



United Nations
Educational, Scientific and
Cultural Organization

SCHOOL-BASED SEXUALITY EDUCATION PROGRAMMES

A Cost and Cost-Effectiveness Analysis in Six Countries



EXECUTIVE SUMMARY

May 2011

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For the full report, visit: www.unesco.org/aids

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Published by the United Nations Educational,
Scientific and Cultural Organization
7, place de Fontenoy, 75732 Paris 07 SP, France

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Printed in Paris, France

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Foreword

In late 2007, UNESCO began a programme of work on sexuality education, primarily as a platform for strengthening HIV prevention efforts with children and young people but also to address broader sexual and reproductive health objectives, such as the prevention of other sexually transmitted infections (STIs) and unintended pregnancies. Our work was guided by recommendations from a Global Advisory Group on Sexuality Education, which identified the need for work in the following areas: establishing international standards on sexuality education; documenting good practice; analysing the cost and cost-effectiveness of sexuality education programmes; and assessing the implications of scaling up good quality sexuality education.

The *International Technical Guidance on Sexuality Education* (Volume I & II), published in December 2009, set international standards formulated by UNESCO in partnership with UNICEF, UNFPA, WHO and UNAIDS. This was followed by *Levers of Success* in 2010, containing examples of country case studies of good practice.

UNESCO is pleased to release in 2011 the results of a six-country study on the cost and cost-effectiveness of sexuality education programmes, the third major output of our programme of work on sexuality education. This seminal study gives an economic basis to the argument that sexuality education provides a key platform for HIV prevention amongst young people. We now have the data and analysis to make a stronger and better informed case for investing in school-based sexuality education programmes, particularly in those countries most affected by the epidemic and prioritized for attention in *Getting to Zero*, the UNAIDS Strategy 2011-2015.

A UNESCO review of sexuality education programmes carried out in 2008-2009 highlighted their positive impact on key sexual behaviours related to HIV prevention. This study's findings show the potential for cost-effectiveness and cost savings in similar programmes. Scaled-up, integrated and compulsory programmes can be delivered at reasonable cost in both low- and high-income country contexts. Furthermore, the combination of good quality education programmes and youth-friendly services has had a demonstrated effect on reducing adverse health outcomes (including HIV infection) and delivered major cost savings in Estonia, where the first comprehensive analysis of its kind was implemented.

I hope these findings will contribute to persuading key decision-makers in both the health and education sectors about the need for scaling up good quality sexuality education, which provides a key opportunity for consolidating and advancing the gains made in reducing the number of new HIV infections amongst young people. Young people worldwide are clear and unequivocal in their demands for more and better quality sexuality education, and governments, civil society and development partners must respond to the call.

A copy of the full report is available at www.unesco.org/aids.

Mark Richmond
UNESCO Global Coordinator for HIV and AIDS

Acknowledgements

This study on the cost and cost-effectiveness of school-based sexuality education programmes in six countries was commissioned by the United Nations Educational, Scientific and Cultural Organization (UNESCO). Its preparation, under the overall guidance of Mark Richmond, UNESCO Global Coordinator for HIV and AIDS, was organised by Chris Castle, Dhianaraj Chetty, Joanna Herat, Yong Feng Liu, Zoe Marks and Ekua Yankah (formerly at UNESCO) in the Section of Education and HIV & AIDS in the Division of Education for Peace and Sustainable Development at UNESCO. Additional inputs were received from Ahmed Afzal, Mary-Guinn Delaney, Justine Sass, Arne Willems and participants at a UNESCO Education Seminar in early April 2011.

Rob Baltussen, Evert Ketting and Jari Kivela of Radboud University Nijmegen Medical Center implemented the study during 2010-2011. They were supported by country teams in Estonia, India, Indonesia, Kenya, the Netherlands and Nigeria. UNESCO acknowledges valuable contributions to the country studies from: Abokede Damilola, Deji Doris, Adenike Esiet, Felix-Mary Okpechi and Nelly Onwordi (Nigeria); Anne van Ledeghem, Joanne Leerlooijer, Albert Obbuyi, Rosemarie Muganda-Onyando, Martin Omondi and Chris Pescott (Kenya); Rita Damayanti, Siti Rokhmawati Darwisyah, Hendri Hartati, Sri Kusyuniati, Dadun Mkes and Mardiati Nadjib (Indonesia); Sanghamitra Pati, Debi Prasad Nayak and Minakshi Panda (India); Kai Haldre, Raul Kiivet, Eva Palm and Kai Part (Estonia); Loic Abballéa, Sanderijn van der Doef, Sanna Maris and Jos Poelman (the Netherlands).

This study benefitted from expert advice and review at various stages from members of UNESCO's Global Advisory Group on Sexuality Education and the Technical Advisory Group, particularly Bineta Ba-Diagne (African Development Bank), Howard Friedman (UNFPA), Robert Greener (UNAIDS), Rick Homan (FHI/UNC) and Anderson Stanciole (World Bank). Further comments were received during the first presentation of the results at an international symposium on sexuality education convened by the UNAIDS Inter-Agency Task Team on Education in New York in April 2011. Schéhérazade Feddal and Aurélia Mazoyer provided valuable support in the final production and dissemination of the report.

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Acronyms

AIDS	Acquired Immune Deficiency Syndrome
ARSH	Adolescent Reproductive and Sexual Health
CSA	Centre for the Study of Adolescence
DAKU	Dunia Remajaku Seru! (My Youth Is Fascinating)
GDP	Gross Domestic Product
HIV	Human Immunodeficiency Virus
ICT	Information and Communication Technology
LLL	Lang Leve de Liefde (Long Live Love)
NGO	Non-governmental organisation
NRHM	National Rural Health Mission
SRH	Sexual and Reproductive Health
STI	Sexually transmitted infection
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNESCO	United Nations Educational, Scientific and Cultural Organization
WPF	World Population Foundation

Introduction

Costing and cost-effectiveness data for HIV prevention programmes are important tools for decision-makers. In many countries, HIV prevention efforts for young people have increasingly focused on schools, with many ministries of education in the process of scaling up school-based sexuality education programmes. However, most ministries of education are implementing programmes without an adequate understanding of how much the programmes cost per learner or per HIV/STIs or unintended pregnancy averted. Costing and cost-effectiveness studies can therefore assist governments and other programme developers and implementers to advocate for and better plan feasible and sustainable programme scale-up.

In response to this need for a better evidence base, in 2010 UNESCO commissioned a six-country study into the cost of good quality sexuality education programmes in a sample of low-, middle- and high-income countries. The objective was to develop tools for measuring the cost and cost-effectiveness of HIV prevention programmes and to determine the cost of scaling up good quality HIV and sexuality education in schools. The cost-effectiveness component also measured the projected impact these programmes can have on reducing rates of HIV infection, other STIs and unintended pregnancy. Where data were available, findings from the cost and cost-effectiveness exercises were expected to provide country-specific data on the following:

- Annual cost of quality sexuality education per learner and per hour of instruction (Estonia, India, Indonesia, Kenya, Nigeria and the Netherlands);
- And the cost-effectiveness of quality sexuality education as measured by the averted cost per case of HIV, STI and pregnancy reduced by implementing quality sexuality education (Estonia and Kenya).

Country selection was based on a range of criteria, including the quality and scale of the sexuality education programmes, the type of HIV epidemic, and other regional and contextual factors. The six programmes selected for analysis come from two countries with a generalized HIV-epidemic (Kenya and Nigeria) and several countries with high unintended teenage pregnancy rates. They also include comprehensive programmes (all except for the programme in Nigeria, which was conceived of as comprehensive but subsequently modified) that are preferably scaled up (programmes in Nigeria, Estonia and the Netherlands) and for which data were available and accessible through existing partnerships with the study team.

Also, where possible, the focus was on government-implemented programmes (Estonia, India, the Netherlands and Nigeria), rather than small-scale pilot programmes (Kenya and Indonesia). It is worth noting that small-scale pilot programmes, such as the Kenyan and Indonesian examples, are important and useful for illustrating a range of issues that need to be better understood before scaling-up decisions are made. Whilst acknowledging the potential value of non-formal, community-based or extracurricular programmes, UNESCO's emphasis remains on school-based programmes delivered within the formal curriculum, which have the ability to reach far greater numbers of children and young people, as illustrated in this study. Most of the programmes which met the criteria for inclusion in this study focused on learners in secondary schools. Additional research is now needed on programmes targeted at primary school level.

Whilst this study makes a significant contribution to the international evidence base on sexuality education, there is still a need for ongoing global comparative research. Subsequent research efforts can add comparative data by examining sexuality education programmes from other regions, including Latin America, the Caribbean, Southern Africa, the Middle East and North Africa, and Central and East Asia.

To strengthen the efficacy of sexuality education, there remains a high level of interest and a need for further research concerning the quality of delivery, rights-based and gender-related components and the outcomes of programmes. UNESCO's 2008-2009 review of sexuality education programmes and their impacts on sexual behaviour provided the basis for the *International Technical Guidance on Sexuality Education* (UNESCO, 2009) and highlighted key issues for high-quality programme delivery. Likewise, the gendered outcomes of sexuality education is an area of growing interest and further analysis of specific programme design features could have cost implications.

This summary presents only a snapshot of the results from this study. The full report, *Cost and Cost-Effectiveness Analysis of School-Based Sexuality Education Programmes in Six Countries* (UNESCO, 2011), including all of the country studies, is available online at: www.unesco.org/aids.

Study Overview

There is a growing body of evidence indicating that school-based sexuality education programmes are valuable and have a positive impact on young people's sexual health by improving preventive behaviour and thereby reducing the risks of unintended pregnancy and sexually transmitted infections (STIs), including HIV. In supporting the right to education, UNESCO recognises the need for young people to receive high-quality comprehensive sexuality education.¹

Policy-makers worldwide who are involved in decisions about sexuality education programmes face three important economic questions: what are the costs of developing sexuality education programmes; what are the costs of implementing and scaling them up; and do these programmes give value for money? Knowing the answers to these questions would enable policy-makers to invest education and health resources more effectively in programmes that deliver better health outcomes, particularly in the context of HIV and AIDS. This study responds to the above questions by assessing the costs, health effects and cost-effectiveness of sexuality education programmes in a range of countries. It reports on the costs in six countries (Nigeria, Kenya, India, Indonesia, Estonia and the Netherlands), the impact in two countries (Kenya and Estonia) and the cost-effectiveness in one country (Estonia).

Sexuality Education is defined as an age-appropriate, culturally relevant approach to teaching about sex and relationships by providing scientifically accurate, realistic, non-judgemental information. Sexuality Education provides opportunities to explore one's own values and attitudes and to build decision-making, communication and risk reduction skills about many aspects of sexuality.

- International Technical Guidance on Sexuality Education, UNESCO (2009)

This study begins to fill the gaps in data on the economic aspects of sexuality education programmes worldwide, in low-, middle- and high-income countries. It also comes at a time when interest in sexuality education programmes is growing considerably. This is because they offer a way to prevent adverse health effects, including unintended pregnancy and sexually transmitted infections, and help people make conscious, responsible decisions about their sexual life. In addition, sexuality education programmes can also reduce gender inequality, improve communication within, and the quality of, interpersonal relationships, increase self-awareness and self-efficacy in a range of decision-making areas and reduce sexual violence. In the analysis of programme impact and cost effectiveness, this study only considers the health effects of sexuality education programmes.

The evidence in this report is relevant not only to the countries and sexuality education programmes studied, but also to other countries considering implementing or scaling up existing sexuality education, HIV or life skills programmes. The report shows how costs could be saved by adapting a programme from another country rather than developing one from scratch, and that important economies of scale can be achieved by improving the coverage of the programmes. It also sets out the economic benefits of programmes that are integrated into the regular school curriculum rather than those that are stand-alone or extracurricular.

