STRIVE
Tackling the structural drivers of HIV

A moment of convergence: STRIVE and the Sustainable Development Goals

TECHNICAL BRIEF
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What have we learned?

In 2011, STRIVE was established to develop an alternative perspective on fighting the HIV epidemic. This mandate has compelled us to think differently about how to achieve greater impact and cost efficiencies.

STRIVE's research has focused on how to address upstream risk factors that HIV shares with multiple development outcomes. We have focused on factors such as economic insecurity, unfettered alcohol availability, stigma and discrimination, gender norms and gender-based violence – all of which powerfully affect the acquisition and onward transmission of HIV through a cascade of causal pathways.

This type of 'system' thinking is an antidote to the vertical and disease-specific strategies that have largely defined the HIV field for many decades. It also shares common cause with the 2030 Agenda for Sustainable Development.

The Sustainable Development Goals (SDGs), adopted by world leaders in 2015, are a set of 17 inter-related goals to which the global community has committed in order to enhance human flourishing and save the earth's vital ecosystems. They are based on the principles of universality, integration and "leaving no one behind." They signal a new way of thinking about and planning for the future – a future where economic, social and environmental targets are viewed as an indivisible and interdependent system. All countries have a stake in achieving them: significantly and in contrast to the Millennium Development Goals, the 2030 Agenda and the SDGs apply to every country, not just low- and middle-income countries.

Not surprisingly, achieving the SDGs is an ambitious and hugely expensive undertaking. The ultimate challenge will be to encourage co-financing of select 'best buys' that deliver multiple benefits across many different goals. We believe that insights gained from STRIVE research can be usefully applied to this challenge.

STRIVE research has identified a set of key social and structural drivers that offer investment opportunities to realise co-benefits, multiply impacts and achieve what we call 'development synergies'. In this brief, we present several examples of development synergies to illustrate the concepts. Acting on these multiplier investment opportunities will require innovative forms of governance, programme planning and resourcing across sectors, constituencies and stakeholders.

What is the issue?

Over a period of seven years, the STRIVE consortium has analysed whether and how structural drivers work to facilitate HIV transmission and undermine the uptake and use of HIV treatment and prevention methods. Our experience has forced us to think differently – to think across sectors and figure out how to achieve greater cost efficiencies.

Traditionally, HIV programming has been vertically driven and disease specific. Since 2005, HIV prevention spending has been further concentrated on biomedical strategies such as the UNAIDS 90-90-90 strategy (treatment as prevention) and medical male circumcision. These strategies have contributed to an impressive 48% drop in AIDS-related deaths between 2005 and 2016.[1]

Yet, during this time period, AIDS-related deaths among adolescents and young people increased by 50%.[2] Importantly, in hyperendemic regions, such as KwaZulu-Natal in South Africa, there has been no reduction in the incidence rate of HIV in young women in the past decade despite the biggest ART programme in the world. A modelling project by Medlock and colleagues estimates that, with the current rate of ART initiation, 49 million more new HIV infections will occur by 2035.[3] Based on this and other evidence, the 90-90-90 strategy has now been called into question – both in its wisdom and its feasibility.

UNAIDS modelling suggests that at best, even with 90 to 95% coverage (which is itself unlikely), treatment can avert only 60% of new infections. Plus, the virus is becoming more dangerous: Phylogenetic testing suggests that recent HIV infections are at least 30 times more infectious than older infections – meaning that they spread more easily.[4] And finally, due to adherence issues, treatment may be less consistently protective than we had hoped. For

example, US HIV patients on treatment are at risk of transmitting the virus almost 25% of the time.[5]

An influential editorial in *BMJ* argues that a disease specific agenda focusing on HIV is not only unlikely to succeed, it may actually prove counterproductive since its US$18 billion per year price tag will jeopardise the funding of other critical health programmes.[6]

Recognising this, STRIVE has focused its energy as a consortium on targeting those contextual factors that impede the effectiveness of the biomedical prevention and treatment cascade and compromise the ability of individuals to protect themselves from risk.

Strategically, we chose to focus on a set of interlocking drivers that work both alone and in combination to sustain unsafe sexual behaviour; inhibit uptake of HIV testing, prevention, treatment and care; and undermine adherence to prevention and treatment regimens. In so doing, we have learned the importance of identifying those targets for intervention that can yield synergies – where by addressing one factor, you achieve a range of positive development outcomes downstream.

What are the development synergies?

So what are these synergistic opportunities? There are many, but here we explore four in depth as illustrative cases.

- **SDG 3. Target 5. Prevent and treat substance abuse, including harmful alcohol use**
- **SDG 4. Target 5. Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable**
- **SDG 1. Target 2. Implement nationally appropriate social protection systems and measures for all**
- **SDG 5. Target 2. Eliminate all forms of violence against all women and girls in the public and private spheres**

In presenting these examples we use an organizing principle proposed in an influential article in *Nature*, which encourages policy makers to analyse the SDG targets and goals for 'sweet spots' – opportunities to invest in one area that yield multiple benefits without undermining other goals.[7]

Following the framework suggested in that article, we explore how progress on one target may be inextricably linked to the achievement of another goal (indivisible), aids the achievement of another goal (reinforcing) or creates conditions that further another goal (enabling). Mapping goals and targets in this way encourages planners to consider investments in light of how they would interact with other goals, creating opportunities for co-benefits and cost-efficiencies

SDG 3. Target 5. Prevent and treat harmful alcohol use

Preventing and treating harmful alcohol use appears as Target 5 under SDG 3: Good health. It presents a valuable opportunity to tackle factors that are the common antecedents of a variety of health, social, environmental and economic issues.

