 19% were Christian; in the Philippines 89% were Catholic; and in Senegal 99.6% were Muslim.

Many of the studies had drivers and assistants who had worked for more than 10 years. Formal education among truckers varied cross studies, with some truckers having no formal schooling (52% of those studied in Pakistan), to the majority completing primary school in Kenya, South Africa, and Vietnam; 88% literacy in India; 43% completing high school in Vietnam; and 47% attending high school in the Philippines.

Some risk factors for contracting HIV are related to the demographic characteristics of truckers. For example, age increased risk for HIV. Several studies have found that the younger assistants are more open to using condoms than the older drivers. Drivers are usually married, and more married men visit SWs than unmarried men (Pickering et al. 1997).

By many standards, especially those of the truck routes along which they travel, truck drivers are wealthy. Besides their salary and expenses, many supplement their income by transporting goods and passengers for people who pay them directly. Often this becomes their entertainment budget. They have status – particularly drivers of larger vehicles. Truck drivers' wealth and status are also risk factors for contracting HIV: they have the economic means to have sex with SWs and other women, and they are desirable because of their status.

Truckers belonging to particular ethnic groups can be at greater risk. For example, most truck drivers working from Lahore, Pakistan, are *Pathans*, an ethnic group that accepts men having young men as lovers (Agha 1999). Not surprisingly, truckers in Pakistan report unprotected sexual encounters with other men.

Machismo

Driving along truck routes and spending time waiting at truck depots removes men from the social and cultural norms they live with while at home with their families. This leads to an exaggerated sense of masculinity, or *machismo*, that is often tied to wielding power over women and stressing sexual virility. One researcher wrote, “[w]hile he is working, the Indian trucker inhabits a male and macho world where female influence plays little or no part” (Blairman, 1988). The same statement could be made of truckers from many countries. For example, trucks in the Philippines host bumper stickers and signs attesting to the drivers' sexual prowess (Uysingco 1995).

The all-male environment attracts and also reinforces risk-taking. One study found that trucking attracts adventurous men who are more likely to take risks (Orubuloye et al. 1993). But even if they were not extreme risk-takers before taking the job, trucking encourages – perhaps even requires – that attitude.

Risk behavior extends into sexual risk taking. The attitude that one researcher calls “exaggerated virility” permeates the trucker culture and directly relates to risk factors for STIs (IMPACT 2000). In Zimbabwe, it is considered “unmanly” to restrict oneself to only one partner (Mupemba 1999). Many truckers share the attitude that they *need* sex, and lots of it. While this attitude may not differ from men in general, the behavior that accompanies the attitude may contribute

“..men’s nature is that they are never satisfied, and in their many movements, they may come across girls who they feel they must have sex with.”

**Young Kenyan man
(Cameron et al. 1999)**

to the geographic spread of HIV. Some Zimbabwean drivers could not imagine going more than a day or two without sex and humiliate drivers who do not visit sex workers (Mupemba 1999).

Some Indian truckers believe that after driving for many hours their bodies have accumulated heat that only alcohol and sex can release from the body (Rao et al. 1999). In India, peer pressure also plays a big role in introducing new drivers to sex workers (Rao et al. 1999).

Dynamics of the crew

Truck crews are generally made up of drivers and their helpers, called *cleaners* in India and by other names, such as *apprentices*, in other countries. The drivers act as supervisors of the crew.

In the Philippines, truck crews are generally made up of a driver and one or two helpers. Helpers are casually employed. A driver picks out the helper/s he will work with. They are usually relatives of the drivers who are between jobs. The helpers serve as a companion for the driver to keep him awake while driving. When they stop, the helpers cook and ensure the security of the cargo. They also unload and load the cargo (Uysingco 1995).

In Pakistan, a crew typically consists of two drivers and one assistant. This allows the drivers to switch off, keeping them on the road longer (Agha 1999). Often, truckers stop and pick up a SW along the side of the road and drop her off further down the road, saving time by preventing a stop.

Sex between Drivers and Assistants and Other Men

Some truckers have sexual encounters with other males (e.g., with helpers). Studies in India report that between 5% (Miles 1998) and 25% (UNAIDS 2000) of Indian drivers reported having had oral or anal sex with other men. Thirteen percent of truckers in the Philippines (Uysingco 1995), nearly 50% in Pakistan (Agha 1999), 24% in Brazil (Lacerda et al. 1997), and even a small percentage in East Africa, where homosexual acts are reportedly infrequent (Kiama 1998), reported having had sex with other men.

A study in India found that drivers (identified as heterosexual) had homosexual relations with their male cleaners and helpers, but less frequently than they did with female SWs. Still, these sexual relations do occur, often in exchange for favors. For example, a driver offers to teach the cleaner how to drive a truck (Rao et al. 1999) in exchange for sex.

Clearly, there is a power differential at play in the crew; and the power is in the hands of the driver. The assistant could be fired at any time, and he generally needs the work. Sometimes the driver will offer to teach the assistant how to drive a truck. This dynamic impacts sexual risk behavior, as the assistant has little power to refuse sex or to successfully negotiate condom use.

Almost without exception, truckers who have sex with other men do not identify as homosexual. Because they identify as heterosexual, they are more likely to ignore safe sex messages geared to

men who have sex with other men. They are also less likely to use condoms during these interactions.

Female Partners

Women, particularly young women, throughout the developing world are at greatest risk of HIV infection. They are exposed to HIV predominantly by their husbands, boyfriends, and male clients. As might be expected, HIV prevalence is even higher for SWs, particularly those who work along truck routes. For example, a study found that 50% of the women who work in bars and guest houses at truck stops in Tanzania were HIV positive (Nyamuryekung'e et al. 1997). A study done in South Africa in 1997-98 found that 61% of truck stop SWs in the three truck stops sampled in KwaZulu/Natal province were HIV-positive (Synergy Project 2000). Twelve percent of the SWs who work along India's highways are HIV positive (Bethapudi, 2000). While most studies related to women affiliated with truck routes concentrate on SWs, a recent study in Bangladesh found that for women, having a partner who was a truck driver or assistant was significantly associated with having an STI (Sarker et al. 2000).

“No one keeps your life-parcel (Chichewa expression meaning health and well-being) but yourself, but today this no longer applies. Your wife keeps your parcel and you your wife's.”

**Malawian truck driver.
(Walden et al. 1999)**

Many of the women who live along truck routes (including but not limited to sex workers) rely on truckers economically; they have few or no other options. For these women (and for some of the men), the risk of getting HIV is one among many hardships of their lives. Some women feel that protecting themselves from HIV is less of a priority than other risks they face, partially due to fatalism and partially due to the need to provide for themselves and their families, often including children (Awusabo-Asare et al. 1999). Truckers, particularly drivers, are attractive partners to women. They earn a decent income, they offer rides, and sometimes they smuggle goods that could not otherwise be obtained (IMPACT 2000).

Lack of gender equity is an important element in the spread of HIV along truck routes. Sex workers, casual and regular partners, and wives often have less information about reproductive health, including HIV prevention, and less access to information and services. They often have less education, which limits their exposure to news and media.

In addition, women often have less power to control their interactions with truckers and other men. Even when they know about safe sexual practices, that this is important, and have the skills necessary to practice safe sex, they do not have the power to successfully negotiate health-enhancing behavior. Or they cannot afford to request condom use, either because they will lose clients and income or because they fear being physically harmed.

Wives

Wives usually do not know about their husbands' sexual activities while they are away from home. Even if the couple communicates well, the topic of sex and particularly the man's activity outside of the marriage is difficult and often forbidden.

Using condoms with their wives would imply that they are being sexually active during their journeys, so many do not use them (Orubuloye and Oguntimehin 1999). Because men rarely use condoms with their wives, these women are at particular risk of being infected by HIV and other STIs.

In some cases, women want or are pressured to have children and therefore resist using condoms with their husbands. More often, the wives have heard of HIV and of the importance of using condoms when there is a question of risk. However, their husbands either refuse to admit that they are having sex with other people or the woman is afraid to bring it up.

Women may also be at risk because of their own sexual activities outside of their marriage to a truck driver. A South African study of HIV prevalence in migrant workers and their wives (who lived in rural areas) found that a significant proportion of wives were HIV-positive while their partners were HIV-negative (Lurie et al. 2000). This could suggest that these wives have their own sexual networks.

As mentioned earlier, truck drivers in Nigeria often have steady partners and form semi-permanent homes at many of their regular stops (Orubuloye et al. 1993). This is true for some truckers in other countries as well. Within these steady relationships, condoms are rarely used. Trust seems to be a key variable. Men want to trust, or believe they can trust, their girlfriends or they are concerned that using a condom would imply that they are not trustworthy.

Other Casual Sex Partners

Truckers also have sex with other casual partners who do not identify themselves as SWs. These casual encounters may, in fact, include exchange of money or goods (such as alcohol or food). A study in Uganda found that goods exchanged for sex included soap, clothes, or the entrance fee to a disco (Pickering et al. 1997).

Adolescent girls are sometimes part of the sexual network along truck routes. Young women from areas around truck stops occasionally engage in sex with older truck drivers in exchange for money or some other valuable commodity. Often these girls have no other means of gaining access to basic commodities, including school books and fees.

As mentioned earlier, some truckers are expanding their sexual network to younger women, based on the perception that teenage girls, particularly those who are not identified as SWs, are less likely to have an STI. This needs to be further researched to determine if this is a trend.

Alcohol/Substance Abuse

Alcohol is a major part of the trucker culture in most countries reviewed. A study of truckers in India found that 47% were alcoholics (Rao et al. 1999). For the men, drinking is a major part of their socializing together. They gather, drink beer and talk, play cards or gamble. They drink to help them cope with the stress and loneliness of being on the road. Usually, it is the only available option for relaxing or reducing stress.

Drinking is closely tied with having sex with SWs and to having unprotected sex. A study in India linked alcohol consumption with unprotected sex (Rao et al. 1999). When people are drunk, they are less likely to use condoms than if they are sober.

Further, a 1998 study in South Africa found that HIV prevalence rates were significantly higher for people who drank alcohol compared with people who did not (UNAIDS 2000).

Truckers in Brazil and several other countries have acknowledged their use of the stimulant *Rebite* (an amphetamine that is technically a prescription drug, but easy to obtain without a prescription in many countries). In Brazil, a recent study of truck drivers linked use of this drug to the drivers' increased vulnerability to STIs (Junquera-Aguiar and Castilho 2000). Another study in Brazil found that drivers who use *Rebite* are more likely to use cocaine and other drugs and more likely to test positive for syphilis (Lacerda et al. 1997).

In Kenya, truckers chew *khat*, an herb that produces an amphetamine-like reaction of alertness and euphoria. Truckers reported using drugs in other studies as well, but in these studies they were not asked what types of drugs they used. Studies in general have not shown a high incidence of injection drug use among truckers.

HIV/AIDS Knowledge, Attitudes, Beliefs

While most truckers have a general knowledge about HIV/AIDS – what it is and how it is spread – misconceptions exist. These misconceptions contribute to truckers' resistance to changing their behavior and to the continuation of high-risk behaviors among truckers.

A study of Kenyan truck drivers reported that the men knew they were at risk for HIV because of their sexual behavior and not using a condom. However, they also believed that HIV could be spread by mosquito bites; using condoms already contaminated with HIV; and sharing utensils, towels, and hand-washing basins (Cameron et al. 1999).

“HIV/AIDS is spread by having many sex partners and especially when one is drunk, because at such moments one goes with any woman without any protective device, such as condom.”

***Young Kenyan man
(Cameron et al. 1999)***

Research in India found that while 70% of the truckers questioned had basic knowledge about AIDS, they were not fully aware of its transmission and consequences (Rao et al. 1999). Some believed that AIDS is a government creation and the disease does not actually exist (Majumdar and Rao 1999). Another study in India found that truck drivers without a history of STIs believed that they were “too healthy to catch an infection.” They also reported that they are very selective about their partners, and only go to “good looking” women. They had no idea about the long latency period of HIV (Majumdar and Rao 1999).

“If you know the husband and he looks healthy, no need to use a condom with his wife.”

**Malawian truck driver
(Walden et al. 1999)**

A study in the Philippines found that while truckers knew that HIV was sexually transmitted and that they were at risk due to their sexual activity, there were still misconceptions about HIV infection and transmission. Fifty-six percent thought that withdrawal from intercourse was an effective way to reduce their risk of contracting HIV (Uysingco 1995).

In Nigeria, nearly all drivers questioned in one study had heard of AIDS and understood the risk. They also believed that teenagers and women in their early 20s are less likely to be infected; therefore they choose young partners (Orubuloye et al. 1993). The same study found that truckers believed they were at higher risk being with a SW than if they stayed with a *home-based woman* [a woman who lives near a truck stop and has a regular trucker *boyfriend* (or *boyfriends*) who stays with her when he is passing through] (Orubuloye et al. 1993).²

In countries where HIV/AIDS has been present for more than a decade, many truckers have first-hand knowledge of it. A 1999 study in South Africa found that 49% of truckers had relatives and 33% had friends or colleagues with HIV or AIDS (Marcus 2000).

Condom Use

In Kenya and Tanzania, truckers were less likely to use condoms with their regular partners, whom they classify as *safe*, and more likely to use them with SWs (Jackson et al. 1997). In Nigeria, a little more than half of drivers had ever used condoms; 15% use them on a regular basis, but only with partners other than their wives or regular partners (Orubuloye et al. 1993). In Brazil, 54% of truck drivers reported using condoms with casual sex

“If a lady is fat and healthy looking as if she does not have it [HIV] I wouldn’t use a condom. If a woman is thin, she is probably carrying the disease, use a condom.”