Sexuality Education Programmes Analysed

The selection of countries reflects a broad geographical spread, with two countries in Africa (Nigeria and Kenya), two in Asia (Indonesia and India), and two in Europe (Estonia and the Netherlands). It also reflects a range of experiences. The Netherlands has a fairly long tradition of sexuality education, whereas in Indonesia and Kenya, recently implemented pilot programmes are evaluated, operating on a relatively small scale. Estonia introduced its programme only about 15 years ago, though it is now firmly established nationwide. In Nigeria, the sexuality education programme started in Lagos state, and is now also implemented in Abuja state.² India is in the course of implementing a programme in the state of Orissa.

¹ Comprehensive sexuality education programmes address the human rights, ethical, biological, emotional, social, cultural and gender aspects of sexuality, and respect diversity of sexual orientations and identities. An overview of the characteristics for an effective programme can be found in UNESCO, 2009, Ch. 5, *International Technical Guidance on Sexuality Education*, Paris.

² It is unknown to what extent the same sexuality education programme is being implemented in other states in Nigeria.

The success of sexuality education programmes is largely determined by the context in which they are developed and implemented, as well as by their characteristics and the quality of implementation. In many countries, sexuality, and therefore sexuality education, is a sensitive issue that may generate opposition. This is often fuelled by the false belief that sexuality education leads to earlier debut of sexual activity or to sexual promiscuity. It should be stressed that there is strong scientific evidence that sexuality education does not encourage such behaviour³. Where such false beliefs are dominant, the introduction of sexuality education requires careful planning and a wide variety of advocacy and public education activities. This has a significant effect on the costs and impact of the programmes (see below).

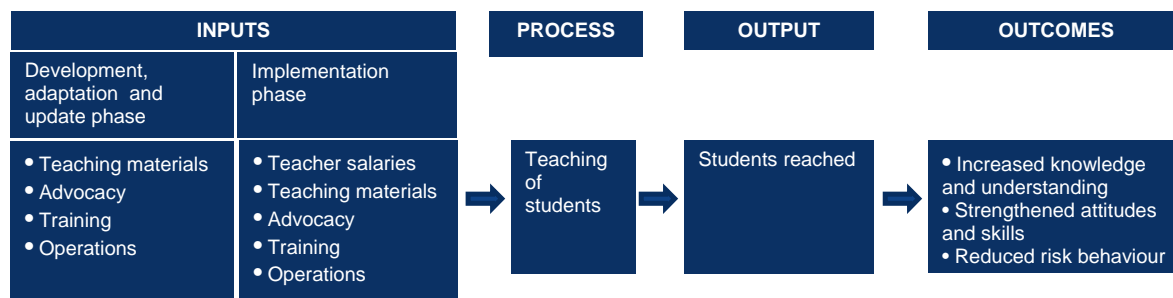
Among international experts there is a strong consensus that sexuality education programmes that are fully integrated into the school curriculum are preferable to stand-alone programmes. However, in many countries, the conditions for fully integrated sexuality education programmes are not sufficient, and therefore extracurricular, stand-alone programmes are the only ones that may currently be possible. The programmes in Indonesia and Kenya are of the latter type.

Methods

This report presents the results of a comprehensive costing analysis – based on detailed inspection of financial records, interviews with sexuality education programme personnel, and primary data collection through specifically designed surveys in schools – in all countries studied. The exception is Orissa State, India, where programme implementation began in 2010, and where the costing analysis is therefore estimated on the basis of implementation plans.

Analyses were conducted from the programme perspective, including all costs as borne by governmental and non-governmental organizations, and by any international organizations supporting the programme. The economic costs of the sexuality education programmes were estimated, including all resources used, and the budgetary outlays were also calculated, i.e. the costs of running the programmes additional to already existing expenses on teacher salaries. Various programme phases – development or adaptation, implementation, and update – and attendant inputs were identified to reflect all resources required for developing and implementing a sexuality education programme. The costs measured in the analysis are detailed under ‘input’ in Figure 1, as well as the process, output and outcomes of the programme.

FIGURE 1: INPUT-PROCESS-OUTPUT-OUTCOME DIAGRAM OF SEXUALITY EDUCATION PROGRAMMES



To make meaningful comparisons of the costs of the sexuality education programmes across the study countries, one indicator was chosen: cost per student reached in 2009. The costs per student for the duration of the entire curriculum were estimated, and thus accounted for differences in the length of sexuality education programmes across countries. Costs are presented in US dollars, and are also converted into international dollars. International dollars have the advantage that they account for the difference in price levels between countries, and allow for a comparison of the actual resource use by the sexuality education programmes in the countries concerned.

³ UNESCO. 2009. *International Technical Guidance on Sexuality Education: An evidence-informed approach for schools, teachers and health educators*. Paris, UNESCO.

Impact evaluations were performed in Kenya and Estonia to assess the health effects of the sexuality education programmes. The sexuality education programme in Kenya is a stand-alone programme and its impact was evaluated on the basis of case-control and pre- and post-intervention assessments. The integrated sexuality education programme in Estonia was more difficult to evaluate because it starts at a young age and covers several years, making a pre-post study design difficult to implement. Moreover, the sexuality education programme is implemented on a national scale, so no control group of non-intervention schools was available. Therefore, an impact evaluation was performed on the basis of a health-outcome indicator trend analysis.

The cost-effectiveness of the Estonian programme was estimated by comparing the costs of the programme to these health effects. No estimation of the cost-effectiveness of the Kenyan programme was made given the absence of identifiable health effects. The overall approach adhered to the WHO-CHOICE methodology on costing and cost-effectiveness analysis – an internationally accepted standard for the conduct of economic analysis of health programmes, especially in low- and middle-income countries.

Limitations

A number of limitations were faced in conducting the study. First, information on the actual number of learners reached was not always available, especially in the larger intra-curricular programmes. In those instances, programme coverage was calculated on the basis of secondary sources, e.g. students' materials used or teachers trained. Second, it is not always self-evident where sexuality education programmes begin and end. Sexuality education programmes are sometimes part of wider life-skills programmes, as in Estonia. Since general life skills, such as decision-making competence, serve more purposes than only promoting healthy sexual behaviour, it is then somewhat arbitrary to determine which part of the programme should be labelled sexuality education. Third, it was not always possible to make detailed assessments of costs. Some programmes, such as curricula in Estonia and the Netherlands, have existed for a long time, and older financial records were not always available. In those instances, the analysis was based on gross estimates from programme personnel. Fourth, any impact evaluation of sexuality education programmes is difficult to undertake. This study's impact evaluation and cost-effectiveness analysis should therefore be considered as exploratory.

This study only focuses on the costs and cost-effectiveness of sexuality education programmes. It does not answer several other very important questions, such as variation in the quality of different types of programmes, nor does it address the important question of how to develop a sexuality education programme and integrate it in existing curricula. This requires additional efforts beyond the scope of this study, which could result in a strategic document that outlines pathways, under different conditions, for successfully developing and integrating sexuality education in school curricula.

Results and Key Observations

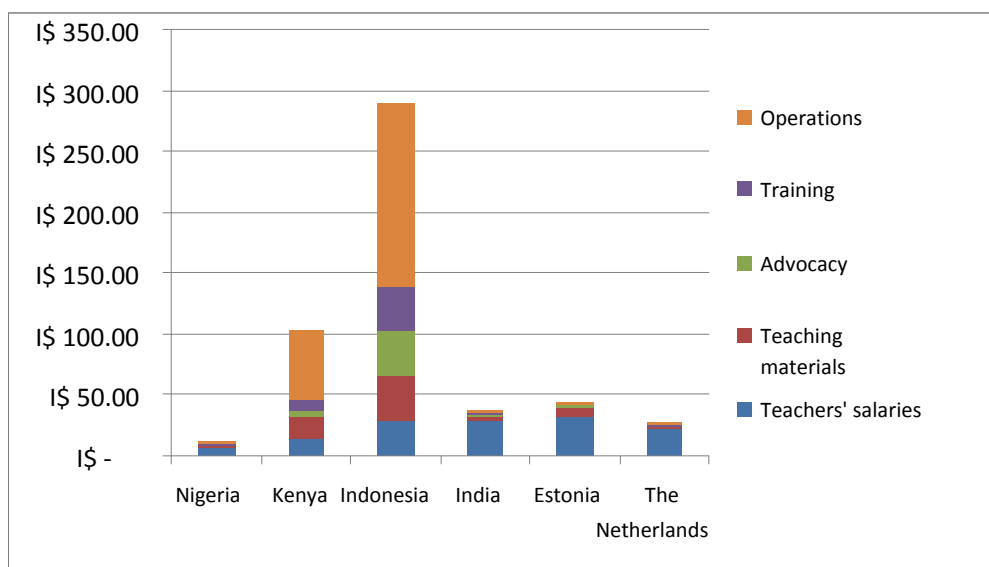
Study findings reveal a wide range of costs and coverage of sexuality education programmes across the countries studied. Total costs of sexuality education programmes, including development or adaptation, updating and implementation, range between US\$ 1.19 million in Indonesia to US\$ 12.1 million in the Netherlands. The total number of students reached varies from some 6,000 in Indonesia, to 990,000 in India (as planned for the period 2010-2014). This is dependent on the number of years a programme is implemented in the country, and therefore the report concentrates on annual costs. The annualized costs and the annual number of students reached in 2009 are US\$ 562,000 and 246,000 students in Nigeria; US\$ 364,000 and 7,300 students in Kenya; US\$ 289,000 and 1,800 students in Indonesia; US\$ 3.5 million and 780,000 students in India (as planned in 2014); US\$ 311,000 and 28,000 students in Estonia; and US\$ 830,000 and 25,300 students in the Netherlands. In every country, the majority of all costs are implementation costs, and costs of programme development, adaptation and updating are minor.

In the interpretation of the main findings – the cost per student reached across countries – it must be stressed from the outset that the sexuality education programmes in Kenya and Indonesia are much more costly because they are still in a pilot phase and therefore small-scale. Costs per student reached were

US\$ 7 in Nigeria and US\$ 13.50 in India, US\$ 33 in Estonia and the Netherlands, US\$ 50 in Kenya, and US\$ 160 in Indonesia. However, if only budgetary outlays are considered, i.e. the costs in addition to regular expenses on teacher salaries, costs per student reached reduce to US\$ 0.60 in Nigeria, US\$ 2.50 in India, US\$ 8 in Estonia, US\$ 10 in the Netherlands, US\$ 37 in Kenya and US\$ 135 in Indonesia. In India, Estonia and the Netherlands, for example, these budgetary outlays constitute 0.5, 0.2 and 0.1 per cent, respectively, of current expenditure per student in secondary education.

Figure 2 shows the distribution of implementation costs by activity, with costs per student expressed in international dollars (I\$), which account for the difference in price levels between countries, and allow for a comparison of the actual resource use by the sexuality education programmes in the countries concerned. The programmes in Kenya and Indonesia comprise relatively large operations costs per student reached, including personnel of the implementing NGOs, office and travel. In Nigeria, India, Estonia and the Netherlands, these costs are much lower, and the largest share of costs is teacher salaries. Training, advocacy and teaching material costs vary between countries, but each of these activities never accounted for more than 20 per cent of total costs in the analysis.

FIGURE 2: SEXUALITY EDUCATION PROGRAMME COST PER STUDENT REACHED BY ACTIVITY (I\$, 2009 PRICES)



The results of the cost-effectiveness study conducted in Estonia estimate that this sexuality education programme has averted, at a maximum, 4,280 unintended pregnancies, 7,240 STIs and 1,970 HIV infections over the period 2001-2009. However, its impact in reality is likely to be at a lesser scale, as the reductions cannot all be attributed to sexuality education, and the extent of the impact is difficult to estimate precisely.