According to STRIVE analysis and as Table 1 shows, achieving this target is indivisible with, reinforces or enables 13 additional targets across 6 SDGs, making it highly synergistic.

According to the WHO *Global Status Report on Alcohol and Health* (2014), alcohol use directly or indirectly causes over 200 diseases and types of injury, including a panoply of non-infectious diseases such as foetal alcohol syndrome, liver cirrhosis, many types of cancer and cardiovascular disease. Alcohol misuse is increasingly seen to contribute to the spread and progression of infectious diseases as well, including HIV and tuberculosis.[8] Clearly, reducing harmful alcohol use is critical for meeting many of the Goal 3 targets on health and wellbeing.

In addition, reducing harmful alcohol use would reinforce or enable many other goals and targets. For example:

Goal 2: Zero hunger

This goal aims to end all forms of hunger and malnutrition by 2030, making sure all people – especially children – have access to sufficient and nutritious food all year round. Surprisingly little research has been conducted on the association between parental alcohol use and child malnutrition but some studies suggest an association between the two. Two studies found that malnutrition was associated with a mother's consumption of alcohol and lack of resources such as water and an inappropriate staple diet.[9,10] Reasons for this may be child neglect or abuse by parents with severe alcohol addiction. However, it may also be that expenditures on alcohol crowd out food expenditures in drinking households. One study shows that alcohol users divert money for food expenditures toward alcohol expenditures.[8]

Goal 4: Quality education

Numerous studies conducted in the US, Europe and Australia illustrate that alcohol use is associated with low educational attainment and school performance. For example, in a longitudinal study of Finnish twins, alcohol use at ages 12 and 14 resulted in lower future educational achievement even after previous achievement and confounding factors were taken into account.[11] In a study of US male twins, alcohol use before age 18 and an alcohol dependence diagnosis predicted lower educational attainment.[12] Likewise, in a study of Dutch children age 11–14, substance use (alcohol, drugs and smoking) was strongly associated

with completing less secondary education than expected.[13,14]

Goal 5: Gender equality

Reducing harmful alcohol use could play a major role in reinforcing the SDG target of eliminating violence against women and girls. Alcohol, especially binge drinking, increases the severity and frequency of intimate partner violence (IPV) and abuse.[15] One systematic review pooled the results of studies and found that harmful use of alcohol was associated with a 4.6 fold increase of exposure to IPV compared to moderate or no alcohol use.[16] Risk of partner violence appears especially linked to heavy episodic drinking. A ten-country study in Latin America found that violence toward female partners was associated with binge drinking.[17]

Goal 6: Clean water and sanitation

Water demand in 2030 is expected to exceed current supply by 40%. Six billion people already live in water stressed environments and population growth is highest in regions where water scarcity is projected to be severe by 2050.[18]The beverage industry is under pressure to reduce its water footprint globally. In South Africa, a country experiencing severe water scarcity, it takes 155 litres of fresh water to produce 1 litre of beer.[19] Most of this water is used for agricultural production, which will require ever larger amounts of irrigation in the face of prolonged drought. Efforts to address harmful alcohol use require national alcohol policies that regulate the production, sale and pricing of alcohol in view of public health and natural resource protection priorities.[20] In this way, progressive alcohol policies can help enable the achievement of Goal 6 targets.

Goal 8: Decent work and economic growth

Reducing the prevalence of harmful alcohol use may have far reaching economic benefits for countries across the wealth spectrum. The economic costs of harmful alcohol use are wide ranging, and include the cost of medical treatment, premature mortality, reduced productivity due to absenteeism, unemployment, work accidents and cost of violence among many others. A more distal but important economic consequence for countries relates to adolescent alcohol use. As we noted above, alcohol use is associated with lower educational attainment, which in turn can stunt economic growth at the societal level. Unfortunately, studies on economic costs related to alcohol use are rare and because they use a variety of measures and methods, comparison among countries can be difficult.

Table 1: Multiple goals and targets achieved by addressing harmful alcohol use

	Goal 2: Zero hunger	Goal 3: Good health	Goal 4: Quality education	Goal 5: Gender equality	Goal 6: Clean water and sanitation	Goal 8: Decent work and economic growth
Targets	End all forms of malnutrition, including stunting and wasting in children under five	Cut road traffic injury and death in half	All boys and girls complete free, equitable and quality primary and secondary education	Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	Ensure sustainable withdrawals and supply of freshwater to address water scarcity and substantially reduce the number of people suffering from water scarcity	Increase economic productivity
		Promote mental health	Create effective learning environments		Protect and restore water-related ecosystems, including mountains, forests, wetlands, rivers, aquifers and lakes	Protect labor rights and promote safe and secure working environments for all workers
		Reduce non-communicable diseases by a third				Achieve full and productive employment and decent work for all women and men
		End the AIDS epidemic, malaria, TB, other communicable diseases				

Indivisable Reinforcing Enabling

There is also a paucity of data from the global south. However, one systematic review of 22 studies in North America, Europe, Australia and Asia concluded that the economic burden of alcohol on society is substantial, accounting for 0.45% to 5.44% of gross domestic product (GDP).[21] A costing study conducted in South Africa and funded by the governmental National Liquor Authority estimated that total economic costs to South Africa are 10 to 12% of 2009 GDP. The authors acknowledge this may be an underestimate given the unavailability of data on the contribution of alcohol use to lost productivity and accidents at workplaces.[22]

SDG 4. Target 5. Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable

The far-reaching value of girls' education has long been established, making Goal 4, Target 5 an excellent source of potential development synergies. According to our analysis, eliminating gender disparities in education is linked to 14 other targets across 7 goals.