**Malawian truck driver
(Walden et al. 1999)**

² It is important to note the context here. Along the truck routes in Nigeria, the distinction between *home-based women* and SWs is slight; some home-based women work in the bars between visits from their regular trucker partners; therefore, their risk for STI infection is high (Orubuloye et al. 1993).

partners, while only 6% used them with primary partners. These drivers considered friends and married women as *safe*, while SWs and girls were *unsafe* (Lacerda et al. 1997).

Several studies have shown that even when risk awareness is increased and ability to use condoms correctly enhanced, condom use doesn't change. For example, a program in Kenya was able to bring about a significant decrease in the amount of reported sex with high-risk partners, but no change in condom use (Laukamm-Josten 1998). The situation is slightly different in the Philippines. A study there found that truckers do not use condoms even for commercial sex – mostly because they don't know how to use them and perceive a loss of sexual pleasure if they use them (Uysingco 1995).

Truckers also practice other high-risk sexual behaviors, in addition to not using condoms. A recent study in South Africa found that 42.3% of truckers regularly practice anal sex and only 22.8% of those used a condom at the time (Ramjee and Gouws 2000). Truckers also have sex with other men, and this often includes anal sex (see *Sex between Drivers and Assistants and Other Men* in the next section). The recipient of anal sex may be as much as 15 times more likely to be infected by HIV (Cowan 1999 in Marcus 2000).

Condom use within active sexual networks is as complex as the networks themselves. While early studies looked at condom use in the commercial interaction, more recent studies pay attention to the context of the condom use. Table II-3 depicts the situation of condom use along truck routes in Cote d'Ivoire (Ivory Coast).

Table II-2 Reported Condom Use* by Type of Sex Partner
A study from Cote d'Ivoire (Kamenga et al. 2000)

	Regular Partner	Casual Partner	Commercial Partner
Truck Drivers N=666	30%	72%	88%
Female SWs N=1520	16%	67%	82%

* During last sex act.

Table II-3 Demographic Information about Truck Drivers

Country	Average Age	Age Range	% Married	Religion	Average Income	Years Employed as Truck Driver	Education
Brazil 1997 (Lacerda et al. 1997)) n = 300	38	N/A*	71%	N/A	40% US\$400-600/mo	70% >10	52% <8 yrs 26% 8 yrs 20% 9-11 yrs
India 1997 (Kanjilal and Forsythe1997) N=291	70% 20-39	N/A	54%	N/A	drivers: Rs2,900 assts: Rs1,000	48% 6-15 yrs 15% <5 yrs	88% literate
Kenya 1997 (Jackson et al. 1997) n = 556 (Trucking company workers)	29	16-62	63%	40% Protestant 34% Catholic 22% Muslim	N/A	N/A	Majority completed primary education
Nigeria 1993 (Orubuloye et al. 1993) n = 258	36	20-60	78% (40% monogamous 38% polygamous)	81% Muslim 19% Christian	15,000 naira/yr	avg 14 yrs	42% none 45% elementary school 11% high school
Pakistan 1999 (Agha 1999) n = 300	50% 24-34	N/A	80%	N/A	N/A	N/A	52% no formal school
Philippines 1995 (Uysingco 1995) n = 75 (drivers & helpers)	35	18-62	76% (unmarried are mostly helpers)	89% Catholic	85% P120-250/trip metro 66% P200-600/trip provincial	57% 6-15 29% >15	48% attended primary school 46.7% attended high school
Senegal 2000 (Leonard et al. 2000) n = 260 (baggage handlers, drivers, and apprentices)	33	13-70	54%	99.6% Muslim	N/A	N/A	34.2% attended primary school
South Africa 2000 (Marcus 2000) n = 262	42	20-63	81%	N/A	R3,979/mo	Avg 14 yrs	15% incomplete primary (<6 yrs) 70% complete primary, incomplete secondary 15% completed secondary or beyond
Uganda 2000 (Bikaako-Kajura 2000) n = 90 (drivers & assistants)	drivers: 38 assts: 21	N/A	80%	N/A	drivers: K.Shs 10,000/mo assts: K.Shs 5,000/mo	drivers: 66% >10 assts: 59% ≤10	N/A
Vietnam 1998 (Beesey 1998b) n = 200	39% 31-40	19-40+	78%	N/A	50% US\$38-78/mo 27% US\$78-156/mo	68% < 10 32% >10	47.7% completed secondary 42.7 completed high school

* Not Available

Sexual Networks

An ethnographic study conducted in Zimbabwe showed that trucking and prostitution are closely interwoven. Drivers get companionship and sex; SWs get free transportation and money (Laukamm-Josten 1998). But it is not that simple. Complicated sexual networks exist among the people who live and work along truck routes. These networks differ between countries and possibly between regions and ethnicities of people within countries; however, there are some commonalities. Truck drivers are away from their homes and families. Sex outside their primary relationship is documented as common in many places. Many truck drivers have multiple sex partners and fail to use preventive measures consistently.

During a single trip, a trucker might have sex with a sex worker in the back room of a bar at a border crossing. Later he might spend the night with a long-time girlfriend who works near a truck stop. The next day he might happen to meet a teenage girl and convince her to have sex with him in exchange for money for schoolbooks. At an isolated stop, he might ask his assistant to engage in a quick sex act with him. He then returns home and into the welcoming arms of his wife (See Figure II-1).

But even this is an oversimplification. Sexual networks vary across countries and regions. What is common in Pakistan is not seen in Kenya and what is normal for Nigeria is incomprehensible in India. In this section, even more than the others, it is important to look at the differences across countries.

While differentiation is occasionally difficult, one study characterized sexual partners as either primary, steady, or casual (Lacerda et al. 1997). *Primary partners* are generally wives; they are the most stable relationships, usually with a legal tie. In regions and within ethnicities where polygamy is practiced, a trucker may have more than one wife. Some truckers have ongoing sexual relationships with *steady partners*, often women who live along their regular routes or near the base. Then there are the *casual partners*, women (and sometimes men) with whom truckers enjoy short-term sexual relationships. See Table II-4, Participants in Sexual Networks, for more information about these types of sexual partners and motivating factors for the relationships.

“Once you get a caring partner ... [you] get into “skin-to-skin” due to both the drive and the personal conviction that you are now familiar to one another and generally view the partner as just too good to have the virus.”

Young Kenyan man
(Cameron et al. 1999)

Figure II-1 Sexual Network Diagram

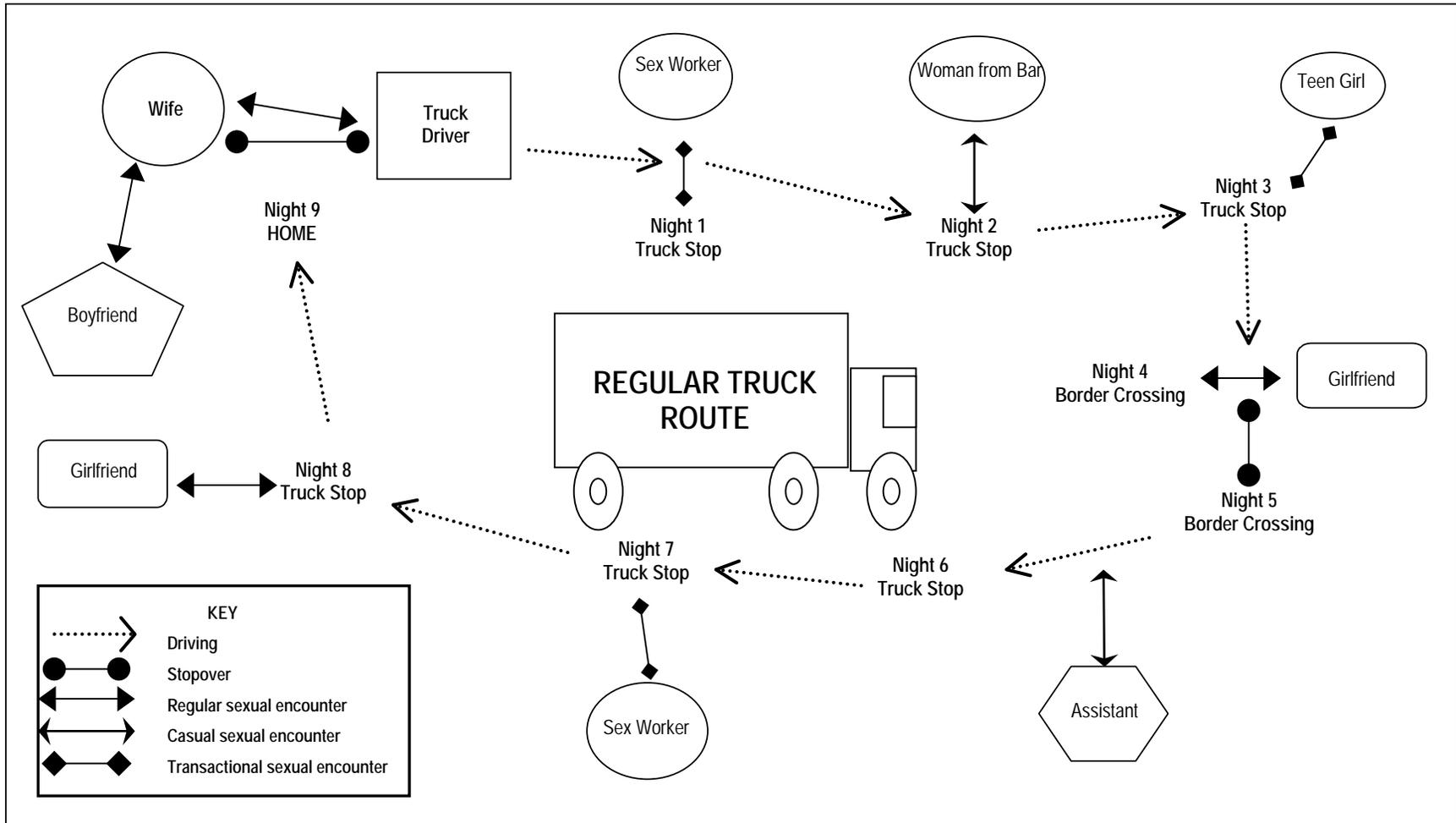


Table II-4 Participants in Sexual Networks along Truck Routes and Motivating Factors

Partners of Truck Drivers	Partner Type	Motivating/ Facilitating Factors for Having Sex with Truckers	Other Partners of Truckers' Partners	Partner Type	Motivating Factors for Having Sex with These Partners
Wives	Primary	Pleasure, Expectation, Procreation	Boyfriends	Steady	Pleasure, Gifts, Sustenance, Companionship
Girlfriends	Steady	Gifts, Sustenance, Pleasure	Husbands	Primary	Pleasure, Expectation, Procreation
			Boyfriends	Steady	Pleasure, Gifts, Sustenance, Companionship
			Clients	Casual	Money
Sex Workers	Casual	Money	Clients	Casual	Money
			Boyfriends	Steady	Pleasure, Gifts
Adolescent Girls	Casual	Money, Gifts	Casual Acquaintances (predominantly older men)	Casual	Money, Gifts
Assistants	Casual	Favors, Power	Girlfriends	Steady	Pleasure, Companionship
			Sex Workers	Casual	Money
Casual Acquaintances (women)	Casual	Alcohol, Gifts	Boyfriends	Steady	Pleasure, Gifts, Sustenance, Companionship
			Husbands	Primary	Pleasure, Expectation, Procreation

Throughout the developing world, truckers typically find casual sexual partners in a variety of places, such as bars and nightclubs, typically in close proximity to their parked trucks. In Nigeria, casual sexual activity usually occurs in large truck stops characterized by vendor stalls, bars, guest houses/hotels, and sometimes brothels (Orubuloye et al. 1993). Brothels are also available to truckers in Brazil (Lacerda et al. 1997). Indian drivers stop at dhabas (roadside hotel; motel) which provide food, rest, call girls, alcohol and drugs. Their trucks are often used as sites for sex (Rao et al. 1999), as they are in Brazil (Lacerda et al. 1997). In the Philippines, the “beerhouse” is the most common place for truck crews to find sex partners, including SWs (Uysingco 1995). In Vietnam, truckers find casual partners in karaoke bars (Beesey 1998a).

Sexual networks along truck routes in Nigeria vary from those that exist in other countries. A study of Nigerian truck drivers found that most have steady girlfriends and casual partners along their routes. In fact, only 5% of Nigerian drivers reported that they have no regular sexual partners besides their wives (and most of these drivers only drive on short trips) (Orubuloye et al. 1993). Drivers prefer to keep the same route for years at a time in order to maintain long-term

relationships with *home-based women*. These steady relationships approximate polygamy, or primary relationships (Orubuloye et al. 1993). Drivers in Nigeria contribute to the support of these women and have an average of 6.3 girlfriends, or one for every night of an average trip (Orubuloye et al. 1993). Staying in homes during their trips provides truckers with home-cooked food, familiar surroundings, friendship, and sex. This offers them a much more integrated life. Some of these drivers had second or third wives and additional girlfriends. Nigerian drivers are with these women for more than just fun or sex; the women are an essential part of their lives and their *home* at regular truck stops (Orubuloye et al. 1993).

When their truck routes do change, drivers often end relationships with their sexual companions and probably form new relationships on their new route. Girlfriends of truckers may have other boyfriends on different nights and in many cases, the men know this (Marck 1999). One study found that 36% of drivers knew about the other partners of their girlfriends (Orubuloye et al. 1993).

In studies of Kenyan, Thai, and Zimbabwean truck drivers, the truckers claimed sexual moderation while on the road, with an average of 1.2 casual partners over the three months previous to the studies (Marck 1999). By comparison, Indian drivers reported numerous casual partners. A study with truckers in India found that 87% were sexually active with multiple partners (Rao et al. 1999). In another study, Indian drivers reported large numbers of casual sex partners (between 50 and 100 in the previous year), usually SWs (Marck 1999). Some Indian truckers visited the same sex worker more than once, but others would never be with a SW more than once (Marck 1999). However, some Indian drivers maintain a second wife at frequent stopping points (Rao et al. 1999).