The costs of the sexuality education programme (US\$ 5.6 million) were compared with the averted treatment costs of HIV infections averted (estimated lifetime treatment cost per person, US\$ 67,825). It is estimated that the sexuality education programme can be considered not only cost-effective but cost-saving if it has prevented 83 or more HIV infections over the period considered, or 4% of the total observed reduction of HIV infections in Estonia. Considering the strong indications that the impact of the sexuality education programme in Estonia has in reality been much higher, the study concludes that implementation of the programme has been a cost-saving activity, even before taking into account a wide variety of non-HIV-related gains. Complications in identifying the health impact of the sexuality education programme in Kenya are discussed below. Table 1, below, provides an overview of programme characteristics and costs in each study country.

TABLE 1: COMPARISON OF STUDY FINDINGS ON COSTING ANALYSIS
(ROUNDED FIGURES IN US\$, 2009 PRICES)⁴

Country	Nigeria	Kenya	Indonesia	India	Estonia	The Netherlands
Name of sexuality education programme	Family Life and HIV Education	World Starts With Me	DAKU!	Adolescent Reprod. & Sex. Health curriculum	Human Studies	Long Live Love
Intra-/extracurricular	Intra	Extra	Extra	Intra	Intra	Intra
Programme duration yrs	3	1	1	3	3 ⁵	1
Total number of hours	43	46	47	34	24	11
Schools covered in 2009	319	112	77	5,560	382	174
Students covered in 2009	246,000	7,300	1,805	780,000	28,000	25,300
Total costs US\$	3.4 mil	1.4 mil	1.2 mil	10.8 mil	5.6 mil	12.2 mil
Annual costs 2009 US\$	562,000	364,000	289,000	3,502,000	311,000	830,000
Cost per learner in US\$	6.90	50.00	159.90	13.50	32.90	32.80

Sensitivity of Sexuality Education and Effect on Costs and Impact

The sexuality education programmes in Nigeria, Kenya, Indonesia and India have been implemented in contexts where sexuality, and therefore sexuality education, is a sensitive issue. In contrast, sexuality education is not a sensitive issue in Estonia or the Netherlands. The sensitivity of the topic has important consequences for how and the pace at which sexuality education programmes can be introduced, their character (comprehensive versus abstinence-only), and the scale at which they can be carried out. This has an effect on costs and potential impact. In Nigeria and India, sexuality education programmes initially came to a halt because of socio-cultural opposition, thereby causing years of delay and related loss of investments. In Nigeria, the initial comprehensive programme had to be reduced: all elements related to actual sexual and preventive behaviour, including contraception and condoms, were removed. The programmes in Orissa State, India (as planned) and Estonia are good examples of comprehensive, integrated and fully scaled-up sexuality education programmes, and these hold important lessons for other countries that wish to achieve similar scales of impact. The programmes in Kenya and Indonesia are NGO-initiated, also in response to the sensitivity of sexuality education and the relative resistance of national governments to address the topic. These programmes are extracurricular, voluntary and seem to be constrained in the coverage they can achieve. However, they can be an important stepping stone toward the development of national sexuality education programmes. All sexuality education programmes in all countries require careful planning and a wide variety of advocacy and public education activities to achieve their implementation.

Impact and Cost-Effectiveness of Sexuality Education

On the basis of the analysis in Estonia, evidence suggests that comprehensive sexuality education programmes are potentially highly effective, cost-effective and even cost-saving. However, the findings suggest that these outcomes are dependent on context and certain programme characteristics, namely, that

⁴ Adapted from *Table 10-1: Comparison of Study Findings on Costing Analysis* in the full report.

⁵ The Human Studies curriculum is seven years in total; however, only the three years related to sexuality education were costed.

they are intra-curricular, comprehensive, nationally rolled out and delivered in conjunction with youth-friendly health services. A comprehensive sexuality education programme, optimally implemented, may therefore compare favourably to other preventive interventions for HIV, such as voluntary counselling and testing, or condom social marketing, which typically incur costs to achieve health effects, as repeatedly shown in international literature.

The evaluation of the sexuality education programme in Kenya did not identify any health impact. This may be related to methodological difficulties of measuring (changes in) sexual behaviour in a context where sexuality is a highly sensitive issue and acknowledgement of sexual practice may be punished; alternatively, it may be due to the programme design or implementation.

Costs of Sexuality Education in Relation to Programme Design

The programmes in Nigeria, India, Estonia and the Netherlands appear to be relatively inexpensive in terms of cost per student reached, costing approximately US\$ 7, US\$ 14, US\$ 33 and US\$ 33, respectively. These programmes are all intra-curricular and implemented on a large scale (now annually reaching from 25,000 to 250,000 students), which reduces costs per student of national and state-level activities, such as programme development, management and advocacy. Also important is the mandatory student enrolment in these programmes, resulting in an almost comprehensive coverage of enrolled students per school. This reduces school-level costs per student, such as teachers' salaries (in all programmes, teacher salaries are a major cost component). On this basis, we conclude that intra-curricular sexuality education programmes are most efficient, and we refer to the programme in Estonia and the planned programme in India as best examples in this respect. The sexuality education programme in the Netherlands is difficult to interpret in this context, because the programme is relatively short, focuses on attitudes and skills, and functions as a follow-up to a more elaborate sexuality education programme taught at primary school. It is taught in addition to biology classes that include reproduction, contraception and STI and HIV information.

The sexuality education programmes in Kenya and Indonesia appear to be relatively costly, at US\$ 50 and US\$ 160 per student reached, respectively. These programmes are currently in the pilot phase, geographically spread out, and initiated by international and national NGOs. At this stage, these programmes have limited coverage – annually reaching between 1,800 and 7,300 students – and carry high operations (salary and travel) costs. Cost per student would diminish considerably if the programmes were scaled up beyond the pilot phase. However, both programmes are also extracurricular and thus voluntary, so the potential of such programmes to achieve widespread coverage is questionable. Integration of the programme with the regular curriculum would be a possible strategy to meet that concern. However, these programmes may sometimes be the only available option in a country where sexuality education is a sensitive issue, and this could be a reason to accept their relatively high cost during a period of transition.

In addition, the sexuality education programmes in Kenya and Indonesia are both computer-based, and this also makes them relatively costly because it necessarily reduces class size (schools have a limited number of computers) and uptake in schools – between 42 students per class in Indonesia and 44 students in Kenya – is constrained as a result. This hinders the scale-up of a programme across and within schools, and the integration of it into the regular curriculum.

Teacher salaries are a major cost component in all programmes, and class size strongly influences cost per student reached. In Nigeria, classes for the sexuality education lessons usually have 75 to 150 students, while classes are smaller in, for example, India (around 40 students) and Estonia (around 18 students). While large classes are thus favourable for cost purposes, the quality of implementation in such classes will likely be compromised. Even when specific strategies are developed in sexuality education to cope with large classes, as in Nigeria, sexuality education typically requires interactive teaching methods with high levels of student involvement, which can be difficult to achieve in overcrowded classes.

Advocacy costs are a significant cost component in all countries, ranging between 4 per cent of total costs in Kenya to 13 per cent of total costs in Indonesia. The only exception was the Netherlands, where advocacy costs were 0.1 per cent. Therefore, advocacy costs seem to be highest where there is most

resistance towards sexuality education. Advocacy costs are incurred not only in the development phase of the programme but also throughout its implementation, and reflect the sensitive nature of sexuality education curricula in a country. Advocacy includes a broad scope of activities including political lobbying, media activities, stakeholder meetings, working groups, sensitisation meetings for school staff, parents, and health care providers, and exhibitions. Programmes examined in this study differ in the way they were developed and/or adapted. Development costs in Estonia were low because of low salary levels during the first years of independence, and did not require intensive advocacy activities. Programmes in Kenya and Indonesia were adapted from a similar programme in Uganda and had important savings in the development costs of the original software. However, the adaptation process was still relatively costly as these computer-based programmes required expensive software adaptation activities. Moreover, the adaptation was supported by an international organization, which added extra costs. The adaptation costs in these countries constituted between 15 per cent and 24 per cent of total costs. Development and updating costs ranged between 1 per cent and 11 per cent of total costs in the other study countries. Finally, the portion of development or adaptation costs is also dependent on the number of years a programme has been implemented in a country.

The duration of the programmes varies. The number of learning hours per student over the duration of the curriculum varies between 11 hours in the Netherlands (which is in addition to an extensive foundation established at the primary level and in the core curriculum), to some 40 hours in other countries. Obviously, this is closely related to the cost per student reached. The number of learning hours also determines the impact of a programme – international standards recommend at least 12 to 20 lessons (each typically lasting 45 minutes to an hour) over several years. More intensive programmes are more likely to achieve an impact.⁶

Budget Impact of Sexuality Education Programmes

The budget impact of implementing sexuality education programmes is not equal to the economic costs as presented in this study. Teacher salaries are included as economic costs in this study but are a regular expense of the ministry of education, irrespective of the implementation of sexuality education programmes. In the implementation of a sexuality education programme, these salaries would therefore not incur additional budgetary outlay. This study shows that budgetary outlays are less than 25 per cent of the economic costs of sexuality education programmes (with the exception of Kenya and Indonesia) and, as estimated in this study, range from US\$ 0.60 in Nigeria to US\$ 10 in the Netherlands. However, it should be noted that the introduction of a sexuality education programme in the curriculum could come at the expense of not teaching other courses, which is an opportunity cost.

Efficient Pathways to Scaling up Programmes

In order to assess the cost implications of scaling up sexuality education programmes, we defined several different scenarios and, based on these, we recommend the most efficient pathways to greater sexuality education coverage. The most efficient strategy appears to be to start expanding programme uptake in schools first, for example, by making the curriculum mandatory, before introducing the programme to new schools or districts. Again, this is because teacher salaries constitute a major cost component and are reduced by covering more students per class or school. The ideal strategy from the efficiency point of view is to maximize uptake in schools and the coverage of schools in a country.

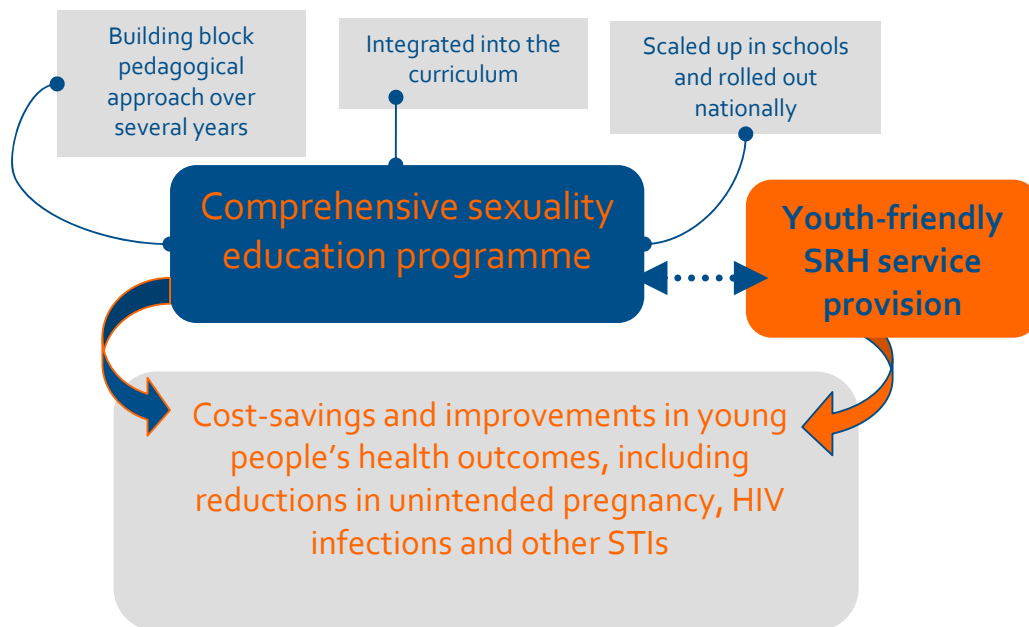
⁶ UNESCO. 2009. *International Technical Guidance on Sexuality Education. An evidence-informed approach for schools, teachers and health educators*. Paris, UNESCO.