A recent analysis of data from 186 countries from 1990 to 2013 showed that:

> *"Each additional year of secondary education was associated with a 24.5% reduction in HIV prevalence amongst males and 43.1% amongst females… The impact of education was particularly notable in South Asia, Latin America and Sub-Saharan Africa."* [23]

Why is education protective against HIV? One hypothesis is that secondary school is where young people are exposed to sexual health and HIV prevention programmes. Some research shows that sexual education programmes in schools are effective in reducing sexual risk behaviour, though evidence is mixed.[24,25] Other reasons may be that education promotes cognitive development and decision-making skills or that education improves economic outcomes for girls, giving them more decision-making power and reducing their vulnerability to sexual coercion.

In addition to its positive impact on HIV, improving educational attainment among girls reinforces or enables many other goals and targets. For example:

Goal 1: No poverty

According to the World Bank, gender disparities in educational attainment explain 10 to 50% of the wage gap between women and men. An extra year of secondary schooling for girls increases their future wages by 10 to 20%. Further, women with more education report having more decision-making power over their own earnings, whether alone or with someone else.[26]

Goal 2: Zero hunger

Women's education alone resulted in a 43% reduction in hunger from 1970 to 1995, while women living longer led to an additional 12% decline in hunger levels, according to a report by the UN Food and Agriculture Organisation (FAO) and the Asian Development Bank (ADB).[27]

Table 2: Multiple goals and targets achieved by keeping girls in school

	Goal 1: No poverty	Goal 2: Zero hunger	Goal 3: Good health	Goal 4: Quality education	Goal 5: Gender equality	Goal 8: Decent work and economic growth	Goal 13: Climate Action
Targets	Halve the proportion of men, women and children of all ages living in poverty	End hunger and ensure access by all people to safe, nutritious and sufficient food all year round	Reduce the global maternal mortality ration to less than 70 per 100,000 live births	Increase the number of youth and adults who have relevant skills for employment, decent jobs and entrepreneurship	Eliminate all forms of violence against all women and girls everywhere	Sustain per capita economic growth in accordance with national circumstances	Strengthen resilience and adaptive capacity to climate-related hazards and natural disasters in all countries
	Ensure all people, especially the poor and the vulnerable, have equal rights to economic resources	End all forms of malnutrition, including stunting and wasting in children under 5	End preventable deaths of newborns and children under five years	Build education facilities that are child, disability and gender sensitive. Provide safe, inclusive and effective learning environments for all	Eliminate all harmful practices, such as child, early and forced marriage	Substantially reduce the proportion of youth not in employment, education or training	
			End the AIDS epidemic				

Indivisable Reinforcing Enabling

Goal 3: Good health

An analysis of factors contributing to maternal and child mortality across 146 low- and middle-income countries from 1990 to 2010 concluded that 50% of the mortality reductions were due to improvements in the health sector, while the other 50% were due to improvements in factors outside the health sector, including education. One fourth of maternal health improvements were due to reductions in fertility, increases in secondary schooling and skilled birth attendance.[28]

Goal 5: Gender equity

Secondary education reduces the vulnerability of girls to human trafficking, child marriage and other forms of abuse. In fact, if all girls in sub-Saharan Africa and South and West Asia had secondary education, child marriage would fall by 64%, from almost 2.9 million to just over 1 million.[29]

Goal 8: Decent work and economic growth

Evidence points to the ways in which girls' education can power economic growth at the macro level.[30,31] There are several pathways through which this can occur, including increasing the pool of human capital in a society, reducing fertility levels, increasing child survival and advancing education in the next generation. Each factor can improve economic growth, though context matters in this regard – many countries have laws or customs that preclude women's employment or access to the financial tools necessary for building wealth.

Goal 13: Climate action

Women and girls are among the most affected by natural disasters caused by climate change. At the same time, educated girls and women are critical to climate solutions.[32] Ecological data show a strong positive association between the average level of girls' educational attainment and the national score on indexes that measure vulnerability to climate-related disasters.[33]

SDG 1. Target 2. Implementing nationally appropriate social protection systems and measures for all

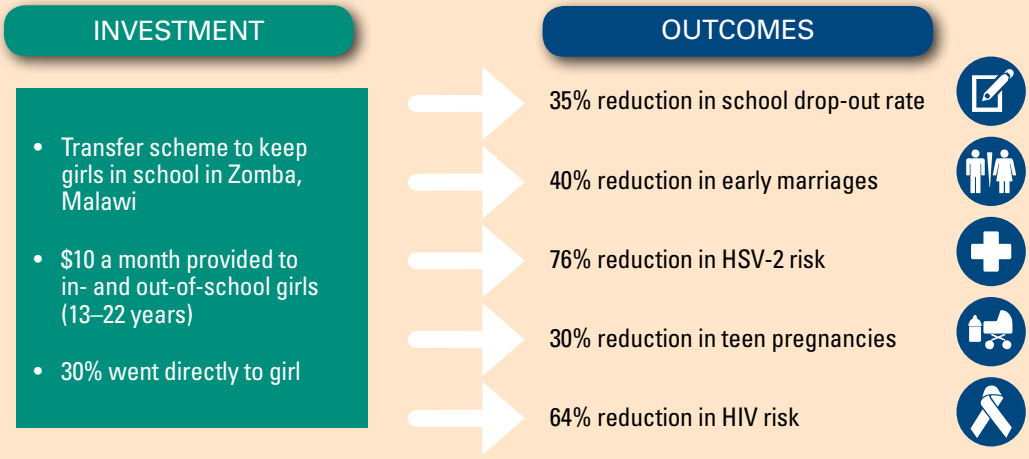
Social protection measures are a critical lever for achieving many of the SDG goals and targets. According to our analysis, implementing appropriate social protection systems for all is linked to 14 other targets across seven goals.