In Cameroon, where truckers are generally away for 14 days at a time, 60% of the truckers interviewed for a study reported that they had sex during each trip, while 25% of the same group had sex every night of their trip (European Commission 1999).

III. CASE STUDY INTERVENTIONS

HIV prevention programs along truck routes are important in the effort to slow the transmission of HIV for several reasons. First of all, they occur in a high-risk setting and have the potential to influence the sexual behavior that occurs there. Secondly, these programs offer an opportunity to intervene early in an epidemic, as truck routes are a gateway for HIV transmission. When the virus first appears in a country, interventions can have a significant impact on the future of the epidemic. Effective efforts at this stage will protect thousands, even tens of thousands, of people from getting the virus later.

Interventions along truck routes are important because of the sheer numbers of people involved. There are about five million long-distance truck drivers and assistants in India alone (Rao et al. 1999). Interventions with these groups or in these settings are also important because of the amount of risk involved. Numerous studies have found that many of the people who live and work along truck routes in the developing world engage in high-risk behavior. The most effective way to prevent infection among the entire population is to encourage those who engage in the riskiest behavior to protect themselves and others (World Bank 1997). Targeted interventions for truck drivers and women along truck routes are cost-effective in that they have the potential to prevent a large number of infections.

HIV prevention programs began focusing on truck routes after transmission trends were noticed.

They particularly focused on long-distance truck drivers and the SWs who work along the

Interventions Reviewed for <i>Putting on the Brakes</i>		
Project Name	Country	Implementing Agency
AIDS Surveillance and Education Project (ASEP_	Philippines	ALAGAD-Mindanao, Inc., PATH Foundation Philippines
AMREF Truck Drivers Project	Tanzania	AMREF, FHI/AIDSCAP
Border Areas HIV/AIDS Prevention Project (BAHAP)	Cambodia, Laos, Thailand and Vietnam	CARE International in Vietnam
Concern for Environmental Development and Research (CEDAR)	Bangladesh	CEDAR
Condom Bank	India	Center for Operations Research and Training
Corridors of Hope Initiative	Lesotho, South Africa, Zambia, Zimbabwe	Regional HIV/AIDS Programme (RHAP) Southern Africa
HIV Prevention and Control in Sexually Active Men and Women of Kaolack, Senegal	Senegal	Unknown
HIV Prevention Program	Zimbabwe	National Employment Council for the Transport Operating Industry (NECTOI), FHI
National Highway One Project	Vietnam	World Vision International, Vietnam
Peer Educator Program for Transport Workers	Senegal	University Cheikh Anta Diop, Harvard Schol of Public Health
Prevention of Sexual Transmission of HIV through IEC	Malawi	National AIDS Control Program/Malawi
STD/HIV/AIDS Intervention Programme	India, Nepal	Bhoruka Public Welfare Trust (BPWT), FHI/AIDSCAP

highways. The African Medical and Research Foundation (AMREF), with help from Family Health International's (FHI's) AIDSCAP project, was the first organization to implement a project targeting truck drivers. Their efforts started in 1989 in Tanzania (a description of this project is included in the *Examples of Projects* section). Since that time, numerous projects have addressed the issue of HIV transmission along truck routes.

Cost resource analysis

A cost/resource analysis was carried out for each case study. The resource analysis provides a description of the structure of the project and the number and type of inputs. The inputs include the number of staff at different levels, number of volunteers and incentives offered to them, number of condoms and other supplies, and number and type of training workshops. The data on quantities is more transferable to designing projects in the future, because prices vary over time and from one country to the next.

There are advantages and disadvantages to conducting this type of analysis. The advantages are that cost analysis provides an opportunity to learn about the resources needed to be successful. Projects change over time for several reasons. Implementers may learn that the project needs more outreach workers or fewer computers. The structure of the project may change in the transition from a demonstration to a multi-site project. Most new interventions cost more than previous standard practice, so there is little motivation to conduct a cost analysis until an intervention has been shown to be effective, when it is helpful to know the resources and costs required to implement it.

A disadvantage of cost analysis is that the data often need to be collected retrospectively. Retrospective data may not be as detailed or as complete. It may also be difficult to capture some components. For example, it may be difficult to know how many people were exposed to an IEC or BCC message if data were not collected during the intervention.

For this publication, retrospective data on resources and costs were collected in five steps:

1. Development of an intervention cost worksheet based on the UNAIDS Costing Guidelines for HIV Prevention Strategies (UNAIDS 2000). This worksheet is included as Appendix C.
2. Completion of worksheets partially based on project documents, including journal articles, project reports, and evaluations.
3. Communication with key contact person for the project, who reviewed the partially completed worksheet and who was invited to an interview to facilitate clarification of details.
4. Interviews with key contact person conducted. When the contact person made special comments about the resources used, those comments are included.
5. Estimation of two types of costs for each intervention: budget and social costs. The budget refers to actual expenditures by the implementing entity. Social costs refer to

both monetary and in-kind contributions that make a project a success. In-kind contributions include the volunteer time of peer educators or the time that beneficiaries spend attending BCC sessions or receiving treatment at clinics.

The results of the resource and cost analyses include the following, and findings are included in Appendix A:

- Description of the project's structure.
- Description of the number and type of inputs.
- Estimates of the budgeted costs.
- Estimates of the social cost.
- Estimates of cost per beneficiary.

AMREF Truck Drivers Project, Tanzania

Implemented by African Medical and Research Foundation (AMREF) and FHI/AIDSCAP

Description

Between 1989 and 1997, AMREF and FHI/AIDSCAP implemented an intervention along truck routes in Tanzania. This project has served as a model for similar interventions around the world. The project aimed to decrease high-risk sexual behavior and improve appropriate STI care-seeking behavior among truck drivers, their assistants, and their sexual partners (including bar/hotel workers and SWs).

At start-up, project staff met with community political leaders, government and party officials, religious leaders, and local health care workers to share information about the project and ask for support. Staff also met with the owners of small businesses whose income depended on truckers. AIDS Advisory Committees were formed in every project site to ensure full community involvement and ownership.

The main components of the project were:

1. Peer education
2. Condom social marketing
3. STI treatment
4. Women's health groups
5. Workplace education and condom promotion

Interventions took place at major truck stops along the TanZam Highway, in specific urban neighborhoods, and in trucking companies. By the later years, the project was active in 22 sites and 18 trucking companies. The primary client group consisted of 1,200 women working in bars and hotels, 450 long distance truck drivers based in three companies, and as many as 40,000 truck drivers using the highway carrying a minimum of 1 driver and 1 assistant. In 1993, AMREF expanded the intervention to include a broader *high-risk transmission area* made up of

petty merchants, travelers, workers and miners, women in general, and other at-risk population groups.

The *peer education* strategy included having members of the client groups designate peer educators. These educators talked with individuals and led group education sessions, distributed or sold condoms, and referred people for STI treatment. *Condom social marketing* included creating 135 condom sales outlets, and developing and disseminating messages and materials. *STI treatment* was improved and insured through the training of clinicians in syndromic diagnosis and treatment. A cost-sharing plan was developed so that clients paid only a percentage of the costs of treatment and medication. These improved clinics were located at 21 truck stops. *Women's health groups* were developed to meet the needs of women in the project areas. The women's groups work on income generating activities and discuss issues related to sexual health. *Workplace interventions* included STI/AIDS education and condom promotion. In addition, project staff and volunteers focused on sensitizing company management to issues related to STIs and HIV (AIDSCAP/FHI 2000a).

Implementation issues

- Layovers and stops, particularly at border crossings, require truckers to stay in a particular area for extended periods of time – increasing the likelihood of high-risk behavior.
- STIs, including HIV, are common among the people who live and work along truck routes.
- Health services, particularly STI services, are not generally available or accessible at truck stops and border crossings.
- Truckers are constantly mobile. Even when they have a regular route, they are not in one place for long.
- Myths and misinformation about HIV transmission are prevalent among truckers.
- Truckers do not use condoms consistently – not during all sexual encounters and not with all types of partners.
- Many women lack the resources and ability to provide for themselves and their families.
- Many women with STIs do not get treatment either because they don't recognize that they have an infection, they are not able to access a health facility, or they have experienced negative attitudes from health care workers.
- Trucking companies are hesitant to get involved in efforts to educate truckers or to provide incentives for safer behaviors.
- Other stakeholders and gatekeepers have not been identified or integrated into HIV prevention activities.

Evidence of effectiveness

Condom promotion and peer education intervention strategies contributed to significant behavior change results. See Table III-2, Effectiveness of AMREF's Tanzania Project.

- Condom availability increased.
- Eighteen trucking companies actively participated in the project and shared 50% of the associated costs (AIDSCAP/FHI 2000a).

Reasons for success

- Peer educators were active members of the client group – they shared the same concerns, values, and norms. Further, the peer educators were credible, trusted, and had access to the group (Laukamm-Josten et al. 2000).
- Increased knowledge, awareness, and care-seeking behavior resulted in an increase in reported cases of STIs (Laukamm-Josten et al. 2000).
- Messages promoting condom use with casual partners may send the message that condom use with regular partners is not equally important (Laukamm-Josten et al. 2000).
- Staff were able to understand real issues of the client group, were unprejudiced, and showed respect to peer educators and clients (Laukamm-Josten et al. 2000).
- Key factors for stimulating peer educator motivation were frequent support visits and respect by salaried full-time project leader(s), who traveled around to volunteers providing new material (Laukamm-Josten et al. 2000).
- Condom distribution system was enhanced (Laukamm-Josten et al. 2000).
- Well-packed and marketed condoms were believed to be of better quality than free distributed condoms (Laukamm-Josten et al. 2000).
- Women were more likely to use STI services when services were offered outside of normal working hours and the women were able to choose the delivery site and had access to STI medicines (Nyamuryekung'e et al. 1997).
- Women were more likely to use services when clinicians visited sites once every three months providing diagnosis and treatment at a venue away from the health facility (Nyamuryekung'e et al. 1997).
- Involvement of trucking companies and associated industries.

Table III-1 Effectiveness of Tanzania Truck Drivers Project

Perception/Behavior	Statistical Change in Males (%)		Statistical Change in Females (%)	
	1990 (n=425)	1993 (n=305)	1990 (n=304)	1993 (n=318)
< 25 y/o who believe they are at risk for HIV	58.2	64.5	65.1	68.6
	p<0.481		p<0.480	
> 25 y/o who believe they are at risk for HIV	54.5	62.1	70.9	73.8
	p<0.037		p<0.556	
Reporting STIs	40.2	56.	15.5	36.8
	p<0.		p<0.	
Ever using a condom	56.1	71.5	50.7	70
	p<0.001		p<0.001	
At least once in last five times with casual partner	37.3	63.8	38.6	58.0
	p<0.001		p<0.001	
At least once in last five times with regular* partner	27.3	48.3	30.2	46.6
	p<0.001		p<0.001	
Always used last five times with casual partner	19.8	43.6	18.4	32.2
	p<0.001		p<0.001	
Always used last five times with regular* partner	12.6	30.2	11.5	29.4
	p<0.001		p<0.001	
Carry condoms	46.1	63.3	32.7	63.7
	p<0.001		p<0.001	

*Excluded spouses and cohabiting partners.
(Laukamm-Josten et al. 2000)

Effectiveness Checklist	
Characteristics	Tanzania Truck Project
Addresses the broader structural context.	✓
Identify and address key enabling factors to behavior change.	✓
Key gatekeepers and stakeholders involved.	✓
Communications efforts linked to direct services.	✓
Target beneficiaries involved.	✓
Deliver information at the level needed.	✓
Clear messages repeated using multiple strategies.	✓

Immediate positive gains in adopting changes emphasized.	✓
Condom demand created, and availability ensured.	✓
Skills-building opportunities for behavior change.	✓
Basic needs of beneficiaries met.	✓
Program has ample duration and intensity.	✓

Cost

This project was implemented by a combination of FHI staff and AMREF staff who were funded by a sub grant from FHI. Two FHI staff supported the project as well as several other projects, a job responsibility known as *country program support*; one staff person was based in the United States and the other in Dar es Salaam. Five AMREF staff worked in the field and were based in Dar es Salaam. The AMREF project manager devoted half of his time to evaluating the project, so that portion of his time is excluded from the resource and cost analysis.

A description of the number and type of inputs for the intervention is presented in Table III-3. In addition to the personnel listed above, the project-funded condoms; information, education, and communication (IEC) materials; office space and computers; vehicles; and training.

AMREF's budget for the intervention was about \$80,000 per year during the first 3.5 years (1990-1993), when the project activities were focused on training and mobilizing peer educators at seven truck stops and three trucking companies. [Note that during the 5-year period 1992-1996, \$140,494 and \$260,018 were expended for the AMREF *Trucker Intervention Project* and AMREF *Focusing on Workers in Transport Industry Project* respectively, or about \$80,000 per year (AIDSCAP/FHI 2000a)]. Two-thirds of the AMREF budget was devoted to personnel. If FHI's country program support were added, it would roughly double the budget.

If the intervention contacted about 10,000 people during the first 3.5 years, the AMREF budget per person contacted per year was \$8.33. The estimate of 10,000 people includes 450 employees in 3 trucking companies, 1200 women who worked at truck stops or bar/guest houses including SWs, and 20 % of the 40,000 truck drivers who used the TanZam Highway (Laukamm-Josten et al. 2000). The cost per person contacted would be \$29.15 for 3.5 years. No data are readily available on the percentage of truck drivers contacted and the cost per person contacted is sensitive to the estimate of 20%.