Recommendations

1. Sexuality education programmes are potentially highly effective, cost-effective and cost-saving in their objective to reduce adverse health events, including HIV infections, other STIs and unintended pregnancies; these outcomes are dependent on context and certain programme characteristics. Countries are recommended to seriously consider investing in comprehensive sexuality education programmes to improve the sexual health of their populations. (See Figure 3)
2. For optimal use of education resources, the following characteristics of a sexuality education programme should be prioritised:
 - o Scaled-up, good quality programmes, delivered with full uptake in schools in order to best reach a critical mass of young people;
 - o National coverage or, if not possible, scale-up in given geographical locations is recommended;
 - o A combination of school-based education delivered in conjunction with health services (national and local) appears to be particularly effective. School-based programmes can leverage expertise and share resources with the health sector whilst delivering complementary messages and encouraging uptake of health services.
3. Intra-curricular sexuality education programmes have, because of their compulsory nature, the most potential to be scaled up – in terms of coverage of schools and students in schools – and are therefore most efficient. Where possible, we recommend this type of sexuality education programme.
4. Extracurricular sexuality education programmes have, because of their voluntary nature, lower potential to be scaled up and are therefore less efficient. These programmes are therefore not recommended. However, they can be important learning experiences and stepping stones to national sexuality education programmes, or may be the only available option in a country considering the sensitive nature of sexuality education. Where possible, such programmes should be gradually integrated in the national curriculum to render them more efficient.
5. Class size strongly influences cost per student reached as teacher salaries are a significant cost component in all programmes – larger classes are less costly per student reached. However, large class sizes also jeopardize the implementation quality of sexuality education programmes. Countries need to strike a balance between the quality (demanding relatively small class sizes) and the costs (demanding relatively large class sizes) of sexuality education programmes. Countries are recommended to implement their sexuality education programmes in class sizes of around 20 to 40 students. However, the educational realities in a country, such as very large class sizes, should not be a reason to reject sexuality education. Instead, educational approaches and methods should be adapted to such difficult conditions.
6. The number of sexuality education lessons strongly influences cost per student reached as, again, teacher salaries are a significant cost component in all programmes – shorter sexuality education programmes are relatively inexpensive per student reached. However, short programmes are also less likely to be effective. International standards recommend at least 12 to 20 lessons over several years, with more than one class hour usually needed per lesson.
7. Sexuality education is often a sensitive issue, requiring careful planning and a wide variety of advocacy and public education activities to achieve its implementation – depending on a country's social and cultural context. Advocacy is a significant component of the costs of sexuality education programmes in all countries concerned, and we recommend that educational authorities consider this to be a necessary investment.
8. Evaluated and effective sexuality education programmes exist in several countries around the world, and we recommend that new initiatives save costs by adapting these programmes to their own (social and cultural) context.

9. We recommend that sexuality education programmes wishing to increase their coverage start by expanding programme uptake among students in schools first (e.g. by making the curriculum mandatory), before introducing the programme to new schools or districts. This applies to programmes that are being initiated, as well as to existing programmes that wish to scale up. Programmes that obtain maximum uptake in schools and maximum coverage of schools or districts in a country are ideal from an efficiency point of view.
10. Where student access to computers is limited, computer-based sexuality education programmes are unlikely to be efficient and are not recommended. Where schools have a limited number of computers available, uptake in schools will be constrained – this increases the cost per student reached.
11. Decisions on initiating sexuality education programmes should not be motivated by a reduction of adverse health events alone, as this would underestimate their economic attractiveness. We recommend that decision-makers consider that comprehensive sexuality education programmes have major non-health benefits (such as reducing gender inequality, improving communication within and the quality of interpersonal relationships, increasing self-awareness and self-efficacy in decision-making, and reducing sexual violence) in addition to those analysed in this study.
12. Programme managers should pay attention to documenting programme effectiveness, particularly if the goal is to expand or evolve into a comprehensive integrated programme.
13. To support the roll-out or scale-up of sexuality education globally, UNESCO and other partners working in sexuality education should define clear plans that take into account the findings of this study and more clearly elaborate the requirements for advocacy, development, training and implementation at national level.

FIGURE 3: KEY CHARACTERISTICS OF SEXUALITY EDUCATION PROGRAMMES AND THEIR POTENTIAL TO LEAD TO IMPROVED HEALTH OUTCOMES AND OPTIMAL COST-EFFECTIVENESS



Country Summaries

Nigeria

FAMILY LIFE AND HIV EDUCATION



Country Overview

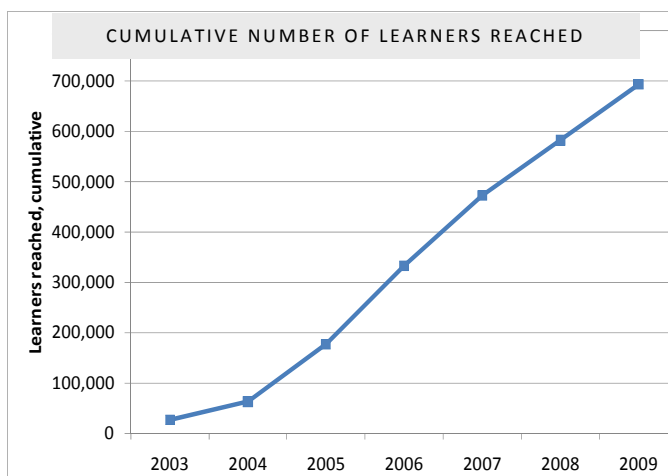
Per capita GDP ⁷ (2009)	US\$ 1,142
Human Development Index ranking ⁸	142
Population	140 million
Per cent under age 15 ⁹	42%
Primary school net enrolment ¹⁰	64% boys; 58% girls
Secondary school net enrolment	29% boys; 22% girls
HIV prevalence (age 15-49)	3.6%
HIV prevalence (age 15-24)	1.2% male; 2.9% female

Family Life and HIV Education is an **integrated intra-curricular programme** currently taught at all junior secondary schools in Lagos State, Nigeria. The programme was first introduced in schools in 2004, and was fully scaled up in Lagos State – covering over 300 public junior secondary schools – by 2007. This rapid roll-out followed a four-year planning process that began in 1999, when the National Council on Education approved the integration of the Nigerian Sexuality Education Curriculum into all levels of the school system. The original curriculum, approved in August 2001, was ultimately changed to ‘Family Life and HIV Education.’ A revised curriculum was approved and implemented, and excludes discussion of condoms, contraception, and sexual behaviour, which parents, politicians, and religious leaders found too explicit. Between 2000 and 2003, a series of advocacy and consultative group meetings were held with various stakeholders, and a needs assessment was conducted in 25 junior secondary schools.

The main goal of the Family Life and HIV Education curriculum, based on findings from a baseline study, is promoting HIV awareness and prevention, which is delivered through 27 lessons spread over three years. The curriculum is being presented to students aged 11-14 in junior secondary school classrooms, and is delivered by over 1,500 trained teachers and education sector professionals. The curriculum is infused into carrier subjects, namely Integrated Science and Social Studies. The programme is managed by Action Health International, a Nigerian organisation that conducts teacher training and collaborates with the Lagos State Ministry of Education on curriculum and materials development, sharing overall programme costs.

Programme Overview

Period analysed	1999-2009
Target age group	10-19 years
Programme duration	3 years
Total hours	43
Cumulative number of students reached	716,000
Students covered in 2009	246,000
Cost per student	US\$ 6.90
Schools covered in 2009	319
Cost per school	US\$ 1,762
Total no. of teachers trained	1,500
Cost per trained teacher	US\$ 199



⁷ International Monetary Fund. April 2010. *World Economic Outlook Database*.

⁸ United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

⁹ National Population Commission, 2006: Report of the final 2006 census results, <http://www.population.gov.ng/index.php?id=3>

¹⁰ UNICEF. 2005-2009 Data, http://www.unicef.org/infobycountry/nigeria_statistics.html#76

Costing Analysis

Programme development

3-year total cost:

US\$ 387,000

Largest costs:

Teaching materials	49%
Operations	36%

Programme implementation

7-year total cost:

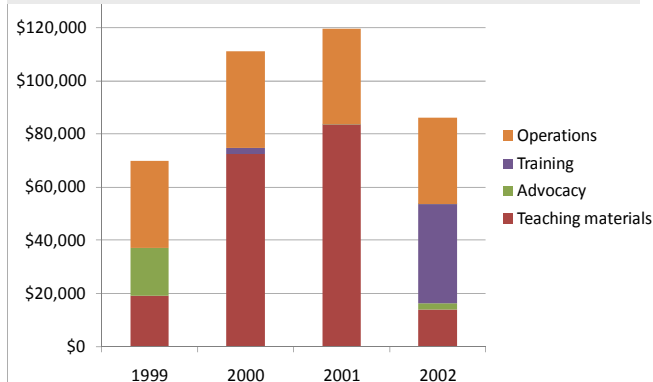
US\$ 3 million

Largest costs:

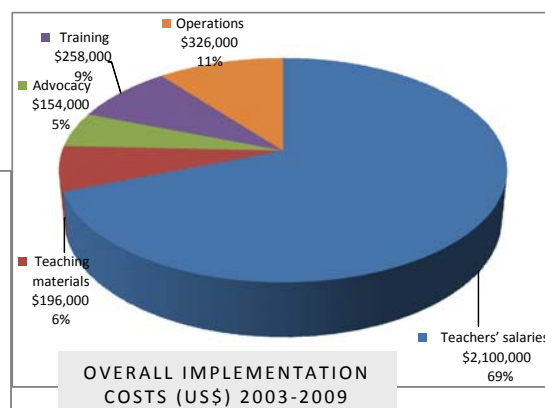
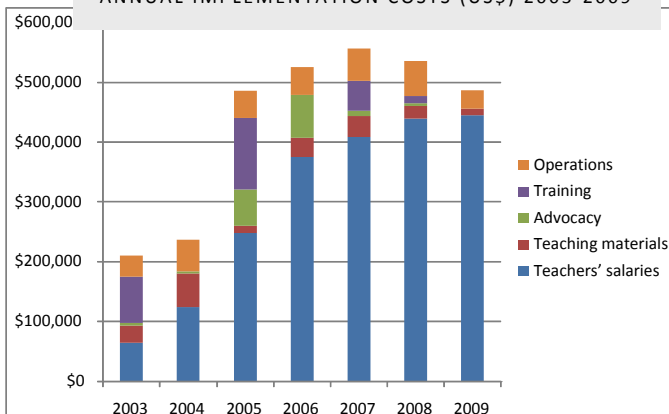
Teachers' salaries	69%
Operations	11%
Teacher training	9%

Total programme costs US\$ 3.4 mil
Annualised costs US\$ 562,000

PROGRAMME DEVELOPMENT COSTS (US\$) 1999-2002



ANNUAL IMPLEMENTATION COSTS (US\$) 2003-2009



Total cost per learner*

Economic US\$ 6.90
Budgetary US\$ 0.60

The total costs of the Family Life and HIV Education programme from 1999 to 2009 amounted to US\$ 3.4 million. Of this, 89% was due to implementation costs and 11% to development costs. Teachers' salaries were the most important implementation cost component whilst the cost of teaching materials was relatively low due to low material production costs and the low use of students' handbooks.¹¹

The cost per learner reached (completed curriculum), US\$ 6.90, is relatively low in comparison to that of sexuality education programmes in other study countries. There are two main reasons for this. Firstly, the programme is an integrated component of the curriculum of junior secondary schools in Lagos State, and is therefore implemented on a large scale, reaching 246,000 students in 2009. This reduces the cost per student of state-level activities, such as programme development and management. The programme covers a high proportion of students per school because it is mandatory, and therefore reduces school-level costs per student, such as teachers' salaries. Second, class sizes are relatively large in Lagos State and the curriculum is taught to 75-150 students per classroom. This greatly reduces the school-level cost per learner. While strategies are developed to deal with such large classes, this nonetheless raises questions about the quality of implementation and the ultimate impact that can be achieved in very large classes with low use of students' handbooks.