Table 3: Multiple goals and targets achieved by social protection measures

	Goal 1: No poverty	Goal 2: Zero hunger	Goal 3: Good health	Goal 4: Quality education	Goal 5: Gender equality	Goal 8: Decent work and economic growth	Goal 10: Reduced inequalities
Targets	Halve the proportion of men, women and children of all ages living in poverty	End hunger and ensure access by all people to safe, nutritious and sufficient food all year round	End the AIDS epidemic, malaria, TB, other communicable diseases	Eliminate gender disparities in education and ensure equal access to all levels of education and vocational training	Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	Sustain per capita economic growth in accordance with national circumstances	Progressively achieve and sustain income growth of the bottom 40% of the population at a rate higher than the national average
	Ensure all people, especially the poor and the vulnerable, have equal rights to economic resources	End all forms of malnutrition, including stunting and wasting in children under 5	Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	Increase the number of youth and adults who have relevant skills for employment, decent jobs and entrepreneurship	Eliminate all harmful practices, such as child, early and forced marriage	Substantially reduce the proportion of youth not in employment, education or training	Adopt policies, especially fiscal, wage and social protection policies, and progressively achieve greater equality

Indivisable Reinforcing Enabling

Figure 1: Multiple outcomes of the Zomba cash transfer to keep girls in school



Source: STRIVE, 2012 from Baird et al, 2012.

Conditional and unconditional cash transfers are one example of social protection and have increasingly been adopted in low- and middle-income countries as a key strategy for poverty reduction and social protection. In some cases, cash transfers have also been shown to have an impact on HIV acquisition and forward transmission.[34] Some 130 countries have at least one unconditional cash transfer (UCT) programme, including 40 out of 48 countries in sub-Saharan Africa.[35]

A set of studies, including a randomised trial in Malawi, a cluster randomised trial in Kenya and two propensity matched studies of South Africa's national social protection programme, demonstrate that cash transfers can reduce HIV-related risk behaviour among adolescents, especially girls.[36]

The programme in Zomba, Malawi gave small monthly stipends to the households of adolescent girls and to young girls directly, to see if it would affect their school attendance and HIV risk. The Malawi trial demonstrates that in addition to affecting HIV risk, cash transfers can have positive effects on a range of other development outcomes as illustrated in Figure 1.[37]

SDG 5. Target 2. Prevent violence against women and girls

Preventing violence against women and girls (VAWG) appears as Target 2 under Goal 5: gender equality. The target aims to eliminate all forms of violence against women and girls in both public and private spaces. Where studies use other terms – such as 'gender based violence (GBV)' – we use that term below. Much of the literature below focuses specifically on intimate partner violence (IPV).

One in three women will experience physical and/or sexual IPV in her lifetime, although the incidence of partner violence varies greatly among settings.[38] Levels of violence also vary by context. For example, women who sell sex are especially at risk, with between 45% and 75% of sex workers globally experiencing violence, according to a systematic review of studies.[39] Violence not only compromises women's physical, psychological, sexual and reproductive health,[40] it also undermines their educational attainment, employment and economic productivity.[41] Eliminating VAWG would thus empower women across many aspects of their lives as well as promoting SDG 5, gender equality.

Several of the sub-goals under Goal 5 specifically reference eliminating forms of VAWG such as, early and forced marriage and other harmful practices. Addressing VAWG would both advance Goal 5 and have a synergistic effect on a host of other SDGs. Eliminating violence against women is one of those "best buys" that would deliver multiple downstream benefits on 23 targets across 8 goals.

Goal 2: Zero hunger

This goal aims to end hunger by 2030, and includes achieving food security and improved nutrition as well as promoting sustainable agriculture. In countries such as Kenya, Honduras, Malawi and Bangladesh, IPV has been associated with child stunting[42,43] and mortality.[42] Although research is limited on the mechanism of these detrimental effects, eliminating IPV could help end malnutrition, specifically among children.

Goal 3: Good health and wellbeing

Reducing VAWG would play a major role in ensuring healthy lives and promoting wellbeing. Globally, an average of 42% of women who experience IPV report an injury from the violence.[40] However, it is through longer term, chronic conditions that violence takes its greatest toll. Findings from several prospective studies suggest that women with a history of physical and/or sexual abuse in childhood or adolescence have higher rates of chronic diseases later in life, including diabetes, cardiovascular disease and depression.[44-48]

In addition, violence in both childhood and adulthood has many mental health repercussions. A recent systematic review of cohort studies, for example,

shows a bidirectional relationship between recent IPV and depressive symptoms.[49] Women who have ever experienced IPV have twice the odds of experiencing depression as women who have not.[50] Studies conducted by WHO across nine countries show consistent relationships between IPV and suicide.[50,51] In US hospitals, IPV has also been found to be an important risk factor in attempting suicide while pregnant.[52]