Project managers felt that it was essential to have two full-time professional staff to train and supervise the peer educators. They provided three, five-day training sessions to the peer educators and conducted monthly supervision visits during the first 18 months of the project, called the intensive phase. These frequent supervision visits supported the quality of the peer educators' work and their enthusiasm. When the frequency was reduced to quarterly during the subsequent 24 months, called the maintenance phase, the quality and enthusiasm of the peer educators was lower.

Peer educators were each issued a bicycle to facilitate distribution of condoms and, during the maintenance phase, they each received a transportation allowance of \$3 per month. Managers found that the transportation incentive was sufficient for peer educators who were dedicated, sincere, and motivated by the urgency of the epidemic (this project took place at an early phase of the epidemic when energy for confronting the situation was strong). They felt it would not be sufficient motivation for people motivated only by money.

Substantial funds were expended on developing and producing IEC materials.

Social cost of the project included peer-educators' and participants' time, and perhaps the value of the country program support. Excluding the latter, the social costs are 10% higher than the AMREF budget. As shown in the table, 59% of the social costs are attributed to personnel, 3% to volunteer time, 7% to participant time, 13% to condoms and other supplies, 7% to vehicles, 1% to large equipment, and 1% to training peer educators. The social cost per person contacted per year is \$9.15.

In 1993 and 1994, AMREF implemented and tested an STI program at the seven truck stops. The cost of the STI program was \$20,000 or about \$12 per person to treat 1730 women with STIs. About 45 percent of the cost was for medications (Nyamuryekung'e et al. 1997).

[Note: 1) It is not clear what is included in the cost of training and supervision: transportation and per diems for participants? materials? salary of trainer during training & prep time? space for training? If some of these costs are not included, then \$20,000 is an under-estimate. 2) It is not clear if space for treatment is included in the costs; one center in first approach was not at the health facility and no space costs are listed, and two sites for the third approach were not at the health facility – their outreach costs may be for special staff.]

Table III-2 Tanzania Trucking Project Resource Analysis

Personnel

Title/Role	FTE	Local Hire	Professional	FTE	Percent social cost
FHI/Country Program Support					
FHI backstop	1		x	0.15	
FHI Representative	1		x	0.2	0
Field					
Project Manager	1		x	0.5	
Trainer	2	x	x	1	
Secretary	1	x		1	
Driver	1	x		1	0.59
Volunteers					
Title/Role	Number	FTE			3%
Peer educators- intensive phase	13	0.1			
Peer educators- maintenance phase	23	0.1			
Subtotal Volunteers					
Participants					
Truckers & sex workers	10000	Hours/year	2		7%
Supplies					
Item	Number	Local Product			13%
Male condoms	12000				
Training manual and workbooks		x			
IEC materials, e.g. posters, booklets, t-shirts & bags*	10s of thousands	x			
Space					8%
Vehicles					
Item	Number			Depreciation	7%
All-Terrain	1			10 years	
Sedan	1			10 years	
Bicycle	23			5 years	
Large equipment					
Item	Number			Depreciation	1%
Computers	4			5 years	
Air conditioners	2			5 years	

Table III-3 Cont'd

Training	Topic	Participants	Frequency	Duration	1%
	Orientation	13		5	
	Zonal workshop	13		5	
	Central workshop	13		5	
	Site visit (intensive)	13	monthly		
	Site visit (maintenance)	23	quarterly		

STD/HIV/AIDS Intervention Programme Centers, India
Implemented by Bhoruka Public Welfare Trust

Description

As part of the STD/HIV/AIDS Intervention Programme, Bhoruka Public Welfare Trust (BPWT), an Indian NGO formerly know as Bhoruka AIDS Programme (BAP), established intervention centers, or Free Tea Parlours, for truckers at five major stop points in India. The centers are part of a comprehensive intervention strategy for truck drivers and SWs who live nearby. A major objective of the centers was to address truckers’ resistance to seeking effective treatment for STIs. Key to the program are partnerships that BPWT created with transport organizations, owners of small trucking companies, clearing agents and brokers, and other local NGOs working in the communities.

The caretakers of the centers are usually from peer groups: retired truck drivers or sex workers. The centers provide a space for truckers to relax and enjoy entertainment, such as popular Indian games like *caroms* and chess, drinking water, tea, newspapers, films and music. They also offer access to counseling, STI treatment, and HIV/AIDS information (the films and music often include sexual health messages interspersed between the regular programs). Cigarettes, matchboxes and condoms are available at subsidized rates.

Secure Rest Areas for Truckers in South Africa

A program in South Africa dealt with many of the same issues that BPWT addressed by establishing truck stops that offered food and entertainment – and no options for commercial sex. They were also secure areas for the truckers to rest, solving a major problem and source of stress for truckers by keeping them safe from bandits.

(European Commission 1999)

The centers are located at:

1. Raxaul on National Highway (NH) 28 at the Indo-Nepal Cross border zone.
2. Calcutta Port Trust in Calcutta, West Bengal

3. Petrapole on NH 35, 34 at the Indo-Bangladesh border in West Bengal.
4. Guwahati in Assam.
5. Ichchapuram at the border of Andhra Pradesh and Orissa on NH 5.

Peer education is a key component to the program. Approximately 150 to 200 truckers and other members of the trucking community (including trucking industry staff, clearing agents, brokers, and *dhaba* owners) have been trained as (volunteer) peer educators. They distribute IEC materials, demonstrate how to use condoms, and refer truckers for STI treatment. In return for their services, the peer educators receive a certificate of appreciation, awards, and occasional incentives such as bags and pens.

Qualified medical doctors provide STI treatment services following the guidelines of the National AIDS Control Organization in India. A small fee of Rs 15 is collected for medications. Near each of the centers, 50 to 60 condom outlet points sell and market condoms.

While the free tea was popular from the beginning, drivers were reticent to enter the clinics at first. This changed in the first few months and at the end of one year, many truckers were visiting the clinics for treatment. The centers have been popular with truckers, primarily due to the relaxed atmosphere and the rapport they have developed with the staff.

Implementation issues addressed

- Layovers and stops, particularly at border crossings, require truckers to stay in a particular area for extended periods of time – increasing the likelihood of high-risk behaviors.
- Alcohol and drugs are common at truck stops.
- Truck stops often lack recreational facilities and hotel rooms that are not linked to alcohol and SWs.
- STIs, including HIV, are common among the people who live and work along truck routes.
- Health services, particularly STI services, are not generally available or accessible at truck stops and border crossings.
- Difficult and stressful working conditions contribute to truckers' vulnerability to HIV.
- Truckers do not seek out STI treatment from trained health personnel.
- Many women with STIs do not get treatment either because they don't recognize that they have an infection, they are not able to access a health facility, or they have experienced health workers with negative attitudes.
- Trucking companies are hesitant to get involved in efforts to educate truckers or to provide incentives for safer behaviors.
- Other stakeholders and gatekeepers have not been identified or integrated into HIV prevention activities.

Evidence of effectiveness

An impact assessment study conducted in 1999 by an outside evaluator compared clients who used the services of four centers with other target group members who did not access the centers (n=500) (Sofres 2000). The results of that study included:

- Awareness of STIs was higher for those who accessed the centers.
- Knowledge about STI transmission modes was higher for those who accessed the centers.
- 82% of the people who visited the centers sought medical help compared with 60% of those who did not visit the centers.
- More than 90% of the truckers who sought STI treatment through the centers were satisfied with the services.
- Community members that live near all four centers stated that the centers were valuable and that activities should continue.

Effectiveness Checklist	
Addresses the broader structural context.	FTP Project
Identify and address key enabling factors to behavior change.	✓
Key gatekeepers and stakeholders involved.	✓
Communications efforts linked to direct services.	✓
Target beneficiaries involved.	✓
Deliver information at the level needed.	✓
Clear messages repeated using multiple strategies.	✓
Immediate positive gains in adopting changes emphasized.	✓
Condom demand created, and availability ensured.	✓
Skills-building opportunities for behavior change.	✓
Basic needs of beneficiaries met.	✓
Program has ample duration and intensity.	✓
Addresses the broader structural context.	✓

Cost

Bhoruka Public Welfare Trust is committed to using management systems and standards to guide their work in health and human services. It is the only NGO in India that received International Organization for Standardization (ISO 9001) certification in 2001 for both their blood bank and intervention activities. The health care and counseling center intervention has a sophisticated organizational structure with a central office and five field offices/centers.

A description of the number and type of inputs for the intervention is presented in Table III-4. As the table indicates, the central office includes a director, administrator, project manager, accounts officer, and project associate. Each center has clinic and outreach staff. It is an on-going intervention.

The current budget for the intervention is \$115,000 per year, including about \$9,600 per site for each of five centers and \$7,250 for staff in the central office in Calcutta. The project budget is evenly divided between staffing and other costs, including condoms, travel, behavior change communication (BCC) materials, training, and advocacy events. The budget includes ongoing expenditures for BCC materials, because new messages must be continually developed and produced to avoid complacency and fatigue of information. The budget does not include the cost of medications or laboratory tests. Patients pay a small fee for medications and an additional fee for laboratory tests.

Each center provides outreach and BCC to 48,000 people per year, so the estimated cost per person contacted is \$.5. Each center also provides health care to about 2200 patients per year, half of whom are treated for STIs. The cost per patient is \$10.75 and the cost per STI patient treated is \$21.50. [In these estimates, the total budget is the numerator, rather than allocating the budget among BCC, CSM and STI treatment activities, with the idea that the BCC activities promote access to the clinics.]

Much of the outreach is performed by volunteers, including 175 peer educators. Social costs that include volunteer time, participant time, and patient expenditures for STI medications are about double the budget for the intervention. Twenty-three percent of the social costs are attributed to personnel, 16 % to volunteer time, 36 % to participant time, and 26 % to condoms. The social cost per person contacted is \$1.02 and the social cost per patient is \$22.25 and per STI patient is \$44.51.

Table III-3 India Counseling Centers Resource Analysis

Personnel					
Title/Role	Number	Local Hire	Professional	FTE	Percent of social cost
Central Office					3%
Director	1	x	x	0.2	
Administrator	1	x	x	0.2	
Project Manager	1	x	x	0.5	
Accounts Officer	1	x	x	0.5	
Project Associate	1	x	x	1	
Field					20%
Staff at one site					
Center in-charge	1	x	x	1	
Medical officer	1	x	x	1	
Counselor	1	x	x	1	
Social worker	2	x	x	1	
Outreach worker	3	x	x	1	
Office assistant	1	x		1	
Messenger	1	x		1	
Staff per site	10				
Field staff at 5 sites	50				
Volunteers					16%
Title/Role	Number	FTE/person			
Peer educators	175	.125 to .5			
Participants					36%
Target Group	Number	Hours/year			
Trucker, assistant, sex worker	240,000	1			
Subtotal Participants					
Supplies					26%
Item	Number	Local Product			
Male condom	150,000	x			
Travel					
Training, advocacy & events					
Materials					
Infrastructure & maintenance					
Communication					
Printing & stationary					
STI medicines					

Peer Educator Program for Transport Workers, Senegal

Implemented by the University Cheikh Anta Diop and the Harvard School of Public Health

Description

The University Cheikh Anta Diop and the Harvard School of Public Health implemented a peer-mediated education and condom promotion program in Kaolack, a major transportation crossroads for trucks that travel within Senegal and between Senegal and other West African countries. The program involved truck drivers, their apprentices, and baggage handlers. Female SWs who work in the area participated in the program as well – primarily as a way to validate the men’s reported behaviors. These women had identified truck drivers as one of their primary groups of clients.

Peer educators were selected from among the transport workers and trained. Their job was to communicate with other truckers – to answer questions about HIV and other STIs, distribute condoms and print materials, and refer men with STI symptoms for treatment. They also served as a link between the transportation parks and the STI clinic.

The program conducted baseline interviews. After two years, the program was evaluated through follow-up interviews.

Implementation issues addressed

- STIs, including HIV, are common among the people who live and work along truck routes.
- Health services, particularly STI services, are not generally available or accessible at truck stops and border crossings.
- Myths and misinformation about HIV transmission are prevalent among truckers.
- While they are working, men are isolated from the sexual norms they adhere to in other situations.
- Truckers do not seek out STI treatment from trained health personnel.
- Truckers do not use condoms consistently – not during all sexual encounters and not with all types of partners.

Evidence of effectiveness

Compared to baseline, the follow-up interviews indicated changes in AIDS-related knowledge, attitudes, and behaviors among the truckers working in Kaolack (Leonard et al 2000).

First, exposure to the intervention was high. At least four out of five members of the target audience had heard of or engaged in conversations about HIV and STIs. Three quarters had seen print materials distributed by the program and one in three men had received a copy of the print material and/or a condom from a peer educator.

Second, HIV/AIDS knowledge improved and condom use increased significantly. The percentage of men reporting “ever using a condom” increased by more than 20% (from 30.4% to 53.5%) and more than 30% of the men surveyed at follow-up were carrying a condom. Men reported using condoms more both with SWs and with their regular, non-marital partners (condom use with wives was not researched). The proportion of men reporting perceived barriers to condom use declined significantly. Information on condom use during commercial interactions was supported by reports from SWs. The women reported that fewer men were offering them more money for unsafe sex and significantly more men always agreed to use condoms.

Third, peer educators reported that truckers were actively seeking them out to ask for condoms and information.

Effectiveness Checklist	
Characteristics	Senegal Peer Educator Program
Addresses the broader structural context.	✓
Identify and address key enabling factors to behavior change.	
Key gatekeepers and stakeholders involved.	
Communications efforts linked to direct services.	✓
Target beneficiaries involved.	✓
Deliver information at the level needed.	✓
Clear messages repeated using multiple strategies.	✓
Immediate positive gains in adopting changes emphasized.	✓
Condom demand created, and availability ensured.	✓
Skills-building opportunities for behavior change.	✓
Basic needs of beneficiaries met.	
Program has ample duration and intensity.	