¹¹ Lagos State school survey 2010 [this study].

* The *economic* cost reflects the actual cost in dollars of the programme; the *budgetary* cost reflects the additional budgetary outlay if teachers' salaries (a pre-existing expense) are excluded.

Kenya

THE WORLD STARTS WITH ME



Country Overview

Per capita GDP ¹² (2009)	US\$ 912
Human Development Index ranking ¹³	128
Population	39 million
Per cent under age 15	42%
Primary school net enrolment ¹⁴	81% boys; 82% girls
Secondary school net enrolment	50% boys; 48% girls
HIV prevalence (age 15-49)	6.3%
HIV prevalence (age 15-24)	1.8% male; 4.1% female

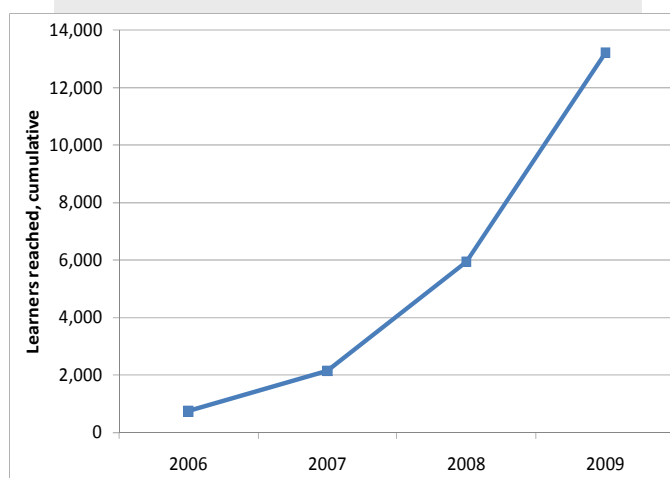
The World Starts with Me is a **computer-based, extracurricular pilot programme** that was first implemented in Kenya in 2006. In 2005, World Population Foundation (WPF), a Dutch NGO, partnered with the Kenyan Centre for the Study of Adolescence (CSA) to adapt an interactive computer-based curriculum on sexual and reproductive health and rights, developed in Uganda, for a Kenyan context. A needs assessment was conducted to establish a baseline analysis. The programme is supported by both a working group, consisting of students and teachers from the pilot schools, to advise on programme planning and implementation, and a high-level advisory board of policy-makers and experts. Two teachers from each school are trained by CSA, with support from WPF and the Ministry of Education.

The curriculum was introduced in five schools in 2005 and has gradually been expanded into 135 schools in four provinces – Nairobi, Nyanza, Coast and Central. Each school is required to have a minimum of 55 learners per year; 7,300 learners were reached directly in 2009. Participants range in age from 13 to 20 years, with the majority aged 15-18. The low-tech, computer-based format is designed to develop students' ICT skills whilst addressing sexuality-related issues. However, 32 of the 135 participating schools do not have computer facilities and use a printed version. The programme, one of several sponsored by NGOs in Kenya, has not been integrated into the school curriculum, is implemented outside of class hours, and is therefore neither compulsory nor examinable. The course consists of 15 lessons delivered over one semester, with a primary objective of improving safe sexual behaviour among sexually active young people and delayed sexual debut among sexually inactive young people.

Programme Overview

Period analysed	2005-2009
Target age group	13-20 years
Programme duration	0.5 years
Total hours	46
Cumulative number of students reached	13,000
Students covered in 2009	7,300
Cost per student	US\$ 50
Schools covered in 2009	112
Cost per school	US\$ 3,250
Total no. of teachers trained	323
Cost per trained teacher	US\$ 389

CUMULATIVE NUMBER OF LEARNERS REACHED



¹² International Monetary Fund. April 2010. *World Economic Outlook Database*.

¹³ United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

¹⁴ UNICEF. 2005-2009 Data, http://www.unicef.org/infobycountry/kenya_statistics.html#76

Costing Analysis

Programme adaptation

2-year total cost:

US\$ 338,000

Largest costs:

Operations	67%
Teaching materials	27%

Programme implementation

4-year total cost:

US\$ 1.04 million

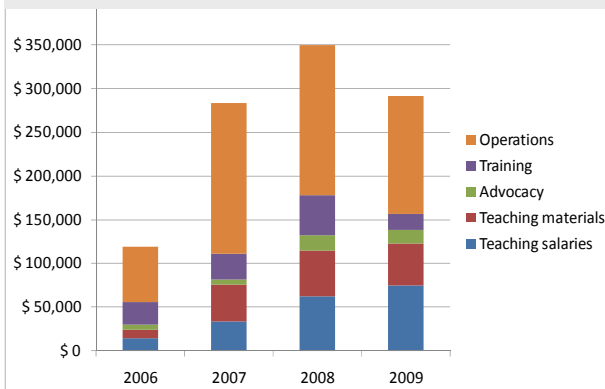
Largest costs:

Operations	52%
Teachers' salaries	18%
Teaching materials	15%
Teacher training	11%

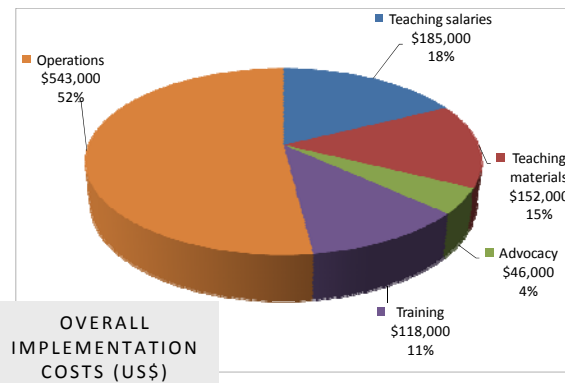
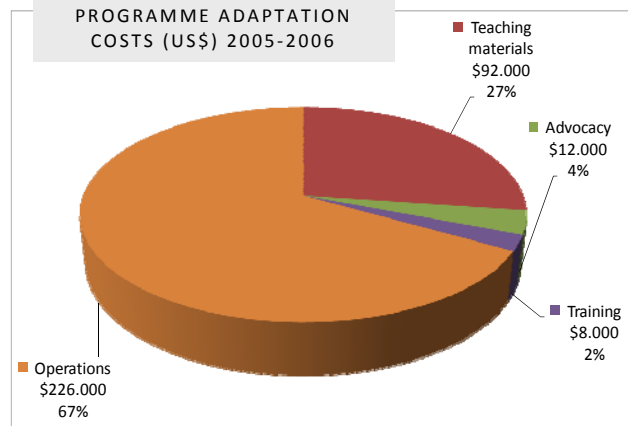
Total programme costs US\$ 1.38 mil

Annualised costs US\$ 364,000

ANNUAL IMPLEMENTATION COSTS (US\$) 2006-2009



PROGRAMME ADAPTATION COSTS (US\$) 2005-2006



Total cost per learner*

Economic	US\$ 50
Budgetary	US\$ 37

In the period 2005-2009, the total costs of the World Starts with Me programme, including adaptation and implementation, were US\$ 1.38 million. Of these costs, 76% were for implementation and 24% for adaptation. Operations costs were the largest component, accounting for US\$ 543,000, due to the salaries of Centre for the Study of Adolescence staff, office costs, and international and domestic travel. The cost per learner reached, US\$ 50, is relatively high in comparison to most of the other programmes in this study, due to a number of interrelated factors. First, due to a combination of low coverage, as a pilot programme, and high operations costs, the cost per student is relatively high. Second, the geographic spread of participating schools leads to relatively high operations (travel) costs – more than half the cost per learner reached, compared to less than one-sixth in other programmes in this study. As a consequence, the cost per student reached would diminish to US\$ 16 per learner if the programme was scaled up to all learners in all schools in a province. Third, the computer-based nature of the programme constrains uptake to an average of 44 students per school due to limited computer facilities. As learning materials, computers were not more expensive than printed materials in programmes in other studies, but implementation in a low-tech environment may create operational challenges (e.g. electricity outages) as well as limit scale-up due to limited technological availability in schools. Finally, the current curriculum is based on voluntary enrolment, which may further limit uptake. As a result of this and computer constraints, teachers' salary costs are relatively high per student reached, and efficiency gains are difficult to achieve.

* The *economic* cost reflects the actual cost in dollars of the programme; the *budgetary* cost reflects the additional budgetary outlay if teacher salaries (a pre-existing expense) are excluded.

Indonesia

DAKU!



Country Overview

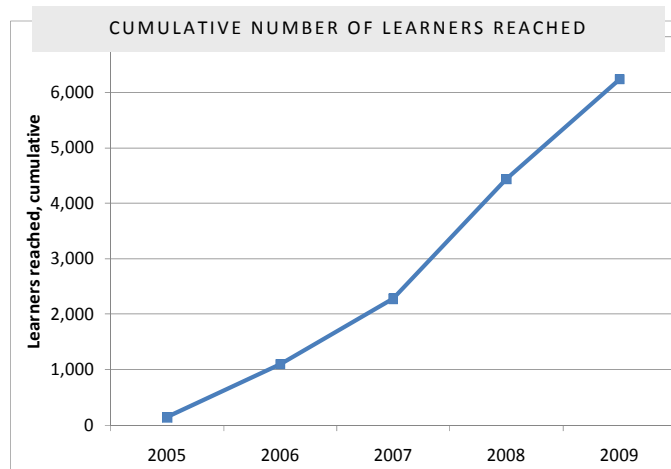
Per capita GDP ¹⁵ (2009)	US\$ 2,329
Human Development Index ranking ¹⁶	108
Population	238 million
Per cent under age 15 ¹⁷	27%
Primary school net enrolment ¹⁸	97% boys; 94% girls
Secondary school net enrolment	69% boys; 68% girls
HIV prevalence (age 15-49)	0.2 %
HIV prevalence (age 15-24)	0.1% male; <0.1% female

DAKU! (Dunia Remajaku Seru! – My Youth is Fascinating) is a **computer-based, extracurricular pilot programme** that is based on a programme developed in Uganda in 2001-2003. World Population Foundation (WPF), the Dutch NGO that co-developed the programme, began adapting it to the Indonesian context in 2005, partnering with the Pelita Ilmu Foundation, based in Jakarta. A focus group assessment was conducted and an advisory board established, which included representatives from the Indonesian Ministry of Education, the Jakarta AIDS Committee, the Family Planning Association, religious leaders and other local NGOs. A working group, consisting of both teachers and students, reviewed and adapted the curriculum over the course of six months. DAKU! was piloted in three senior high schools in Jakarta, engaging 60 students, and was submitted to further revision and refinement before being introduced more extensively.

In 2006, the curriculum was introduced in three senior high schools in Jakarta, as well as in select schools in Jambi, Lampung and Bali provinces. WPF partnered with different local NGOs to implement and monitor the programme in each province. In 2007, further adaptations (excluded from the study) were created for sub-populations and in 2008 an extra lesson was created to address stress and drug use issues. Working group evaluations suggested the computer-based format would best attract young people to learn about sexual health. However, a lack of computers and the programme's extracurricular nature have limited uptake of the curriculum to 20-60 students per school per year, out of an average of 500 students attending each senior high school. The curriculum targets students aged 15-17, and is delivered over one semester.