Some evidence exists for a relationship between lifetime experience of IPV and later alcohol abuse,[53,54] although a recent systematic review of cohort studies did not find an association between *current* IPV and harmful drinking. The authors suggest that this may be due to the inconsistent way that problematic alcohol use was conceptualised and measured in these studies.[49]

Among pregnant women, IPV is more common than some conditions that are routinely screened for during pregnancy. Rates of IPV during pregnancy range from 2.0 to 13.5%, and are highest in Latin America and Africa.[55] One study collecting data from 10 countries found higher risk of IPV among women with unintended pregnancies and abortions.[56] In Tanzania, pregnant women experiencing IPV had 1.6 times the likelihood of reporting early pregnancy loss, and 1.9 times the likelihood of reporting induced abortions.[57] Children and newborns of women experiencing IPV are also at higher risk of mortality. In Uganda, only 0.6% of boys and 1.6% of girls who had witnessed IPV had not experienced it themselves.[57] Infant and child mortality was found to be higher among daughters of women experiencing IPV in India.[58]

Women who experience IPV are at higher risk of acquiring HIV and not accessing healthcare services. One qualitative study shed light on the challenges faced by women who have experienced IPV in adhering to medication and accessing health services.[59] A systematic review found that IPV is associated with lower ART use and adherence, as well as lower odds of viral load suppression.[60] Another systematic review and meta-analysis confirmed an association between IPV and HIV infection.[61] Interventions that have focused on gender issues and healthy relationships have improved the distribution of female condoms and post-exposure prophylaxis as well as resulting in fewer HIV risk-taking behaviours.[62]

Goal 4: Quality education

By 2030, the goal is to ensure equal access to quality education and promote learning opportunities throughout individuals' lives. VAWG prevents many girls and women from completing their schooling. At school, gendered/sexual violence makes it difficult for women and girls to obtain an education by creating an unpleasant learning environment.[63] One form of VAWG, early child marriage (before age 18), decreases the chance that girls will complete secondary school.[64] A WHO multi-country study found that secondary education is a protective factor against IPV.[53]

Goal 8: Decent work and economic growth

Preventing VAWG would give women the physical and emotional resources to work, helping to achieve Target 5 of SDG 8. This target aims to achieve decent and productive employment with equal pay for work of equal value for all, including women. The World Bank reported on the consequences of IPV for the employment, productivity and economic safety of women.[65] Not only are individual women said to be economically disadvantaged by the effects of IPV, but so is society at large. With so many women experiencing GBV across the world, there is widespread economic burden due to lost productivity and the cost of services provided to survivors.[41] The United Nations has estimated that GBV accounts for 2% loss in the global GDP (about US$1.5 trillion).[66]

Goal 10: Reduced inequalities

According to the World Health Organization, IPV is associated with risk factors such as economic stress and lower socioeconomic status.[67] Though the prevalence of IPV varies around the globe, women are consistently at greater risk of experiencing IPV.[68] Eliminating VAWG would reduce inequalities between the sexes as women would be more socially and economically empowered.

Goal 11: Sustainable cities and communities

Eliminating VAWG would help make public spaces more inclusive and accessible to women by improving their safety. A large majority of women have experienced sexual harassment and other forms of violence in public spaces.[69] Not only does the violence itself have a negative impact, but so too does the fear of such violence. A systematic review revealed that women tend to have substantially higher levels of fear in urban green spaces.[70] Fear of violence restricts women from having freedom of movement, and their ability to access services, education and work is impeded.[69] Women are forced to adjust their behaviour in order to escape violence, preventing them from experiencing the benefit that public spaces can provide.[71] Therefore, by reducing VAWG, women will be able to more readily and comfortably access public spaces and the services within them.

Goal 16: Peace, justice, and strong institutions

With so many consequences of VAWG to women's health and wellbeing, it follows that eliminating violence against women in all its forms would also reduce violence and related deaths overall. Globally, intimate partner homicides make up 38.6% of homicides where a woman is the victim.[72] The greatest risk factor for intimate partner homicide is previous IPV.[73] Reducing IPV is likely to prevent the possibility of future perpetration of such violent behaviours; a cross-sectional survey of Ugandan school children found that children, especially boys, who have witnessed IPV have much higher odds of perpetrating physical or sexual violence.[74]

Table 4: SDG goals and targets that have a synergistic relationship with violence against women (Goal 5, Target 2)

	Goal 2: Zero hunger	Goal 3: Good health and well-being	Goal 4: Quality education	Goal 5: Gender equality
	End hunger, achieve food security and improved nutririon and promote sustainable agriculture	Ensure healthy lives and promote well-being for all at all ages	Ensure inclusive and equitable quality education and promote lifelong learning opportunities	Achieve gender equality and empower all women and girls
Targets	**2.2:** By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons	**3.1:** By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births **3.2:** By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births **3.3:** By 2030, end the epidemics of AIDS, TB, malaria and neglected tropical diseases and combat hepatitis, water-borne diseases and other communicable diseases **3.4:** By 2030, reduce by one third premature mortality from non-communicable diseases through prevention and treatment and promote mental health and well-being **3.5:** Strengthen the prevention and treatment of substance abuse, including narcotic drug abuse and harmful use of alcohol **3.8:** Achieve universal health coverage, including financial risk protection, access to quality essential health-care services and access to safe, effective, quality and affordable essential medicines and vaccines for all	**4.1:** By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes **4.2:** By 2030, ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education **4.3:** By 2030, ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university **4.7:** By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development	**5.1:** End all forms of discrimination against all women and girls everywhere **5.2:** Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation **5.3:** Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation **5.6:** Ensure universal access to sexual and reproductive health and reproductive rights as agreed in accordance with the Programme of Action of the International Conference on Population and Development and the Beijing Platform for Action and the outcome documents of their review conferences **5.a:** Undertake reforms to give women equal rights to economic resources, as well as access to ownership and control over land and other forms of property, financial services, inheritance and natural resources, in accordance with national laws **5.b:** Enhance the use of enabling technology, in particular information and communications technology, to promote the empowerment of women