Cost

This intervention was provided in the context of a three-year demonstration project. It was implemented by a combination of private-sector and public-sector staff. The project budget supported a Senegalese physician and two interviewers. The interviewers’ time was primarily devoted to evaluation and research, so it is excluded from the resource and cost analysis. Project

staff also included two nurses and a social worker who worked at a public STI clinic and received a salary supplement from the project.

A description of the number and type of inputs for the intervention is presented in Table III-5. In addition to the personnel listed above, the project funded condoms, medical supplies, and transportation. Note that brochures on STIs, including HIV, were donated to the project and the medical supplies do not include the drugs for treating STIs.

In 1996, the budget of the project was about \$33,000 per year – with half allocated for personnel and half for condoms and other supplies. A small percentage of the budget was devoted to the physicians, computers, and training peer educators.

Given a total of 1,873 beneficiaries per year, the cost per beneficiary was \$17.47. The number of people who benefited from the intervention each year was approximately 105 sex workers and 1768 transport workers (Leonard et al. 2000). [Note: these numbers are estimates based on the Leonard study. An assumption is made that the number of unduplicated vehicles in a year is reflected in the count for a two-month period. A higher annual number would lower the cost per beneficiary.]

Social costs of the project include the public-sector salaries of the staff at the public STI clinic, peer educator time, participant time, and the donated brochures. The social costs are 47 % higher than the project budget. As shown in the table, 39% of the social costs are attributed to personnel, 5% to volunteer time, 4% to participant time, 46% to condoms and other supplies, 5% to housing, 1% to computers, and less than 1% to training peer educators. The social cost per person contacted is \$25.36.

Table III-4 Senegal Peer Education Program Resource Analysis

Personnel	Number	Local Hire	Professional	Duration	Percent Social Cost
Field					39%
Physician	1	x	x	3 years	
Interviewers	2	x		3 years	
Nurses	2	x	x	3 years	
Social workers	1	x	x	3 years	
Subtotal Personnel	6				
Volunteers					5%
Title/Role	Number	FTE		Duration	
Transport workers	20	0.1		2 years	
Participants					4%
Target Group	Number	Hours/year			
Transport Workers	1768	2			
Women at Truck Stops	105	2			
Subtotal Participants	1873				
Supplies					46%
Item	Number	Local Product			
Male condom	3280	x			
Medical supplies					
Other supplies (gasoline & vehicle maintenance)					
HIV/STI brochure	750				
T-shirts	120				
Space	Number				
Physician's housing	1				5%
Physical Capital	Number	Depreciation			
Computers	1	5 years			1%
Training	Number			Duration	Less than 1%
Transport workers	20			2 days	

The National Highway One Project, Vietnam Implemented by World Vision International, Vietnam

Description

This three-year project, implemented by World Vision Vietnam, began in 1998. It focused on highly mobile truck drivers and women who live along the highway in Danang and three other central provinces (Uhrig 2000). Its goal was to reduce HIV transmission by increasing the capacity of truck drivers and women in selected communities to effectively respond to HIV and AIDS. Project staff worked in partnership with local counterparts, communities, and institutions (including the Departments of Health and Women's Unions, trucking companies, and vehicle registration stations).

Ten prevention interventions were provided at nine sites. The primary goal was to provide IEC materials and condoms to truck drivers and people who lived along the highway. However, the interventions at each site were not uniform. Each intervention was developed in collaboration with local communities and/or institutions and was adapted to engage the support of partners and to meet the specific needs identified at each site.

The community-based model started by working directly with provincial and commune representatives – including the local Women's Union and health center, the provincial Department of Health, provincial officials, commune officials, and owners of local establishments along the road. Representatives of these stakeholder groups became partners in the project. Community engagement aimed to create an environment that would enable behavior change (less high risk sexual behavior).

Peer educators were central to the program. Two types of peer educators were trained: 1) **frontline social networkers** who supplied IEC materials and condoms to truck drivers, and 2) **key informants** who provided information to their communities about HIV and HIV prevention. A total of 140 key informants and networkers were trained. Half of the peer educators were men and half were women. Truckers and other trucking company personnel were trained to reach truckers. At one site, these social networks reached truckers passing through a motor vehicle inspection station that all commercial vehicles must pass through.

IEC materials included **static** materials, such as billboards, and **dynamic** materials such as key chains and audiocassettes. Members of the primary target audiences gave input into the development of messages and materials. A booklet and pamphlet focused on the lives of truckers and were small enough to fit into the men's pockets. Billboards on HIV/AIDS were produced as a community development project involving young people and local PLWHA to decrease stigma toward HIV/AIDS. The cassette tape has pop songs with short trucker-related dramas between songs.

The women's component included recruiting a network of peer educators, conducting a community development workshop for women, developing targeted IEC materials, offering STI checkups and treatment, offering scholarships to allow young women to complete high school, and HIV educational campaigns for women in hamlets (World Vision Vietnam 1999). This component focuses on strategies to reduce vulnerability. The reasoning here is that women who have more life skills, more formal education, and more income may be less vulnerable than those who do not. In one site, gynecological exams for all women in the community were offered at the commune health station.

Implementation issues addressed

- STIs, including HIV, are common among the people who live and work along truck routes.
- Health services, particularly STI services, are not generally available or accessible at truck stops and border crossings.
- Myths and misinformation about HIV transmission are prevalent among truckers.
- While they are working, men are isolated from the sexual norms they adhere to in other situations.
- Truckers do not use condoms consistently – not during all sexual encounters and not with all types of partners.
- People along truck routes are reluctant to use condoms with primary and steady partners or with “clean” partners.
- Many women lack the resources and ability to provide for themselves and their families.
- Women lack power to convince male partners to use condoms.
- Women who are not identified as SWs, including wives and girlfriends of truckers, are not targeted for services and education.
- Many women with STIs do not get treatment either because they don't recognize that they have an infection, they are not able to access a health facility, or they have experienced health workers with negative attitudes.
- Trucking companies are hesitant to get involved in efforts to educate truckers or to provide incentives for safer behaviors.
- Truck driver unions and associations may be in a place to influence peer pressure and the sexual culture of truckers, but do not take the initiative to do so.
- Other stakeholders and gatekeepers have not been identified or integrated into HIV prevention activities.

Evidence of effectiveness

(Uhrig 2000)

- The demand for condoms in the project area increased considerably during the time of implementation. Sales of condoms in pharmacies increased as did requests for condoms from peer educators.

- Condoms are available in more places.
- Reports from truckers and women at the end of the project indicate that condoms were more acceptable than at the beginning of the project.
- Women are much more aware, at the end of the project, of HIV and what they can do to protect themselves. [It is difficult, however, to determine if they are in fact protecting themselves or if their risk environment allows them to do so.]
- Approximately 70 % of drivers in the area were reached directly by frontline social networkers.
- Social networkers distributed approximately 2,000 to 3,000 condoms per month.

Effectiveness Checklist	
Characteristics	Vietnam's Highway 1 Project
Addresses the broader structural context.	✓
Identify and address key enabling factors to behavior change.	✓
Key gatekeepers and stakeholders involved.	✓
Communications efforts linked to direct services.	✓
Target beneficiaries involved.	✓
Deliver information at the level needed.	✓
Clear messages repeated using multiple strategies.	✓
Immediate positive gains in adopting changes emphasized.	✓
Condom demand created, and availability ensured.	✓
Skills-building opportunities for behavior change.	✓
Basic needs of beneficiaries met.	✓
Program has ample duration and intensity.	

Reasons for success

- Small businesses in sites have well-established relationships with truckers.
- Large numbers of community members participated, so they were able to reach many truckers and many other members of the community. The project was perceived to be of benefit to the communities.
- At the sites, truckers and community members have few other activities to distract them.

- Effective leadership by implementers, effective support from the Provincial AIDS Committee, and a Project Management Board that is part of the community.

Cost

A description of the number and type of inputs for the intervention is presented in Table III-6. In addition to the World Vision staff, the project funded condoms, IEC materials, clinic supplies for the gynecological exams, contracts with local artists, and training for peer educators.

Beginning in 1998, the budget of the project was about \$86,000 per year for three years. Most of the budget was devoted to personnel. As noted in the End of Project Evaluation Report, “The cost of condoms and IEC materials was small compared to the cost of technical assistance and other human resources needed to develop the programs and materials” (Uhrig 2000).

The cost per beneficiary was \$4.65 per year. World Vision estimates that 18,500 people benefited from the project, including 10-12,000 truck drivers, 3,000 women, 2,000 other community members who live in villages along the highway who received information about HIV, and 820 women who received gynecological exams. The cost per beneficiary would be \$13.95 for 3 years.

Social costs of the project include the salaries of the counterparts who received training as researchers, “trainers of trainers,” or project and financial managers, and the time of peer-educators and participants. The social costs are 70 % higher than the project budget. As shown in the table, 57% of the social costs are attributed to personnel, 32% to volunteer time, 3% to participant time, 6% to condoms, IEC materials, and clinic supplies, 1% to training peer educators, and less than 1% to capital and contracts. The social cost per beneficiary is \$7.55 per year.

Table III-5 Vietnam Highway One Project Resource Analysis

Personnel	Number	Local Hire	Professional	Duration/FTE	% of social cost
Field					57%
World Vision staff	2.5		x	3 years	
Counterpart trainers	5 to 10	x	x	0.17	
Counterpart researchers	6	x	x	0.17	
Counterpart financial mgmt	25 to 30	x	x	0.17	
Subtotal Personnel					
Volunteers	Number	FTE/person		Duration	32%
Community-based					
Social networker	140	0.15		2 years	
Key informant	400	0.18		2 years	
Subtotal Volunteers	540				
Participants	Number	Hours/year			3%
Community clinic					
Doc Mieu	820	1.5			
Tam hiep Commune	820	1.5			
Target Group					
Truckers	11,000	1			
Truck stop inhabitants/wives	5,000	1			
Subtotal Participants	17,640				
Supplies	Number				6%
Male condom	110,000				
Dynamic IEC materials					
Booklets	55,000				
A4-sized posters	3,000				
Bumper stickers	21,000				
Key chains	32,000				
Audio Cassettes	6,000				
T-shirts	150				
Cups	500				
Hats	1,500				
Static IEC materials					
Billboards	6				
Large posters	1,500				
Gyne clinic supplies					
Contracts	Deliverable				Less than 1%
Poster artist	3 posters				
Tam Heip Artist*	Murals				
Physical Capital	Number	Depreciation			Less than 1%
Motorcycles/motorbikes	1	5 years			
Computers & printers	1	5 years			
Training	Number			Duration	1%
Social networker	140			4 days	
Key informant	400			4 days	

IV CONCLUSION

What makes effective interventions?

This section briefly reviews key points arising from exploration of the levels of causation of risk along truck route settings, explored in the previous section. Specific implications and recommendations for effective HIV/AIDS interventions along truck routes and other transmission settings are also identified.

General characteristics of effective HIV/AIDS programming are explored in The Synergy Project's on-line programming toolkit, of which this printed document forms a part, linked to Module 3, Design. The Synergy Toolkit covers the practical steps involved in Assessment, Planning, Design, Implementation, Monitoring and Evaluation, and is known as the APDIME Toolkit. It can be accessed on the following website:

The Synergy APDIME Toolkit
www.synergyaids.com

In general, there is much evidence to suggest that the focus of successful intervention design in truck route settings lies not on the truckers themselves, but on addressing the conditions truckers face; conditions which ultimately affect lifestyle concerns, and the motivation and ability of truckers and their partners to change high-risk behaviors.

Intervention design should take into consideration a diagnosis of risk causation on four contextual levels, as illustrated in figure 1-a, in the introductory section.

Table IV-1 below summarizes key points for consideration in the design of HIV/AIDS interventions among populations living and working along truck routes, arising from exploration of four levels of HIV risk causation described in Section II.

Table IV-2 provides a useful reference tool at any stage in the programming cycle – a checklist of key characteristics shared by successful interventions dealing with transmission settings.

Table IV-1 Key points relating to causal levels

Causal Level	Definition	Key points
Societal [super-structural]	Macro social and political arrangements, resources, and power differences that reflect social inequalities.	<ul style="list-style-type: none"> • Highways are a worldwide industry. • They are linked closely to a highly mobile sex industry. • Border crossings offer key points of contact between truckers and sex workers. • Gender issues play out along truck routes, as in all aspects of society. • Many women lack the resources and ability to provide for themselves and their families. • Women lack power to convince male partners to use condoms. • Women who are not identified as SWs, including wives and girlfriends of truckers, are not targeted for services and education. • Truckers are stigmatized, and at the same time stigmatize others – female sex workers.
Community [structural]	Laws, policies, and standard operating procedures; relationships between people and sectors who are formally or informally connected to a particular transmission setting, e.g. the migrant work setting.	<ul style="list-style-type: none"> • Institutional and policy changes could improve working conditions which would reduce the transmission of HIV along truck routes. • Trucking companies appear hesitant to get involved in efforts to educate truckers or to provide incentives for safer behaviors. • Truck driver unions and associations are also be in a position to influence peer pressure and the sexual culture of truckers, but do not take the initiative to do so. • Ministries of immigration and commerce have the power to reduce risk prevalent at border crossings and other layovers by speeding up procedures, but are not motivated to do so. • Key stakeholders and gatekeepers have often not been identified or integrated into HIV prevention activities.
Institutional [infrastructure, environment]	Individual living and working conditions; resources and opportunities; recognition of individual, structural, and super-structural factors.	<ul style="list-style-type: none"> • Truckers have high rates of STIs. • There are many barriers to accessing treatment. • Many female partners of truckers with STIs do not get treatment either because they don't recognize that they have an infection, they are not able to access a health facility, or they have experienced health workers with negative attitudes.
Individual (targeted groups of individuals)	How the infrastructure and broader environment is experienced and acted upon by individuals.	<ul style="list-style-type: none"> • Sexual networks vary between countries (and between ethnicities) and must be understood in order to understand risk behaviors among individuals. • People along truck routes are reluctant to use condoms with primary and steady partners or with partners they perceive as "clean." • Sex between men occurs but is rarely acknowledged, hence, it is not being addressed. • Machismo, alcoholism and substance abuse all reinforce sexual risk taking. • Condom use within active sexual networks is as complex as the networks themselves.