Programme Overview

Period analysed	2005-2009
Target age group	15-17 years
Programme duration	0.5 years
Total hours	47
Cumulative number of students reached	6,240
Students covered in 2009	1,805
Cost per student	US\$ 160
Schools covered in 2009	77
Cost per school	US\$ 3,750
Total no. of teachers trained	281
Cost per trained teacher	US\$ 509



¹⁵ International Monetary Fund. April 2010. *World Economic Outlook Database*.

¹⁶ United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

¹⁷ National Population Commission, 2006: Report of the final 2006 census results, <http://www.population.gov.ng/index.php?id=3>

¹⁸ UNICEF. 2005-2009 Data, http://www.unicef.org/infobycountry/indonesia_statistics.html#76

Costing Analysis

Programme adaptation

3-year total cost:
US\$ 180,000

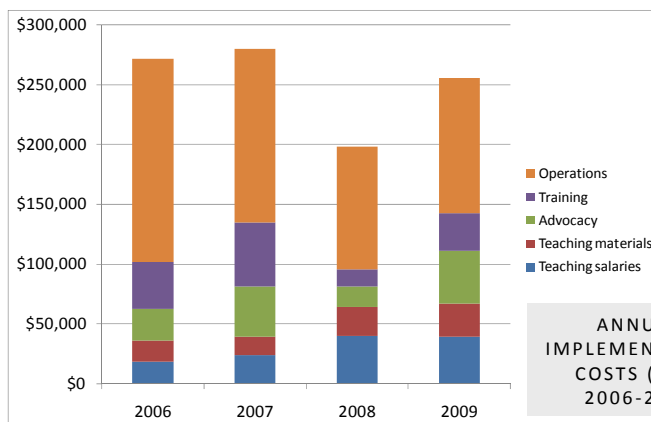
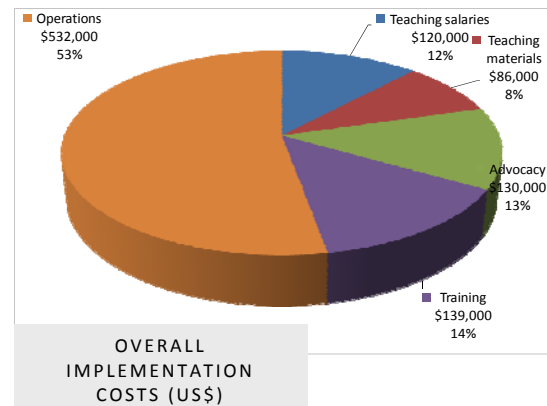
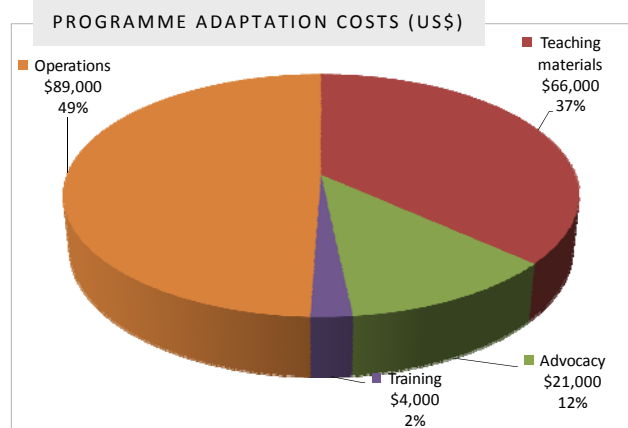
Largest costs:
Operations 49%
Teaching materials 36%

Programme implementation

3-year total cost:
US\$ 1 million

Largest costs:
Operations 53%
Teacher training 14%
Advocacy 13%

Total programme costs US\$ 1.2 mil
Annualised costs US\$ 289,000



Total cost per learner*

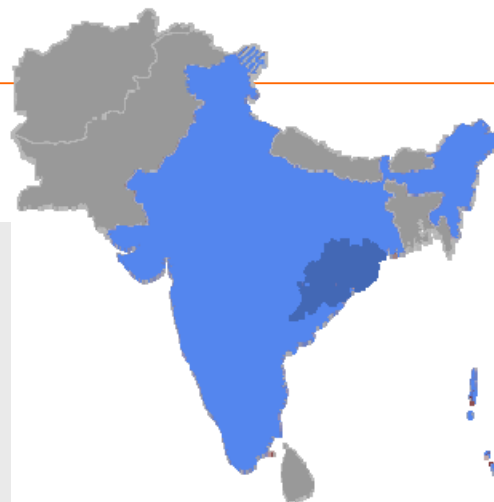
Economic US\$ 160
Budgetary US\$ 135

The total costs of the DAKU! Programme, including adaptation and implementation, were US\$ 1.2 million from 2005 to 2009. Of this, 85% were implementation costs, and 15% adaptation costs. The cost per learner reached, US\$ 160, is relatively high in comparison to that of sexuality education programmes in other study countries. This is largely explained by low coverage combined with high operations costs. The programme's implementation by a national NGO with international support resulted in relatively high operations costs. Moreover, the programme is implemented through local NGOs in each province, which facilitates access to new areas, but also increases operations costs, which amounted to more than half of the cost per learner reached. The computer-based nature of the programme further constrains uptake due to limited computer facilities. As learning materials, computers do not appear to be more expensive than printed materials in programmes in other studies, but implementation may create operational challenges, as well as limit scale-up according to technological availability. The cost per student reached in the DAKU! programme is high compared to the similar programme studied in Kenya. This is largely due to: lower coverage (1,800 to Kenya's 7,300 students in 2009) resulting in relatively high costs per student of national-level activities; smaller class size (30 compared to 44 students) with two teachers facilitating; and fewer students sharing computers (DAKU! 1.4 compared to Kenya's 3.9 students per computer). This offers scope for school-level efficiency gains, as the cost per student could diminish to US\$ 13 if the programme were scaled up to reach all students in all schools in a province.

* The *economic* cost reflects the actual cost in dollars of the programme; the *budgetary* cost reflects the additional budgetary outlay if teacher salaries (a pre-existing expense) are excluded.

India

ADOLESCENT REPRODUCTIVE AND SEXUAL HEALTH PROGRAMME



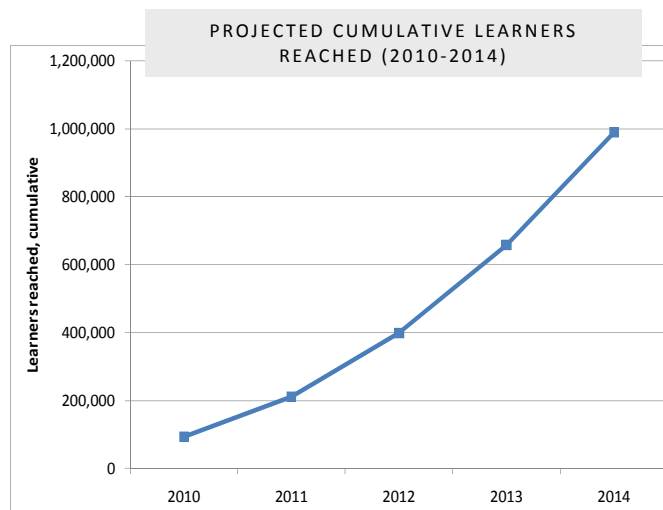
Country Overview

Per capita GDP ¹⁹ (2009)	US\$ 1,031
Human Development Index ranking ²⁰	119
Population	1.19 billion
Per cent under age 15 ²¹	30%
Primary school net enrolment ²²	91% boys; 88% girls
Secondary school net attendance	61% boys; 52% girls
HIV prevalence (age 15-49)	0.3%
HIV prevalence (age 15-24)	0.1% male; 0.1% female

Orissa State's school-based sexuality education programme is designed as an **integrated intra-curricular programme**, the implementation of which began in 2010 after the data collection phase for this study was completed. Accordingly, the data presented are drawn from National Rural Health Mission (NRHM) plans and projected costs, based on a four-year scale-up phase and 2010 budget data, as school surveys could not be conducted.²³ Programme development began in 1998 at the national level with the formation of the National Population Education Project in New Delhi. A school-based adolescent education programme was developed over four years and initiated on a pilot basis in six states, including Orissa, where it was implemented in Koraput, Malkangiri, Nawarangpur and Rayagada districts. The project was formally launched in May 2002 in six schools in each district, but was shelved during the period 2003-2006 due to controversy and opposition. It re-emerged as the Adolescent Reproductive and Sexual Health (ARSH) education in 2007 under the aegis of the Orissa National Rural Health Mission's reproductive and child health programme. A baseline analysis was conducted in Orissa during the period 2007-2008. In 2009, state-level workshops were held to inventory the materials developed at the national level and adapt them to the local context. Starting from 2009, implementation was planned to take place in five districts per year, until all 30 districts of Orissa are covered. The curriculum will be delivered by science teachers, with co-curricular activities held in social studies. The target age group is 13-16 and participation is compulsory.

Programme Overview (projected)

Period analysed	1999-2014
Target age group	13-16 years
Programme duration	3 years
Total hours	34
Projected students reached	990,000
Students covered in 2009	0
Projected cost per student	US\$ 13.50
Projected schools covered	5,560
Projected cost per school	US\$ 630
Projected teachers trained	5,560
Cost per trained teacher	US\$ 73



¹⁹ International Monetary Fund. April 2010. *World Economic Outlook Database*.

²⁰ United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

²¹ National Population Commission, 2006: Report of the final 2006 census results, <http://www.population.gov.ng/index.php?id=3>

²² UNICEF. 2005-2009 Data, http://www.unicef.org/infobycountry/india_statistics.html#76

²³ See Chapter 7 of the full report for elaboration on methods.

Costing Analysis

Programme development (1999-2002)

3-year total cost:

US\$ 271,000

National development costs (1998-2000):

US\$ 164,000

State piloting costs (2001-2002):

US\$ 108,000

Largest costs:

Teaching materials	43%
Operations	22%

Programme update (2007-2009)

2-year total cost:

US\$ 303,000

Largest costs:

Advocacy	41%
Operations	33%

Projected implementation (2009-2014)

5-year projected cost:

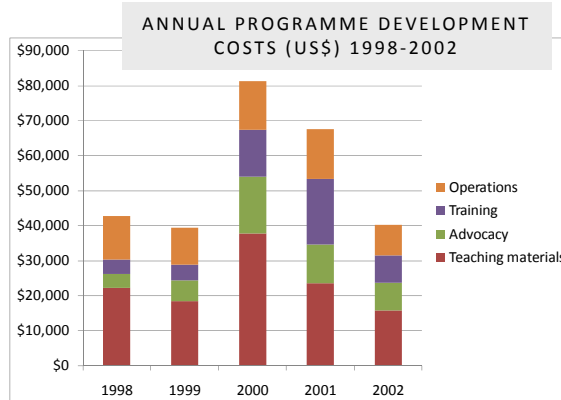
US\$ 10.2 mil

Largest cost:

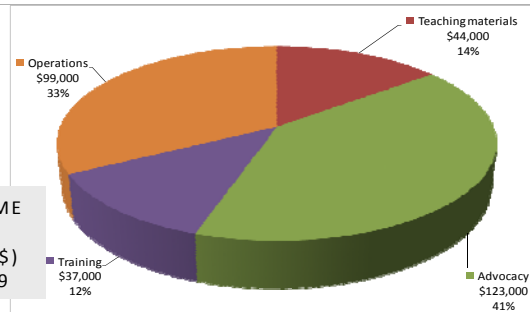
Teachers' salaries	80%
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Total programme costs US\$ 10.8 mil