	Goal 8: Decent work and economic growth	Goal 10: Requced inequalities	Goal 11: Sustainable cities and communities	Goal 16: Peace, justice and strong institutions
	Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all	Reduce inequality within and among countries	Make cities and human settlements inclusive, safe resilient and sustainable	Promote peaceful and inclusive societies for sustainable development, rovide access to justice for all and build effective, accountable and inclusive institutions at all levels
Targets	**8.5:** By 2030, achieve full and productive employment and decent work for all women and men, including for young people and persons with disabilities, and equal pay for work of equal value	**10.2:** By 2030, empower and promote the social, economic and political inclusion of all, irrespective of age, sex, disability, race, ethnicity, origin, religion or economic or other status	**11.7:** By 2030, provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	**16.1:** Significantly reduce all forms of violence and related death rates everywhere **16.2:** End abuse, exploitation, trafficking and all forms of violence against and torture of children

What next?

These examples only scratch the surface: development synergies could be leveraged in a great many other ways to reach the goal of eradicating the HIV epidemic while cost-effectively achieving gains toward many sustainable development goals.

How can these concepts be put into practice? Acting on development synergies will require innovative policies, programme planning and resourcing across sectors, constituencies and stakeholders.

One formidable barrier is that governments and global development funding streams are organised vertically by sector. Few mechanisms exist to facilitate cross-sectoral planning.

To help overcome this barrier, STRIVE has developed a financing model to demonstrate how governments and other donors can share costs among sectors and stakeholders. Cross-sectoral co-financing is an innovative solution that can increase efficiency in the allocation of government, donor and other budget-holders' resources.[75] Indeed, it could provide a new way of financing high-impact interventions that can achieve benefits across the interconnected SDGs and targets.

During this final phase of STRIVE, our co-financing specialists are working with UNDP and national partners to implement five country-level demonstration projects. The goal is to develop local planning processes to operationalise a co-financing solution.