Table IV-2 Effectiveness Checklist for Use in Transmission Settings

Intervention Design Characteristics	Ideal Project x
Addresses the broader structural context.	✓
Identify and address key enabling factors to behavior change.	✓
Key gatekeepers and stakeholders involved.	✓
Communications efforts linked to direct services.	✓
Target beneficiaries involved.	✓
Deliver information at the level needed.	✓
Clear messages repeated using multiple strategies.	✓
Immediate positive gains in adopting changes emphasized.	✓
Condom demand created, and availability ensured.	✓
Skills-building opportunities for behavior change.	✓
Basic needs of beneficiaries met.	✓
Program has ample duration and intensity.	✓

Some general points for consideration in the design of successful interventions within truck route and other transmission settings are listed below:

1. Effective interventions are based on sound analysis of the dynamics of transmission within and between different settings along truck routes.
2. Networking analysis, using qualitative and quantitative data, is often necessary to gain this kind of information.
3. Interventions that incorporate advocacy for human rights, and for positive changes in the living and working environments of vulnerable groups in key transmission settings, can have a significant impact on health outcomes.
4. Interventions need to assess current levels of stigma associated with vulnerable groups in transmission settings, and develop designs that seek to decrease stigmatization of vulnerable populations and/or avoid increasing stigma.

Specific recommendations for truck route interventions

Numerous programs and studies have dealt with issues related to HIV transmission and prevention along truck routes. These efforts have provided researchers and implementers an opportunity to learn about the people and the issues. The recommendations included in this section come from articles, project reports, studies, and personal contact with implementers, all related to truck route transmission of HIV and ways to prevent it. In some cases these are lessons learned from programs that were actually implemented; others are based solely on research with members of the target audiences.

Based on this research and experience, projects that aim to reduce HIV transmission along truck routes should consider including the following components:

1. Targeted communication efforts to promote supportive and reinforcing environments for behavior change, including peer education;
2. Condom promotion, including social marketing;
3. Condom provision, including female and male condoms;
4. STI treatment services, including targeted presumptive treatment;
5. Workplace interventions;
6. Active community involvement;
7. Advocacy with policy makers, government institutions, and companies.

Specific recommendations for truck route interventions include:

General

1. Learn about the behaviors, beliefs, and realities of people who live and work along truck routes and use this information to design specific activities and strategies. [See box, “Target Intervention Research (TIR)” for an example of a rapid research method to gather this type of information.]
2. Prevention programs along truck routes must be sustained over time to ensure that behavior change continues.
3. Target both truck driver/assistants and their partners (both men and women).
4. Expand target groups beyond truckers and SWs to include people who live in the settlements along truck routes, e.g., adolescent girls, girlfriends of truckers, women who have occasional sex with truckers, young men, etc.
5. Address, or at least take into account, the relevant socioeconomic and power issues – particularly in terms of women.
6. Advocate for government regulation and policy changes to support the overall program. For example, speeding the process of passing through checkpoints would limit waiting time spent in border areas, which would not only limit the opportunities truckers have for engaging in high-risk sex, it would improve their working conditions in general.
7. Engage community and religious leaders in prevention programs.

8. Involve as many appropriate partners as possible – trucking companies and unions, NGOs, government ministries and offices, community leaders/bodies, etc. – in the design and implementation of projects.
9. Train village practitioners and tradition healers in prevention of HIV and other STIs.
10. Peer education and outreach is an important part of efforts along truck routes. For these activities, train peer educators and outreach workers to use a friendly approach and take the time needed to build rapport.
11. Ensure that health education focuses on *prevention* of HIV and other STIs, not just on explaining what the infections are and how they are spread.
12. Use posters, radio, and outreach with motivation campaigns that promote action and behavior change. Supplement existing knowledge and awareness. Reinforce the threat of HIV/AIDS without repeating what people know.
13. Don't use fear messages without reinforcing the idea that people *can* protect themselves. Give instructions on how to use condoms and how to prevent breakage, and offer guidance on negotiating effectively with partners.
14. Through education and outreach efforts, persuade people that they *can* engage in protective behaviors – teach how to use condoms, etc.
15. Do not focus exclusively on abstinence or partner reduction.
16. Include peer education as a component.

STI Treatment

1. Promote timely and effective STI treatment.
2. Ensure that services are accessible and appropriate for women, men, and adolescents (though the services may be at separate locations or at different times) at truck stops and border crossings.
3. Integrate STI treatment into general health clinics (or offer treatment of general health problems at STI clinics).
4. Train health workers in syndromic management.
5. Include traditional health providers in STI referral and treatment. Include training and validation.
6. Improve supply of drugs for STI treatment.
7. Do not have “STI” in the name of the clinic.
8. Train staff at STI service centers to treat all clients with respect.

Condoms

1. Find out what target groups feel and believe about condoms, including myths, and address misconceptions.
2. Promote condom use as the only way to protect people who have sex outside of a monogamous relationship with a monogamous partner.
3. Emphasize the need to use condoms with all sex partners (not just with SWs or clients).
4. Include messages on condom breakage – quality, storage, and use.
5. Improve negotiating skills around condom use.

6. Promote condom use AND ensure condom availability for women and men. Make affordable and quality condoms available 24 hours a day in bars, hotels, markets, and towns where trucks stop.
7. Distribute condoms through existing retail outlets.
8. Encourage policy makers to formulate and enforce regulations to increase accessibility of condoms.
9. Convince trucking companies, truckers unions, and local shops and hotels to carry high-quality condoms and educate them on how to protect condoms from damage and throw away those that have expired.
10. Improve condom storage to prevent breakage – e.g., train personnel from all distribution points in storage and disposal.

Truckers

1. Include “moving outreach” – that is, hire mobile peer educators who can move along the routes with the truckers. They can hitch rides back and forth to and from specific places one or two days a month.
2. Train truck drivers, their assistants, and young men who visit truck stops on the proper use of condoms and how to minimize breakage.
3. Ensure that activities do not negatively stigmatize truckers.

Women

1. Include all female partners of truckers, not just female SWs.
2. Address the economic realities of the women who live along truck routes. Include program elements, such as literacy education and micro-enterprise programs that expand women’s opportunities.
3. Train and empower women to communicate and negotiate with their partner/s (whether commercial, casual, or primary) about condom use.
4. Consider investing in female condom activities.
5. When available and affordable, ensure women’s access to protective methods (e.g., the female condom) that do not require cooperation from male partners.

Sex Workers

1. Establish long-term programs that address SWs’ lack of social and legal rights.
2. Empower SWs.
3. Encourage cooperation among SWs. Help women understand that if they work together and insist that their clients use condoms, they can be protected *and* be able to maintain their price.
4. Promote condom use with regular partners, in addition to clients. Train SWs in different communication and negotiation skills required for different types of partners.

Trucking Companies & Unions

1. Encourage the involvement of both small and large trucking companies. Emphasize the importance of a well-trained, healthy, and motivated workforce as the *bottom line* of their businesses, as an incentive for companies to support and get actively involved in HIV prevention activities.
2. Monitor the STI and HIV status of workers. Provide STI treatment, information, education and communication programs, and marketing of subsidized condoms (European Commission 1999).
3. Implement company-based peer educator programs.
4. Link companies with existing programs (for example, with local NGOs) in order to be cost-effective.
5. Include unions in developing and implementing HIV prevention programs for their members.
6. Distribute condoms through companies and unions.
7. Involve trucker associations and training institutions in interventions.

Effective programs seem to be those that strive to understand existing sexual cultures among drivers and other people who live and work along truck routes (for general characteristics of effective interventions, see Appendix A). These programs used information about the realities of people involved in trucking to design and implement suitable programs. For example, a program in South Africa encouraged sex workers who work at truck stops to actively participate in the design and development of STI services. The women ensured that services were acceptable and appropriate, particularly that staff members were sex worker-friendly (Delaney et al. 2000).

Challenges

Prevention interventions along truck routes are important, yet the realities of the situation pose many challenges to program designers and implementers.

Geographic Coverage and Mobility

Geographic coverage is difficult. In India alone, there are 20,000 miles of truck routes. The mobility of members of the target audience makes designing and implementing interventions complex. Truckers, as well as SWs, move around. An STI treatment study in Kenya found that 25% of truckers who traveled two weeks or less each month failed to return for follow-up compared with 37% of those who traveled more than two weeks out of each month (Bwayo et al. 1991). Peer educator programs in some countries find rapport building difficult when they see a driver only once (Jackson et al. 1997). Peer education programs with SWs have sometimes faltered when the trained educators moved on to another location, making reinforcing activities and follow-up extremely difficult. High-risk behavior along truck routes is common – even after behavior change interventions have been implemented.

Sustainability

Implementers of HIV prevention programs around the world face the challenge of creating and carrying out programs that effectively change behavior and sustain those changes in order to prevent the spread of HIV. Often, however, they find that their best efforts are ineffective. In some cases, only some of their objectives are met, other times none are reached. Sometimes, they are too late. But there are important lessons to be learned from every failed effort.

Even in countries like Kenya where large-scale interventions with truckers have been implemented for almost a decade, many truckers and their sexual partners continue to have unprotected sex. A comprehensive study looked at possible reasons for this and provides insights into some of the dynamics that cause programs to be ineffective (Cameron et al. 1999). This formative evaluation of practices, beliefs, and perceptions related to HIV/AIDS and condom use included focus groups and surveys with SWs, truck drivers and their assistants, and young men who live or work along the Trans-Africa Highway in Kenya.

The study found that these groups identified HIV/AIDS as a major health issue, knew how HIV is spread, felt they were at risk for HIV infection, and believed it was a severe threat to them (most of them even thought it possible or probable that they themselves had the virus). They knew that there is no cure for AIDS and that having AIDS is painful (socially and physically) and results in death. They reported that the best ways to prevent getting HIV are abstinence, monogamy, and condom use.

Despite this information and beliefs about their personal vulnerability, truckers and other men along the truck route did not integrate the known prevention methods into their lives. Abstinence was considered unreasonable or impossible. While they believed that condoms were the best or only way to protect themselves from HIV (because it couldn't be ensured that all partners were faithful), they did not believe that condoms are effective. They believed that condoms could hypothetically prevent HIV infection, but their personal experience led them to believe that condoms would not work for them – either because condoms broke a lot or because participants questioned their personal ability to use them.

SWs felt that their male partners controlled condom use. These women did not feel they had the power to insist upon its use. Because men were paying, they could control what was done. If a SW wanted to be paid or be paid a reasonable fee, she had to accept the wishes of the paying customer. SWs felt it is too difficult to insist that a “regular partner” (a trucker who visited her repeatedly or a partner with whom the woman is living) use a condom.

When study participants were asked for suggestions for preventing HIV transmission, they mentioned offering libido-suppressing drugs (since it was beyond their control to suppress their libido when an attractive potential partner was available), quarantine of people infected with HIV, immunization against HIV, and female condoms for female SWs.

There are several possible interpretations of why individual behavior change in Kenya has been so challenging. One is that participants were parroting the health messages they had repeatedly been exposed to without truly believing the messages. Or they could have had real concerns about the effectiveness of condom use, e.g., perhaps the condoms available to them were damaged or defective. There could have been a counseling gap; health or outreach workers may not have taught clients how to effectively use the condoms.

Another interpretation is that programs in Kenya, like programs in other countries, did not fully address the contexts within which individuals live. They may have missed a thorough integration of the social, economic, and cultural factors at play, and even the political environment in which they live.

Individual behavior change programs that do not take the context of people's lives fully into consideration may be facing an uphill battle. Table III-1 recreates the list of key issues identified for truck routes and links them with intervention strategies.

Stigma

Another challenge comes from the very act of focusing on truckers. Visible interventions and media attention send a message to the general public that truck drivers are spreading HIV. This has had an impact on attitudes toward truck drivers – they are being ostracized in some places, particularly in India. Targeting truckers may even contribute to HIV transmission. One Ugandan researcher stated, "...victimization as carriers of HIV infection has contributed to the rapid spread of HIV among transport workers and the communities with which they closely interact" (Bikaako-Kajura 2000). One program description described 'truck driving' as a risk factor associated with getting infected with the virus.

Stigma is an ethical issue that projects must grapple with. More than that, however, stigma can prevent a program from having an impact. A trucker in South Africa reported that he needed to visit sex workers because other women reject him because he was a truck driver and women were scared of being infected by him (Abdool-Karim et al. 1995).

Truckers in India report problems finding suitable wives because of the extensive awareness programs on the highways targeting them and the resulting stigma on the profession (Majumdar and Rao 1999). In fact, Indian health activists have

"For the first time, we have witnessed an investigator who is not simply interested in AIDS, AIDS, AIDS ... as if we are the only promiscuous group that is responsible for the spread of AIDS. The rest are only interested in issuing us with condoms, condoms, condoms, and sometimes pamphlets on AIDS ... at petrol stations, bars, and truck stops."

***Driver in Uganda
(Bikaako-Kajura 2000)***

criticized India's AIDS prevention programs for focusing too strongly on high-risk groups such as truckers. They claim these programs lead to social ostracism of truckers.

In Uganda, truckers reported being 'disgusted' with the people and agencies that supply condoms and brochures on AIDS to them. They felt that they were being stigmatized as AIDS carriers (Bikaako-Kajura 2000). They also felt that HIV prevention programs aimed at them were to blame for the resentment and hostility they receive from the communities they pass through as part of their work.