Annualised costs US\$ 3.5 mil



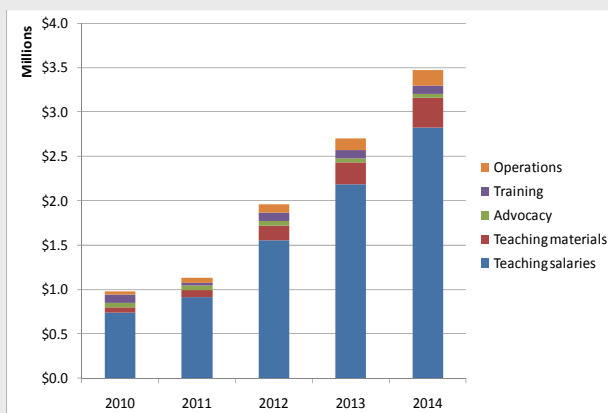
PROGRAMME UPDATE COSTS (US\$) 2003-2009



Total cost per learner (3-year curriculum)*

Economic US\$ 13.50
Budgetary US\$ 2.50

PROJECTED ANNUAL IMPLEMENTATION COSTS (US\$) 2010-2014



As the programme in Orissa State has just begun implementation, analysis reflects the *planned* implementation strategy. Development and update costs were US\$ 575,000. If the programme is rolled out according to plan, implementation costs from 2010-2014 will be US\$ 10.2 million, constituting 95% of total costs, with development and update accounting for 5% of costs. Advocacy activities accounted for 41% of update costs; gaining acceptance from parents, education professionals and the community was a prerequisite, as the programme was stopped previously due to

opposition. Teacher salaries account for 80% of projected implementation costs. The projected cost per learner reached, US\$ 13.50, is relatively low in comparison to other study countries. This is largely due to the programme being integrated in the high school curriculum in Orissa State. Large-scale implementation, reaching 780,000 students in 2014, reduces costs per student for national and state-level activities. Its integrated and compulsory nature ensures coverage of a high proportion of students per school, reducing school-level costs per student, such as teachers' salaries, without compromising class size. The scenario analyses show that, even if the programme scale-up were not to be as successful as NRHM expects, the cost per learner reached is likely to remain relatively low, US\$ 13.67 and US\$ 14.05 if the programme eventually reaches 75% or 50% of high school students, respectively.

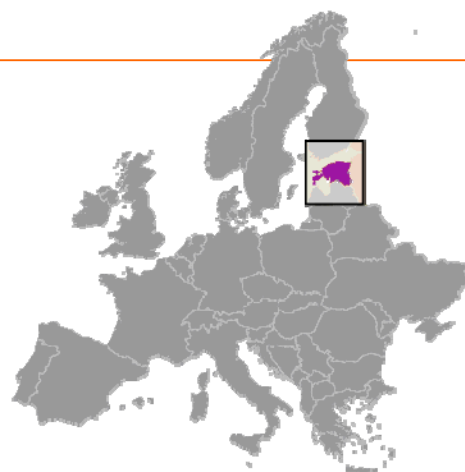
* The *economic* cost reflects the actual cost in dollars of the programme; the *budgetary* cost reflects the additional budgetary outlay if teacher salaries (a pre-existing expense) are excluded.

Estonia

HUMAN STUDIES

Country Overview

Per capita GDP ²⁴ (2009)	US\$ 14,267
Human Development Index ranking ²⁵	34
Population	1.3 million
Per cent under age 15	15%
Primary school net enrolment ²⁶	95% boys; 94% girls
Secondary school net enrolment	88% boys; 91% girls
HIV prevalence (age 15-49)	1.2%
HIV prevalence (age 15-24)	0.3% male; 0.2% female

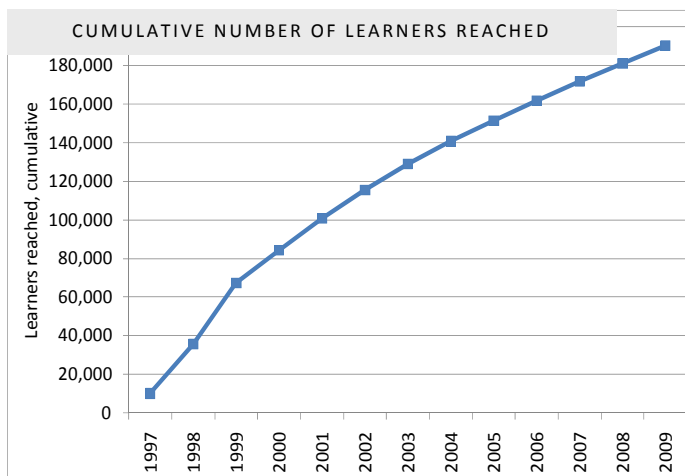


Human Studies is an **integrated intra-curricular programme** currently taught in Estonia, which contains sexuality education for grades five through seven. The development of the curriculum began gradually in the 1990s through the work of a partly voluntary 'subject commission' that received some support from the Ministry of Education. In 1996, a new national curriculum established a programme on the compulsory subject Human Studies, which included sexuality education. The curriculum was updated during 2000-2002 to respond to societal changes, increased incidence of HIV, and larger curricular concerns. A 'human studies subject description book' was produced alongside the curriculum in 1996, as well as 2002. In 2010, following a ten-year preparation period, a revised and updated version of the curriculum was introduced. The latest version is designed to focus greater attention on prevention of risky behaviour and more clearly define the topics on health and sexuality education. Since the 2010 revisions, human studies remains integrated in the curriculum and the number of sexual and reproductive health-related lessons has been increased.

The programme is delivered alongside Youth Counselling Centres, which were established in the 1990s to provide young people with free STI counselling, tests and treatment, and counselling on safer sex and family planning. Counselling centre staff are also involved in delivering the curriculum by supporting teachers on 'difficult' topics, using interactive teaching methods, and familiarizing students with the centres' services and facilities. The results of evaluation studies show that there has been a marked increase in sexuality and reproductive health-related topics discussed and lessons delivered since the programme was first introduced.

Programme Overview

Period analysed	1991-2009
Target age group	7-14 years
Programme duration	3 years
Total hours	24
Cumulative number of students reached	190,000
Students covered in 2009	28,000
Cost per student	US\$ 32.90
Schools covered in 2009	382
Cost per school	US\$ 814
Total no. of teachers trained	693
Cost per trained teacher	US\$ 197



²⁴ International Monetary Fund. April 2010. *World Economic Outlook Database*.

²⁵ United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

²⁶ UNICEF. 2005-2009 Data, http://www.unicef.org/infobycountry/estonia_statistics.html#76

Costing Analysis

Programme development (1991-1996)[‡]

6-year total cost: **US\$ 9,500**

First programme update (1999-2002)[‡]

3-year total cost: **US\$ 6,400**

Second programme update (2003-2009)

6-year total cost: **US\$ 19,600**

Programme implementation

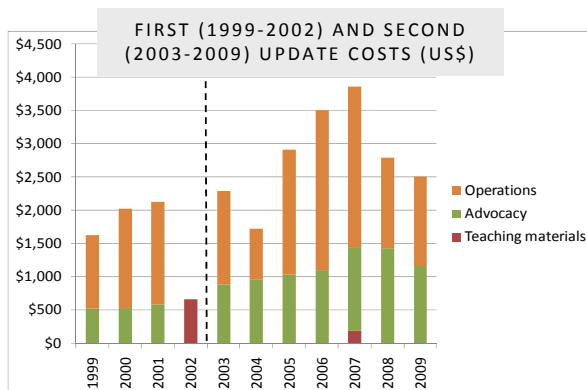
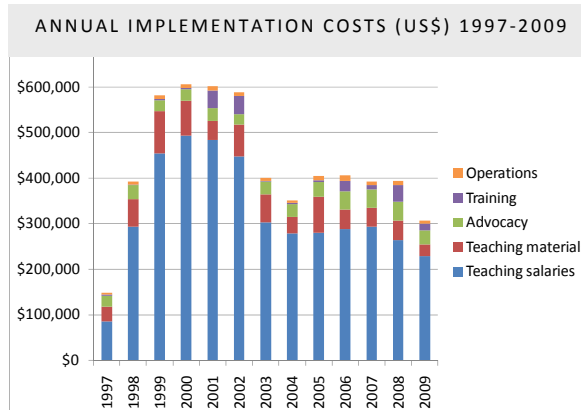
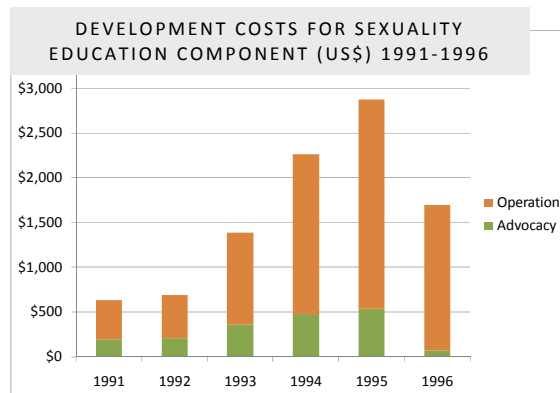
13-year total cost: **US\$ 5.6 million**

Largest costs:

Teachers' salaries	75%
Teaching materials	13%

Total programme costs **US\$ 5.66 mil**

Annualised costs **US\$ 311,000**



Total cost per learner (3-year curriculum)*

Economic **US\$ 32.90**
Budgetary **US\$ 8.00**

The total costs of the programme during the period 1991–2009 amounted to US\$ 5.6 million. The initial development and first update costs were very low, because of low salary levels (attributed for voluntary work in this analysis) during the first years of the programme. Almost all of the total costs were implementation costs, which averaged around US\$ 590,000 annually during 1999-2002. The cost per learner, US\$ 32.90, is relatively low in comparison to that of sexuality education programmes in other study countries. This is due to several advantages that result from it being an integrated, intra-curricular component of the Estonian basic school curriculum. First, large-scale implementation reduces costs per student of national-level activities, such as programme development, updating and coordination. Second, because it is integrated and compulsory, the programme covers a high proportion of students per school, and as such reduces school-level costs per student and teachers' salaries. Finally, the cost may be low due to the relatively limited number of lessons, 24 hours over the course of three years.²⁷ Some items are relatively high cost in comparison to programmes in other study countries. The cost of teaching material appeared relatively high due to the programme's intensive use of teacher instruction books, and student text and exercise books (recycling reduces costs). The programme also faced relatively high advocacy costs in the development and implementation phases, even after full scale-up and integration in the national school curriculum.

[‡] No financial records were available for this period; the work was carried out on an ad hoc and voluntary basis and was calculated according to working days dedicated and the total societal cost. See Chapter 8 of the report for elaboration.

²⁷ This is according to hours attributed to sexuality education in the cost analysis. See Chapter 8 of the Report for details.

* The economic cost reflects the actual cost in dollars of the programme; the budgetary cost reflects the additional budgetary outlay if teacher salaries (a pre-existing expense) are excluded.