REFERENCES

1. UNAIDS Fact Sheet 2017. http://www.unaids.org/sites/default/files/media_asset/20170720_Data_book_2017_en.pdf
2. Moorehouse, M., Closer to zero: reflections on ten years of ART rollout. *South African Journal of HIV Medicine*, 2014. 15(1): 9.
3. Corey L. and Gray G., Preventing acquisition of HIV is the only path to an AIDS-free generation. Proceedings of the National Academy of Sciences of the United States of America, 2017. 114(15): 3798-3800.
4. Fraser, C. "HIV Phylogenetics: Lessons for HIV Prevention." Presentation at the Conference on Retroviruses and Opportunistic Infections, Seattle, Washington, February 23-26, 2015.
5. Marks, G., et al., Time above 1500 copies: a viral load measure for assessing transmission risk of HIV-positive patients in care. *AIDS*, 2016. 29(8): 947-954.
6. Bain, L.E., et al., UNAIDS 90-90-90 targets to end the AIDS epidemic by 2020 are not realistic: comment on "Can the UNAIDS 90-90-90 target be achieved? A systemic analysis of national HIV treatment cascades". *BMJ Global Health*, 2017. 2(2): n.p.
7. Nilsson, M., Griggs, D., Visbeck, M., Policy: Map the Interactions between Sustainable Development Goals. *Nature*, 2016. 534(7607): 320-322.
8. Fritz, K., et al., STRIVE Technical Brief: Alcohol and HIV. 2018.
9. Olita'a, D., et al., Risk factors for malnutrition in children at Port Moresby General Hospital, Papua New Guinea: a case-control study. *Journal of Tropical Pediatrics*, 2014. 60(6): 442-448.
10. Setswe, G., et al., Prevalence and risk factors for malnutrition among children aged 5 years and less in the Lefaragatlha village of Bophuthatswana. *Curationis*, 1994. 17(3): 33-35.
11. Latvala, A., Drinking, smoking, and educational achievement: cross-lagged associations from adolescence to adulthood. *Drug and Alcohol Dependence*, 2014. 137(1): 106-113.
12. Grant, J.D., et al., Associations of alcohol, nicotine, cannabis, and drug use/dependence with educational attainment: evidence from cotwin-control analyses. Alcoholism: *Clinical and Experimental Research*, 2012. 36(8): 1412-1420.
13. van der Heide, I., et al., Health-related factors associated with discrepancies between children's potential and attained secondary school level: A longitudinal study. *PLOS One*, 2016. 11(12): n.p.
14. Lindo, J.M., et al., Alcohol and student performance: Estimating the effect of legal access. *Journal of Health Economics*, 2013. 32(1): 22-32.
15. Heise, L., What works to prevent partner violence? An evidence overview. 2011.
16. Gil-González, D., et al., Alcohol and intimate partner violence: do we have enough information to act? *European Journal of Public Health*, 2006. 16(3): 278-284.
17. Graham, K.,et al., Comparison of partner physical aggression across ten countries. In PanAmerican Health Organization, ed. Unhappy hours: alcohol and partner aggression in the Americas. 2008: 221-246.
18. Damania, R., et al., Uncharted waters: the new economics of water scarcity and variability. World Bank Group, 2017.
19. SAB Miller, Water Footprinting: Identifying and Addressing Water Risks in the Value Chain. 2009.
20. Nyato, D., et al., STRIVE Impact Case Study: Alcohol Policy in Tanzania. 2017.
21. Thavorncharoensap, M., et al. The economic impact of alcohol consumption: a systematic review. *Substance Abuse Treatment, Prevention, and Policy*, 2009. 4(20): n.p.
22. Matzopoulos, R.G., et al., The cost of harmful alcohol use in South Africa. *South African Medical Journal*, 2014. 104(2): 127-132.
23. Viner, R., et al., The health benefits of secondary education in adolescents and young adults: an international analysis in 186 low-, middle- and high-income countries from 1990 to 2013. *SSM – Population Health*, 2017. 3: 2017.
24. Fonner, V., School based sex education and HIV prevention in low- and middle-income countries: a systematic review and meta-analysis. *PLOS One*, 2014. 9(3): n.p.
25. Mason-Jones, A., School-based interventions for preventing HIV, sexually transmitted infections, and pregnancy in adolescents. *Cochrane Database of Systematic Reviews*, 2016. 11: 1-90.
26. The World Bank, Gender differences in employment and why they matter. In World Development Report 2012. 2012: 198-253.
27. Asian Development Bank. Gender Equality and Food Security – Women's Empowerment as a Tool Against Hunger. 2013.
28. Bishai, D.M., et al., Factors contributing to maternal and child mortality reductions in 146 low- and middle-income countries between 1990 and 2010. *PLOS One*, 2016. 11(1): n.p.
29. Wodon, Q., et al., Key findings ahead of the October 2017 high level meeting on ending child marriage in West and Central Africa. Girls' Education and Child Marriage in West and Central Africa Notes Series, 2017.
30. Klasen, S. and Lamanna, F., The impact of gender inequality in education and employment on economic growth: new evidence for a panel of countries. *Feminist Economics*, 2009. 15(3): 91-132.
31. The World Bank. Girls' Education in the 21st Century: Gender Equality, Economic Empowerment, and Economic Growth. 2008.
32. De Souza, R.M., Resilience, integrate development and family planning: building long-term solutions. *Reproductive Health Matters*, 2014. 22(43): 75-83.
33. Kwauk, C. and Braga, A., Three platforms for girls' education in climate strategies. Brooke Shearer Series, 2017. 6: 5-49.
34. Taaffee, J., Cheikh, N., and Wilson, D., The use of cash transfers for HIV prevention – are we there yet?. *African Journal of AIDS Research*, 2016. 15(1): 17-25.
35. Bastagli, F., et al., Cash transfers: what does the evidence say? A rigorous review of programme impact and of the role of design and implementation features. Overseas Development Institute, 2016.
36. UNICEF and Economic Policy Research Institute (EPRI). Social Protection Programmes Contribute to HIV Prevention. 2015. https://transfer.cpc.unc.edu/wp-content/uploads/2015/09/SocialProtectionHIVBrief_Jan2015.pdf
37. Baird, S.J,, et al., Effect of a cash transfer programme for schooling on prevalence of HIV and herpes simplex type 2 in Malawi: a cluster randomised trial. *The Lancet*, 2012. 379(9823): 1320-1329.
38. Devries, K.M., et al., The global prevalence of intimate partner violence against women. *Science*. 2013. 340(6140): 1527-8.