The Female Condom

The female condom has been studied extensively in a variety of social and economic settings, and among sex workers in various countries. Findings indicate that the female condom expands women's choices of effective barrier methods, thereby increasing protection for women and their male partners. A controlled study in Thailand with sex workers found that when both female and male condoms were available, the rate of STI transmission was reduced by one third of that in a similar group with access only to male condoms. Research also indicates that the female condom is acceptable to a wide range of women and men (WHO and UNAIDS 2000).

Findings from UNAIDS and others' research indicate that the female condom is cost-effective and cost-saving for prevention programs, especially when specifically targeted to people who are in high-risk settings (WHO and UNAIDS 2000). The female condom needs to be introduced strategically, and tools are available through WHO and UNAIDS (Female Health Company 2001; WHO and UNAIDS 2000).

Periodic Presumptive Treatment

Periodic presumptive treatment (PPT) is a strategy that provides STI treatment for people who are presumed to be infected with STIs (based on symptoms and/or known high-risk behavior) without making an individual diagnosis.

PPT of selected STIs for epidemiologically defined core groups can achieve rapid decreases in communities' reservoirs of STIs. It has the advantage of achieving a decline in STIs more quickly than sexual behavior change alone as well as reaching asymptomatic individuals who would not otherwise seek care. However, careful research is needed to ensure that this approach does not promote antibiotic resistance, disrupt individuals' normal biological resistance to sexually transmitted infection, or lead to an increase in high-risk behavior.

(AIDSCAP, FHI 1999)

Table IV-3 Interventions to Address HIV Transmission along Truck Routes

Issue Area	Issues to be Addressed	Possible Interventions
Truck Routes	Layovers and stops, particularly at border crossings, require truckers to stay in a particular area for extended periods of time – increasing the likelihood of high-risk behaviors.	<ul style="list-style-type: none"> • Improve border processes to shorten time spent by truckers at border crossings. • Link prevention services on both sides of a border.
	Alcohol and drugs are common at truck stops.	<ul style="list-style-type: none"> • Provide alternative social spaces for truckers.
	Truck stops often lack recreational facilities and hotel rooms that are not linked to alcohol and SWs.	<ul style="list-style-type: none"> • Establish recreation centers with TV, movies, indoor games and sanitation facilities. Centers can distribute health information and condoms.
	STIs, including HIV, are common among the people who live and work along truck routes.	<ul style="list-style-type: none"> • Institute referral system to guide community members to quality health services. • Train providers in syndromic treatment. • Institute periodic presumptive treatment, perhaps through trucking companies.
	Health services, particularly STI services, are not generally available or accessible at truck stops and border crossings.	<ul style="list-style-type: none"> • Establish/upgrade health clinics along truck routes.
	The transitory, anonymous culture at play along truck routes is different than the culture operating in other parts of the country.	<ul style="list-style-type: none"> • Actively involve community members from a variety of segments in an integrated project.
Truckers	Difficult and stressful working conditions contribute to truckers' vulnerability to HIV.	<ul style="list-style-type: none"> • Work with companies, associations, and unions to improve conditions.
	Truckers are constantly mobile. Even when they have a regular route, they are not in one place for long.	<ul style="list-style-type: none"> • Establish mobile clinics that go to truck stops.
	Machismo and related peer pressure is common among truckers.	<ul style="list-style-type: none"> • Encourage men to adopt positive behaviors, i.e., be responsible to their partners and families.
	Myths and misinformation about HIV transmission are prevalent among truckers.	<ul style="list-style-type: none"> • Conduct formative research to identify common myths/misinformation. • Develop targeted IEC campaigns. • Use peer educators.
	While they are working, men are isolated from the sexual norms they adhere to in other situations.	<ul style="list-style-type: none"> • Develop peer education programs. • Ensure broad community support.
	Truckers do not seek out STI treatment from trained health personnel.	<ul style="list-style-type: none"> • Establish general health clinics that also treat STIs. • Train pharmacy staff, traditional healers, and clinic personnel in effective STI treatment, including quality counseling.

	Truckers do not use condoms consistently – not during all sexual encounters and not with all types of partners.	<ul style="list-style-type: none"> • Ensure that affordable and quality condoms are easily available to truckers. • Implement sustained behavior change campaigns.
Sexual Networks	Sexual networks vary between countries (and between ethnicities) and must be understood in order to address intersection points.	<ul style="list-style-type: none"> • Conduct adequate formative research to understand the sexual networks at play in each targeted region and with different target groups.
	People along truck routes are reluctant to use condoms with primary and steady partners or with “clean” partners.	<ul style="list-style-type: none"> • Raise STI/HIV/AIDS awareness in the general population without stigmatizing specific groups such as truckers and sex workers.
	Sex between men occurs but is rarely acknowledged, hence, it is not being addressed.	<ul style="list-style-type: none"> • Include messages about condom use with male and female partners in IEC campaigns for the general public and for people at truck stops.
Female Partners	Many women lack the resources and ability to provide for themselves and their families.	<ul style="list-style-type: none"> • National and international social movements, empowerment of women. • Work with women to ensure access to skills, resources and opportunities that will allow them to earn an income – e.g., literacy classes, micro-credit programs, and cooperatives.
	Women lack power to convince male partners to use condoms.	<ul style="list-style-type: none"> • Peer support • Social movement • Empowerment of women • Ensure availability of female condoms • Initiate strategic campaign to promote their use • Training in negotiation skills
	Women who are not identified as SWs, including wives and girlfriends of truckers, are not targeted for services and education.	<ul style="list-style-type: none"> • Provide education, peer counseling and STI treatment to all women in a truck route community. • Ensure that affordable and quality condoms are easily available to women along truck routes.
	SWs are mobile.	<ul style="list-style-type: none"> • Establish mobile clinics. • Include visiting health workers to bars/restaurants. • Consider periodic presumptive treatment for SWs.
	Many women with STIs do not get treatment either because they don't recognize that they have an infection, they are not able to access a health facility, or they have experienced health workers with negative attitudes.	<ul style="list-style-type: none"> • Involve SWs in designing and developing STI service centers. • Train health providers in delivering quality services.
Gate-keepers	Trucking companies are hesitant to get involved in efforts to educate truckers or to provide incentives for safer behaviors.	<ul style="list-style-type: none"> • Advocacy, including education about financial losses that result from workers affected by HIV/AIDS. • Political pressure
	Truck driver unions and associations may be in a place to influence peer pressure and the sexual culture of truckers, but do not take the initiative to do so.	

	<p>Ministries of immigration and commerce have the power to reduce risk prevalent at border crossings and other layovers by speeding up procedures, but are not motivated to do so.</p>	<ul style="list-style-type: none"> • Political pressure • Institute policies that discourage overnight stays in border communities. • Provide adequate per diem so truckers can afford to stay in hotels.
	<p>Other stakeholders and gatekeepers have not been identified or integrated into HIV prevention activities.</p>	<ul style="list-style-type: none"> • Conduct research and identify stakeholders. • Involve these key people in the design and implementation of the intervention. • Hold community forums.

REFERENCES

- Abdool-Karim, Q., Abdool-Karim, S.S., Soldam, K., and Zondi, M. 1995. Reducing the risk of HIV infection among South African sex workers: Socioeconomic and gender barriers. *American Journal of Public Health* 11:1521-5.
- Agha S. 1999. *Sexual behavior of truck drivers in Pakistan: Implications for AIDS prevention programs*. Working paper no. 24. Washington DC: PSI Research Division.
- Ahmed, S.I. 2000. Formulating effective strategies to make treatment services for sexually transmitted disease - STDs accessible to truckers and to women who sell sex along the national highways in India (abstract no. TuPpE1215). In *XIII International AIDS Conference 2000: Abstracts on Disk*, July 9-14. Durban, South Africa: Marathon Multimedia.
- AIDSCAP/FHI. 1999a. Crossing borders: reaching mobile populations at risk. Chapter 10 in *Making prevention work: Global lessons learned from the AIDS Control and Prevention (AIDSCAP) Project 1991-1997*. Available at Family Health International website: www.fhi.org/en/aids/aidscap/aidspubs/special/lessons/chap10.html
- AIDSCAP/FHI. 1999b. Improving STD prevention and treatment. Chapter 2 in *Making prevention work: global lessons learned from the AIDS Control and Prevention (AIDSCAP) Project 1991-1997*. Available at Family Health International website: www.fhi.org/en/aids/aidscap/aidspub/special/lessons/chap2.html
- AIDSCAP/FHI. 2000a. Community and workplace intervention in high risk transmission areas. In *Final Report for the AIDSCAP Program in Tanzania October 1991 to September 1997*. Available at Family Health International website: www.fhi.org/en/aids/aidscap/aidspubs/special/countryprog/Tanzania/tanzasum.html
- AIDSCAP/FHI. 2000b. Executive Summary. In *Final Report for the AIDSCAP Program in Tanzania October 1991 to September 1997*. Available at Family Health International website: www.fhi.org/en/aids/aidscap/aidspubs/special/countryprog/Tanzania/tanzasum.html
- ASEP/PATH. 1996. *Findings from the ASEP behavioral monitoring surveys: Male transport workers, Davao City, Philippines*. Report for USAID by ALAGAD-Mindanao, Inc. and PATH Foundation Philippines, Inc.
- Asthana, S. 1996. AIDS-related policies, legislation and programme implementation in India. *Health Policy and Planning* 11(2):184-97.

- Awusabo-Asare, K., Abane, A.M., Badasu, D.M., and Anarfi, J.K. 1999. 'All die be die': obstacles to change in the face of HIV infection in Ghana. Chapter 11 in *Resistances to behavioural change to reduce HIV/AIDS infection in predominately heterosexual epidemics in third world countries* (pp. 125-32), edited by J. Caldwell et al. Canberra: Australian National University, Health Transition Centre. Last accessed June 2000. Available at: <http://www-nceph.anu.edu.au/htc/resistance1.htm>
- Beesey, A. 1998a. The challenge of a looming HIV/AIDS crisis: Driving and sex in Vietnam. In *The National Highway One Project: Developing community responses to HIV/AIDS*. World Vision Vietnam.
- Beesey, A. 1998b. The crossroads of risk and responsibility: Truck drivers and HIV/AIDS in central Vietnam. In *The National Highway One Project: Developing community responses to HIV/AIDS*. World Vision Vietnam.
- Bethapudi, S.S.R. 2000. Role of truck drivers in rampant spread of HIV infection in India: Immediate need to stem the rot (abstract no. MoPeD2573). In *XIII International AIDS Conference 2000: Abstracts on Disk*, July 9-14. Durban, South Africa: Marathon Multimedia.
- Bhatterai, M. 1994. Outreach workers provide condoms and AIDS prevention education to transport workers at this small police post along the Tribhuvan Highway: Using local resources to fight HIV/AIDS in Nepal. *AIDS Captions* 1(3).
- Bhoruka AIDS Programme. n.d. Last accessed June 2000. Available at: www.bhoruka.org/aids_programme.html
- Bikaako-Kajura, W. 2000. *AIDS and transport: The experience of Ugandan road and rail transport workers and their unions*. International Transport Workers' Federation.
- Blairman, D. 1988. *A review of condom programmes for the truckers' project*. Report by International Family Health, review mission by Dennis Blairman, Consultant.
- Bwayo, J.J., Mutere, A.N., Omari, M.A., Kreiss, J.K., Jaoko, W., Sekkade-Kigundu, C. et al. 1991. Long distance trucker drivers 2: Knowledge and attitudes concerning sexually transmitted diseases and sexual behaviors. *East African Medical Journal* 9:714-19.
- Bwayo, J.J., Plummer, F., Omari, M., Mutere, A., Moses, S., Ndinya-Achola, J., Velentgas, P., and Kreiss, J. 1994. Human immunodeficiency virus infection in long-distance truck drivers in East Africa. *Archives of Internal Medicine* 154:1391-96.

- Cameron, K.A., Witte, K., Lapinski, M.K., and Nzyuko, S. 1999. Preventing HIV transmission along the Trans-Africa Highway in Kenya: Using a persuasive message theory in formative education. *International Quarterly of Community Health Education* 18(3):331-56.
- Carswell, J., Wilson, G.L., and Howells, J. 1989. Prevalence of HIV-1 in East African lorry drivers. *AIDS* 3:759-761.
- Cowan, C.L. 1999. *Mathematical modelling of the cellular and population dynamics of HIV and AIDS*. Masters in Science Dissertation, University of Natal.
- Delany, S., Mullick, S., Nxumalo, Z., and Beksinska, M. 2000. Participatory methods in the design of accessible services for sex workers: Results from two sex-work environments in South Africa (abstract no. ThPeB5167). In *XIII International AIDS Conference 2000: Abstracts on Disk*, July 9-14. Durban, South Africa: Marathon Multimedia.
- Diop, W. 2000. Lessons from the field: From government policy to community-based communication strategies in Africa: Lessons learned from Senegal and Uganda. *Journal of Health Communication* 5:113-117.
- European Commission. 1999. Transport and HIV/AIDS: Movement, risk and response. *HIV/AIDS in Developing Countries* [online newsletter], Issue no. 5 (December). Last accessed July, 2000. Available at: <http://europa.eu.int/comm/development/aids/html/nl0501.htm> - transport
- Family Health International/IMPACT. 1999. *Nigeria and HIV/AIDS*. Washington DC: USAID and FHI/IMPACT Project.
- Family Health International/IMPACT. 2000. Corridors of hope in Southern Africa: HIV Prevention needs and opportunities in four border towns. FHI.
- Ghee, A.E., Helitzer, D.L., Allen, H.A., and Lurie, M. 1997. *The manual for targeted intervention research on sexually transmitted illnesses for the setting of commercial sex*. AIDSCAP/FHI.
- Gysels, M., Pool, R., and Bwanika, K. 2001. Truck drivers, middlemen and commercial sex workers: AIDS and the mediation of sex in South West Uganda. *AIDS Care* 13(3):373-385.
- Islam, M., Mitra, A.K., Mian, A.H., and Vermund, S.H. 1999. HIV/AIDS in Bangladesh: A national surveillance. *International Journal of STD and AIDS* 10(7):471-4.

- Jackson, D.J., Rakwar, J.P., Richardson, B.A., Mandaliya, K., Chohan, B.H., Bwayo, J.J. et al. 1997. Decreased incidence of sexually transmitted diseases among trucking company workers in Kenya: Results of a behavioural risk-reduction programme. *AIDS* 11(7):903-9.
- Junquera-Aguiar, R., and Castilho, E. 2000. Self-assessment of HIV/AIDS risk among Brazilian truck drivers (abstract no. ThPeD5599). In *XIII International AIDS Conference 2000: Abstracts on Disk*, July 9-14. Durban, South Africa: Marathon Multimedia.
- Kamenga, C., Zanou, B., Tchupo, J.B., Saidel, T., Kolars-Sow, C., Rehle, T. et al. 2000. Condom use is low with regular sex partners: Truckers, migrant workers, and female sex workers in Cote d'Ivoire (abstract no. TuPeC3483). In *XIII International AIDS Conference 2000: Abstracts on Disk*, 2000 July 9-14. Durban, South Africa: Marathon Multimedia.
- Kanjilal, B., and Forsythe, S. 1997. *AIDS, India and the trucking industry*. Indian Institute of Health Management Research, Department for International Development and International Family Health.
- Kiama, W. 1998. Where Are Kenya's homosexuals? *PANOS News and Features* 14 August. Last accessed October 2000. Available at: www.oneworld.org/panos/news/15aug98.htm
- Kumaranayake, L., Pepperall, J., Goodman, H., Mills, A., and Walker, D. 2000, October. Costing guidelines for HIV prevention strategies. UNAIDS Best Practice Collection Key Material. Last accessed 20 Sept 2001. Available at: www.unaids.org/publications/documents/economics/costeffec/Costingguidelines.pdf
- Lacerda, R., Gravato, N., McFarland, W., Rutherford, G., Iskrant, K., Stall, R. et al. 1997. Truck drivers in Brazil: Prevalence of HIV and other sexually transmitted diseases, risk behavior and potential for spread of infection. *AIDS* 11(Suppl 1):S15-9.
- Laukamm-Josten, U. 1998. International evidence of impact and cost-effectiveness of HIV prevention for truck drivers. [Draft, prepared for DCOD/HPO, DFID]. International Family Health, Sexual Health Consultancy.
- Laukamm-Josten, U., Mwizarubi, B.K., Outwater, A., Mwaijonga, C.L., Valadez, J.J., Nyamwaya, D., et al. 2000. Preventing HIV infection through peer education and condom promotion among truck drivers and their sexual partners in Tanzania 1990-1993. *AIDS Care* 12(1):27-40.
- Leonard, L., Ndiaye, I., Kapadia, A., Eisen, G., Diop, O., Mboup, S., et al. 2000. HIV prevention among male clients of female sex workers in Kaolack, Senegal: Results of a peer education program. *AIDS Education and Prevention* 12(1):21-37.

- Levine, R. 2001. Notes on interview with Kenyan truck driver about working conditions and health care issues. Interview by Ruth Levine [Synergy Project, University of Washington], 16 November, Salgaa, Kenya.
- Lurie, M., Williams, B., Sturn, A.W., Garnett, G., Mkaya-Mwamburi, D., Suma, K., Gittelsohn, J., and Abdool-Karim, S. 2000. Migration and the spread of HIV in southern Africa: Prevalence and risk factors among migrants and their partners and non-migrants and their partners [poster]. Poster Presentation at the *XIII International AIDS Conference 2000*, Durban, South Africa.
- Majumdar, A., and Rao, A. 1999. Obstacles encountered in a sexual health intervention program for truckers: The experience of Bhoruka Public Welfare Trust, India. In *Resistances to behavioural change to reduce HIV/AIDS infection in predominantly heterosexual epidemics in third world countries* (pp. 115-22), edited by J.C. Caldwell et al. Canberra: Australian National University, Health Transition Centre. Last accessed October 2000. Available at: www-nceph.anu.edu.au/htc/resistance1.htm
- Marck, J. 1999. Long-distance truck drivers' sexual cultures and attempts to reduce HIV risk behaviour amongst them: A review of the African and Asian literature. Chapter 8 in *Resistances to behavioural change to reduce HIV/AIDS infection in predominately heterosexual epidemics in third world countries* (pp. 91-100), edited by J.C. Caldwell et al. Canberra: Australian National University, Health Transition Centre. Last accessed June 2000. Available at: www-nceph.anu.edu.au/htc/resistance1.htm
- Marcus, T. 2000. *Exposure and experience confounded by structural constraints: Assessing the impact of accidents, predation and AIDS on long distance truck drivers*. Report prepared for University of Natal Accident Research Centre (UNIARC).
- McLigeyo, S.O. 1997. Long distance truck driving: Its role in the dynamics of HIV/AIDS epidemic [editorial]. *East African Medical Journal* 74(6):341-2.
- Melkote, S.R., Muppidi, S.R., and Goswami, D. 2000. Social and economic factors in an integrated behavioral and societal approach to communications in HIV/AIDS. *Journal of Health Communication* 5:17-27.
- Miles, K. 1998. Literature review for technical appraisal of truckers project. HIV/STD prevention project for inter-city truck drivers in India. International Family Health, for DFID India.
- Morar, N.S., and Ramjee, G. 2000. Impact of voluntary HIV counseling and testing among sex workers (abstract no. MoPpC1030). In *XIII International AIDS Conference 2000: Abstracts on Disk*, July 9-14. Durban, South Africa: Marathon Multimedia.

- Mrudula, A. 1996. The India-Nepal partnership: Building cross-border collaboration in areas of affinity. *AIDScaptions* [serial online] III(2). Last accessed 11 May 2000. Available at: www.fhi.org/en/aids/aidscap/aidspubs/serial/captions/v3-2/cp322.html
- Mupemba, K. 1999. The Zimbabwe HIV prevention program for truck drivers and commercial sex workers: A behaviour change intervention. Chapter 12 in *Resistances to behavioural change to reduce HIV/AIDS infection in predominately heterosexual epidemics in third world countries* (pp. 133-7), edited by J.C. Caldwell et al. Canberra: Australian National University, Health Transition Centre. Last accessed June 2000. Available at: <http://www-nceph.anu.edu.au/htc/resistance1.htm>
- Nguma, J.K., Leshabari, M.T., and Mpanglile, B.S. 1990. *Implications of cultural lag in the use of condoms for prevention of HIV infection among truck drivers in Dar es Salaam*. Paper delivered at the International Union for the Scientific Study of Population Seminar on Anthropological Studies Relevant to the Sexual Transmission of HIV, Sønderborg, Denmark.
- Nyamuryekung'e, K., Laukamm-Josten, U., Vuylsteke, B., Mbuya, C., Hamelmann, C., Outwater, A. et al. 1997. STD services for women at truck stops in Tanzania: Evaluation of acceptable approaches. *East African Medical Journal* 74:343-7.
- Orubuloye, I.O., Caldwell, P., and Caldwell, J.C. 1993. The role of high-risk occupations in the spread of AIDS: Truck drivers and itinerant market women in Nigeria. *International Family Planning Perspectives* 19(2):43-48, 71.
- Orubuloye, I.O., and Oguntimehin, F. 1999. Intervention for the control of STDs including HIV among commercial sex workers, commercial drivers and students in Nigeria. In *The Continuing African HIV/AIDS Epidemic* (pp. 139-154), edited by J.C. Caldwell et al. Canberra: Australian National University, Health Transition Centre. Last accessed June 2000. Available at: <http://www-nceph.anu.edu.au/htc/continuing.htm>
- Pickering, H., Okongo, M., Nnalusiba, B., Bwanika, K., and Whitworth, J. 1997. Sexual networks in Uganda: Casual and commercial sex in a trading town. *AIDS Care* 9(2):199-207.
- Podhisita, C., Wawer, M.J., Pramualratana, A., Kanungsukkasem, U., and McNamara, R. 1996. Multiple sexual partners and condom use among long-distance truck drivers in Thailand. *AIDS Education and Prevention* 8(6):490-8.
- Ramjee, G., and Gouws, E. 2000. Targeting HIV-prevention efforts on truck drivers and sex workers: Implications for a decline in the spread of HIV in Southern Africa. Medical Research Council of South Africa, Policy Brief No. 3 (December). Last accessed 11 January 2002. Available at: www.mrc.ac.za/policybriefs/3polbrief2000.htm

- Rao, K.S., Ms. Jyothi, Ms. Gurulakshmi. 1999. Intervention strategies for reducing HIV risk behaviour among truck drivers in India. In *Resistances to behavioural change to reduce HIV/AIDS infection in predominantly heterosexual epidemics in third world countries* (pp. 183-8), edited by J.C. Caldwell et al. Canberra: Australian National University, Health Transition Centre. Last accessed October 2000. Available at: www-nceph.anu.edu.au/htc/resistance1.htm
- Sarker, M., Gibney, L., Macaluso, M., Jane, S., Kirk, K., Khan, H.A. et al. 2000. STD/Hepatitis/HIV prevalence & risk factors among Bangladeshi women living adjacent to a truck stand (abstract no. WePeC4351). In *XIII International AIDS Conference 2000: Abstracts on Disk*, July 9-14. Durban, South Africa: Marathon Multimedia.
- Senderowitz, J. 2000. *A review of program approaches to adolescent reproductive health*. Prepared for USAID by Population Technical Assistance Project. Last accessed 19 November 2001. Available at: www.poptechproject.com/pdf/review06_00.pdf
- Sofres, T.N. 2000. Impact assessment study of STD/HIV/AIDS intervention programme by Bhoruka Public Welfare Trust. Bhoruka Public Welfare Trust.
- Sweat, M., and Denison, J.A. 1995. Reducing HIV incidence in developing countries with structural and environmental interventions. *AIDS* 9(Suppl A):S251-7.
- Synergy Project. 2000. *Country summaries: South Africa*. Last accessed October 2000. Available at: www.synergyaids.com/files.fcgi/551_South_Africa.PDF
- Uhrig, J. 2000. *The National Highway One Project: Developing community responses to HIV/AIDS* [2nd draft]. End of project evaluation report. Submitted to World Vision Australia, 2 September.
- UNAIDS. 2000. Report on the Global HIV/AIDS Epidemic. UNAIDS.
- Uysingco, P.S. 1995. *Survey report: An exploratory survey of HIV/AIDS risk behavior of truck crews in one Manila trucking company*. Manila, Philippines: Department of Health, Field Epidemiology Training Program.
- Walden, V.M., Mwangulube, K., and Makhumula-Nkhoma, P. 1999. Measuring the impact of a behaviour change intervention for commercial sex workers and their potential clients in Malawi. *Health Education Research* 14(4):545-54.
- Whelan D. 1999. *Gender and HIV/AIDS: Taking stock of research and programmes*. UNAIDS Best Practice Collection Key Material. UNAIDS.

World Health Organization. 2001. *Prevalence survey of sexually transmitted infections among female sex workers and truck drivers in China 1999 - 2000*. WHO/WPRO, National Center for STD and Leprosy Control, Ministry of Health, People's Republic of China. Last accessed 17 January 2002. Available at:

www.wpro.who.int/document/sti_prevalence_chn01.doc

World Bank. 1997. *Confronting AIDS: Public priorities in a global epidemic*. New York: Oxford University Press.

World Vision Vietnam. 1999. Year II progress report: The National Highway One Project: Developing community responses to HIV/AIDS. World Vision Vietnam.

APPENDICES

Appendix A: Intervention Cost Worksheet

This worksheet was developed to obtain transferable information on the cost of interventions. That is, costs related to resources required, not monetary value.

Recurrent Costs

I. Personnel

Paid staff – part- and full-time

Title/Role	FTE	Local hire? (yes/no)	Professional (yes/no)	Beginning Date	Duration

Average salary of local professionals. _____

Average salary of international professionals. _____

Average salary of unskilled workers (drivers, etc.) _____

Exchange rate at end of project. US\$ 1 = _____

Volunteers

Title/Role	Number	FTE	Beginning Date	Duration

Incentives _____

Rate of incentive payment (e.g., for every 10 people a peer educator contacts, s/he gets one pound of rice) _____

If monetary, what was the total used over the course of the project? _____

If tangible, how many (or how much) were acquired over the course of the project?

II. Supplies

Condoms

Number of condoms distributed _____

Cost per unit _____

Produced locally? yes no

Other Supplies

Total cost of medical supplies (not equipment), including medications, laboratory reagents, etc.

Total cost of other supplies, e.g., soap, gasoline, paper _____

Other intervention supplies, e.g., penis models

Item	Number	Cost per Unit	Total Cost

III. Participants

Target Group	#	Level of Investment (average time spent per individual over course of program)	Incentives

Contracts, e.g. consultants, printing, video producer, media fees, etc.

Contractor	Product	Approximate Cost

Capital costs

I. Vehicles

Type	Number	Purchased Locally	Purchased from Abroad
All-Terrain			
Sedan			
Motorcycles/ Motorbikes			
Bicycle			
TOTAL			

II. Large equipment (items that cost more than \$1,000) purchased, e.g., computers, generators, x-ray machines.

Item	Number	Approximate Cost

III. Space

Space	Location (rural or urban)	Square Footage	Monthly Cost	Duration

IV. Training Events (workshops, seminars, etc.)

Topic/Name	Location	Participant Type	# of Participants	Length of Training	# of Trainers	Trainer FTE Required