39. Deering, K.N., et al., A systematic review of the correlates of violence against sex workers. *American journal of public health*. 2014. 104(5): e42-54.
40. Ellsberg, M., et al., WHO Multi-country Study on Women's Health and Domestic Violence against Women Study Team. Intimate partner violence and women's physical and mental health in the WHO multi-country study on women's health and domestic violence: an observational study. *Lancet*. 2008. 371(9619): 1165-72.
41. Duvvury, N., et al., Intimate partner violence: Economic costs and implications for growth and development. 2013.
42. Rico, E., et al., Associations between maternal experiences of intimate partner violence and child nutrition and mortality: findings from Demographic and Health Surveys in Egypt, Honduras, Kenya, Malawi and Rwanda. *J Epidemiol Community Health*. 2011. 65(4): 360-7.
43. Ziaei, S., Naved, R.T., Ekström, E.C., Women's exposure to intimate partner violence and child malnutrition: findings from demographic and health surveys in Bangladesh. *Maternal & child nutrition*. 2014. 10(3): 347-59.
44. Felitti, V.j., et al., Relationship of childhood abuse and household dysfunction to many of the leading causes of death in adults. *Am J Prev Med*. 1998. 14(4): 245-258.
45. Rich-Edwards, J.W., et al., Abuse in childhood and adolescence as a predictor of type 2 diabetes in adult women, *Am J Prev Med*. 2010. 39(6): 529-5366.
46. Danese, A., et al., Adverse childhood experiences and adult risk factors for age-related disease: depression, inflammation, and clustering of metabolic risk markers. *Arch Pediatr Adolesc Med*. 2009. 163(12): 1135-1143
47. Rich-Edwards, J.W., et al., Physical and sexual abuse in childhood as predictors of early onset cardiovascular events in women. *Circulation*. 2012. 126(8): 920-9278.
48. Bensley, L., Childhood family violence history and women's risk for intimate partner violence and poor health. *Am J Prev Med*. 2003. 25(1): 38-44.
49. Bacchus, L.J., et al., Recent intimate partner violence against women and health: a systematic review and meta-analysis of cohort studies. *BMJ Open*. 2018. 8(7): e019995.
50. Devries, K.M., et al., Intimate partner violence and incident depressive symptoms and suicide attempts: a systematic review of longitudinal studies. *PLoS Medicine*. 2013. 10(5): e1001439.
51. Devries, K.M., et al., WHO Multi-Country Study Team. Violence against women is strongly associated with suicide attempts: evidence from the WHO multi-country study on women's health and domestic violence against women. *Soc Sci Med*. 2011. 73(1): 79-86.
52. Martin, S.L., et al., Pregnancy-associated violent deaths: the role of intimate partner violence. *Trauma, Violence, & Abuse*. 2007. 8(2): 135-48.
53. Abramsky, T., et al., What factors are associated with recent intimate partner violence? findings from the WHO multi-country study on women's health and domestic violence. *BMC Public Health*. 2011. 11: 109.
54. Devries, K.M., et al., Intimate partner violence victimization and alcohol consumption in women: a systematic review and meta-analysis. *Addiction*. 2014. 109(3): 379-91.
55. Devries, K.M., et al., Intimate partner violence during pregnancy: analysis of prevalence data from 19 countries. *Reprod Health Matters*. 2010. 18(36): 158-70.
56. Pallitto, C.C., et al., WHO Multi-Country Study on Women's Health and Domestic Violence. Intimate partner violence, abortion, and unintended pregnancy: results from the WHO Multi-country Study on Women's Health and Domestic Violence. *Int J Gynaecol Obstet*. 2013. 120(1): 3-9.
57. Stöckl, H., et al., Induced abortion, pregnancy loss and intimate partner violence in Tanzania: a population based study. *BMC Pregnancy Childbirth*. 2012. 12: 12.
58. Silverman, J.G., et al., Gender-based disparities in infant and child mortality based on maternal exposure to spousal violence: the heavy burden borne by Indian girls. *Archives of pediatrics & adolescent medicine*. 2011. 165(1): 22-7.
59. Watts, C. and Seeley, J., Addressing gender inequality and intimate partner violence as critical barriers to an effective HIV response in sub-Saharan Africa. *J Int AIDS Soc*. 2014. 17: 19849.
60. Hatcher, A.M., et al., Intimate partner violence and engagement in HIV care and treatment among women: a systematic review and meta-analysis. *Aids*. 2015. 29(16): 2183-94.
61. Li, Y., et al., Intimate partner violence and HIV infection among women: a systematic review and meta-analysis. *J Int AIDS Soc*. 2014. 17(1): 18845.
62. Remme, M., et al., The cost and cost-effectiveness of gender-responsive interventions for HIV: a systematic review. *J Int AIDS Soc*. 2014. 17: 19228.
63. Bhagavatheeswaran, L., et al., The barriers and enablers to education among scheduled caste and scheduled tribe adolescent girls in northern Karnataka, South India: A qualitative study. *International journal of educational development*. 2016. 49: 262-70.
64. Pande, R.P., et al., Addressing intimate partner violence in South Asia: evidence for interventions in the health sector women's collectives and local governance mechanisms. 2017.
65. Duvvury, N., Carney, P., Minh, N.H., Estimating the Costs of Domestic Violence Against Women in Vietnam. Hanoi, Vietnam: UN Women. 2012.
66. UN Women. The Economic Costs of Violence Against Women. Remarks by UN Assistant Secretary-General and Deputy Executive Director of UN Women, Lakshmi Puri at the high-level discussion on the "Economic Cost of Violence against Women". 21 September 2016.
67. Garcia-Moreno, C., et al., WHO multi-country study on women's health and domestic violence against women: initial results on prevalence, health outcomes and women's responses. Geneva: World Health Organization. 2005.
68. Campbell, J.C., et al., The intersection of intimate partner violence against women and HIV/AIDS: a review. *International journal of injury control and safety promotion*. 2008. 15(4): 221-31.
69. Soria, N.F., Safe Cities and Safe Public Spaces: Global Results Report. New York: UN Women. 2017.
70. Sreetheran, M. and Van Den Bosch C.C., A socio-ecological exploration of fear of crime in urban green spaces – A systematic review. Urban Forestry & Urban Greening. 2014. 13(1): 1-8.
71. Goulds, S. and Tanner, S. Unsafe in the City - The Everyday Experiences of Girls and Young Women: The State of the World's Girls Report. Surrey, UK: Plan International. 2018.
72. Stöckl, H., et al., The global prevalence of intimate partner homicide: a systematic review. *Lancet*. 2013. 382(9895): 859-65.
73. Campbell, J.C., et al., Intimate partner homicide: review and implications of research and policy. *Trauma, Violence, & Abuse*. 2007. 8(3): 246-69.
74. Devries, K.M., et al., Witnessing intimate partner violence and child maltreatment in Ugandan children: a cross-sectional survey. *BMJ Open*. 2017. 7(2): e013583.
75. Remme, M., et al., STRIVE Technical Brief: Development Synergies and Co-financing. 2018.

More information: http://strive.lshtm.ac.uk/

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STRIVE research consortium

A DFID-funded research programme consortium, STRIVE is led by the London School of Hygiene & Tropical Medicine, with six key research partners in Tanzania, South Africa, India and the USA. STRIVE provides new insights and evidence into how different structural factors – including gender inequality and violence, poor livelihood options, stigma, and problematic alcohol use – influence HIV vulnerability and undermine the effectiveness of the HIV response.

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