The Netherlands

LONG LIVE LOVE

Country Overview

Per capita GDP ²⁸ (2009)	US\$ 48,223
Human Development Index ranking ²⁹	7
Population	16.5 million
Per cent under age 15	18%
Primary school net enrolment ³⁰	99% boys; 98% girls
Secondary school net enrolment	88% boys; 89% girls
HIV prevalence (age 15-49)	0.2 %
HIV prevalence (age 15-24)	0.1% male; <0.1% female

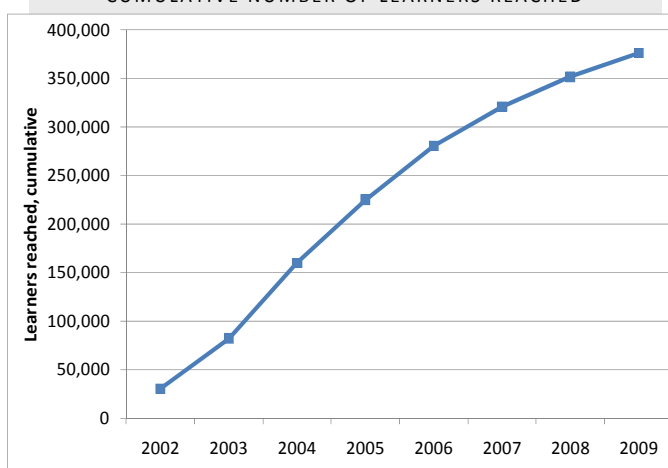


Long Live Love (Lang Leve de Liefde – LLL) is a **stand-alone intra-curricular programme** that was developed for secondary schools around 1990 by the Dutch STI Foundation (now STI AIDS Netherlands). An initial version (LLL1) began during 1990-1992, and has subsequently been revised three times to incorporate updated pedagogical approaches and changes in the socio-cultural environment, such as changing risk factors, the need for more STI and HIV information and the need to strengthen the focus on gender equity and minority groups. Sexuality education is not compulsory in the Netherlands but is usually adopted by schools, with LLL being the most commonly used curriculum. Programme and curriculum development is managed by the Dutch STI Foundation, teachers are trained by Municipal Health Services and implementation costs (teachers' salaries) are borne by the Ministry of Education. During 2009–2010, LLL4 was developed, for implementation in 2011. Updating of the programme every five to ten years has addressed changes in youth culture and images, and incorporates new research and educational approaches, as well as emerging challenges and risks. Over this period, the curriculum has also been adapted for more target groups within the 13-15 year age range. Long Live Love is the most widely used sexuality education curriculum in the Netherlands and is implemented in an estimated 50% of target schools. To address issues relevant to an increased immigrant and Muslim youth population, the curriculum addresses issues that are particularly relevant for those groups, including virginity and gender equity. The LLL3 package of students' and teachers' materials (magazine, manual and video) must be purchased by implementing schools and is part of a larger programme that includes a website, annual multi-media campaigns, and other interventions.

Programme Overview

Period analysed	1990-2009
Target age group	13-15 years
Programme duration	0.3 years
Total hours	11
Cumulative number of students reached	376,000
Students covered in 2009	25,300
Cost per student	US\$ 32.80
Schools covered in 2009	174
Cost per school	US\$ 4,768
Total no. of teachers trained	2,200
Cost per trained teacher	US\$ 344

CUMULATIVE NUMBER OF LEARNERS REACHED



²⁸ International Monetary Fund. April 2010. *World Economic Outlook Database*.

²⁹ United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

³⁰ UNICEF. 2005-2009 Data, http://www.unicef.org/infobycountry/netherlands_statistics.html#76

Costing Analysis

LLL3 programme update (1999-2001)[‡]

2-year total cost:

US\$ 752,000

Largest costs:

Operations	70%
Teaching materials	30%

Programme implementation (2002-2009)

7-year total cost:

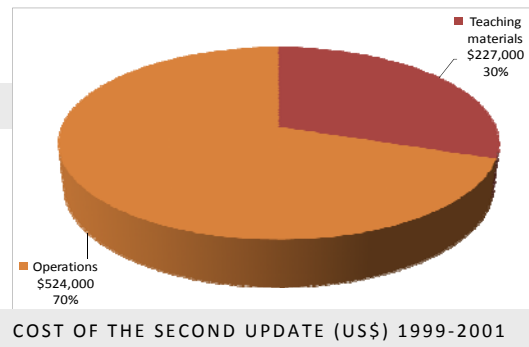
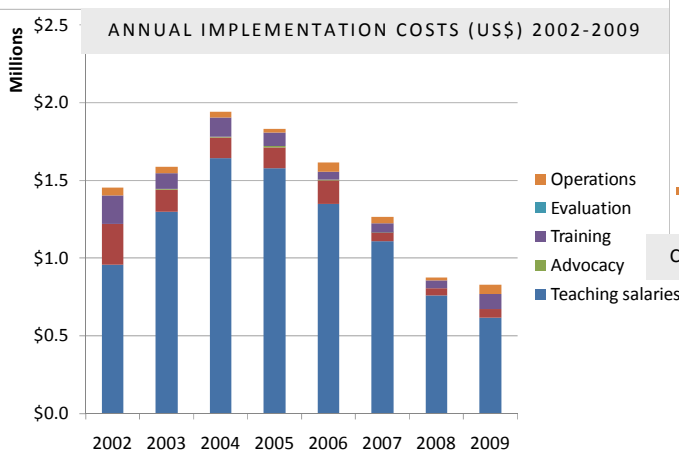
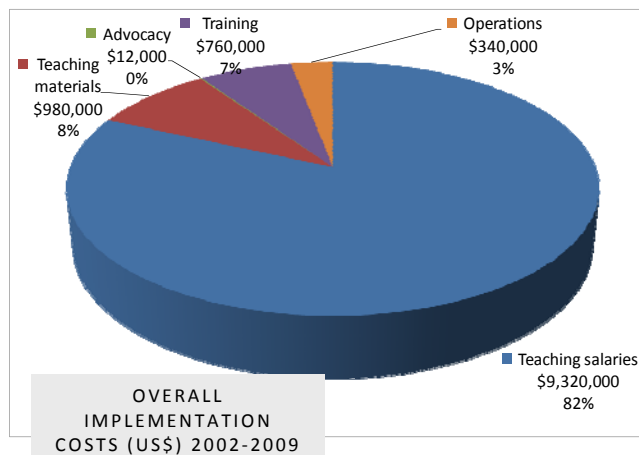
US\$ 11.4 million

Largest costs:

Teachers' salaries	82%
Teaching materials	8%

Total programme costs US\$ 12.2 mil

Annualised costs US\$ 830,000



Total cost per learner*

Economic	US\$ 32.80
Budgetary	US\$ 10.40

The total costs of the LLL3 programme over the period 1999–2009 amounted to US\$ 12.2 million, with programme updating in the period 1999–2001 accounting for 6 per cent of the total costs. Implementation amounted to 94% of costs, the majority (82%) of which was due to teachers' salaries. Programme uptake and, consequently, annual implementation costs have been declining since 2004, as many teachers have stopped using somewhat outdated LLL3 materials. LLL4 is to be introduced in August 2011.

Even though the Netherlands is a high-income country, the cost per learner (US\$ 32.80) is relatively low. The main reasons for this are the duration of the programme and the mandatory nature of the programme that results in high uptake of students per class, thereby reducing teacher salary costs per student. Yet, the LLL programme is only one of the secondary school sexuality education programmes offered in the Netherlands, and competes with other programmes for implementation. While such competition may increase the quality of the available programmes, it also creates duplicate costs. The LLL programme is not implemented on a national scale – it reached some 25,000 students in 2009 – which increases costs per student of national-level activities, such as programme updating or coordination.

[‡] No financial records were available for the initial programme development for LLL1 (1990-1992) or the LLL2 programme update (1993-1998) due to records being lost in organizational mergers, and changes of accounting software and the currency from Gulden to Euro. Costing analysis was performed on the second update, for LLL3 (1999-2001), on what financial records were available. LLL4 was excluded because it falls outside of the timeframe of the research.

* The *economic* cost reflects the actual cost in dollars of the programme; the *budgetary* cost reflects the additional budgetary outlay if teacher salaries (a pre-existing expense) are excluded.

Impact and Cost-Effectiveness

ESTONIA

HUMAN STUDIES

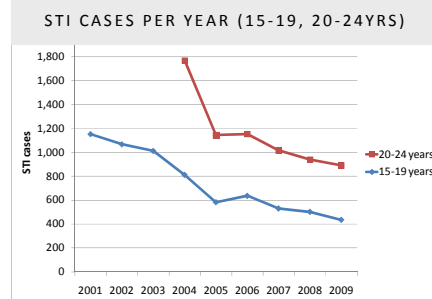
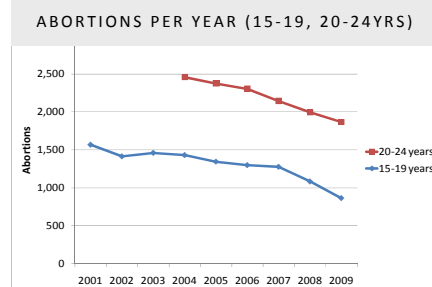
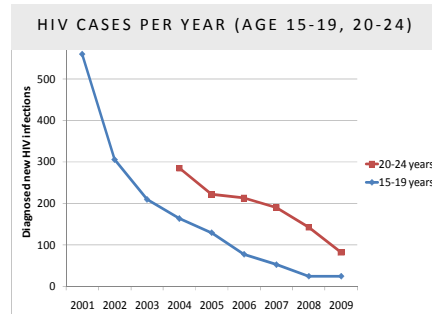
Impact Assessment

The impact and cost-effectiveness evaluation uses the results of 12 surveys directly or indirectly related to sexuality education conducted since 1995, as well as various national databases of sexual health indicators.³¹ As the programme has nearly national coverage, it is not possible to carry out case-control studies, and because the programme covers the entire age group 7 to 14 (up to 16 before 2002), it is also not possible to use pre- and post-intervention study designs. Evaluation indicators used here include: coverage and appreciation of the curriculum by pupils, adolescent sexual behaviour, preventive behaviour (condom and other contraceptive use), abortion and unintended pregnancy, and STI and HIV infection. The impact of the programme cannot be statistically separated from another important innovation during the last two decades – the introduction and expansion of youth-friendly sexual health service delivery, which has been coordinated with the development of sexuality education.

The improvement in youth sexual health indicators since 2000 has been impressive. They include not only steep reductions in STI and HIV infection rates, but also sizeable downward trends in abortion and teenage birth rates, due to sharp increases in condom and contraceptive use among young people. Improvements in adolescent sexual health indicators which started before 2000 cannot be attributed to sexuality education. However, after controlling for the starting point of any potential impact, demographic changes and increasing sexual activity with increasing age, the data show that improvements from 2001 onward are likely to be due to the introduction of sexuality education in combination with youth-friendly sexual health service delivery.

Cost-Effectiveness

Total sexuality education programme costs in Estonia were US\$ 5.6 million for the period 1991–2009 (see country summary for details), whilst the averted treatment costs of the 1,970 reduced HIV infections in the target population were US\$ 67,825 per person. If 4% or more of the observed reductions in HIV infections are attributed to the programme, the programme can be considered not only cost-effective but also cost-saving. The average annual cost of treatment of HIV and AIDS in Estonia was US\$ 8,416 per patient³² in 2009, including anti-retroviral therapy, and outpatient and inpatient treatment. In the most conservative scenario, anticipating an anti-retroviral price reduction³³ from 2011 onwards³⁴⁻³⁵,



Sexual Health Indicators

Abortion rate decrease	
15-19 yrs (2001-2009)	45%
Unintended pregnancies averted	
Target group since 2001	4,280
Decline in STI cases	
15-19 yrs (2001-2009)	62%
STI cases averted	
Target group since 2001	7,240
Decline in new HIV infections	
15-19 yrs (2001-2009)	96%
HIV infections averted	
Target group since 2001	1,970
Total adverse health events averted	
Target group (2001-2009)	13,490

³¹ See Chapter 8 of the Report for details on methodology.

³² Ministry of Social Affairs, 2009. Summary Report of HIV.

³³ Waning B, Kaplan W, Gokhale M, Feeley R, Brooks B, Boyd-Boffa M, Mahajan S, Soucy L, Costello J. Benchmarking antiretroviral prices in countries of the former Soviet Union. Boston University, School of Public Health 2008

³⁴ World Health Organization. Antiretroviral therapy for HIV infection in adults and adolescents: Recommendations for a public health approach. Geneva, 2010.

average annual treatment costs decrease to US\$ 3,230. With an average remaining life expectancy of 32 years after HIV infection,³⁶ the discounted lifetime treatment costs amount to an estimated US\$ 67,825 in Estonia.

(b) Observed reduction in no. of HIV infections in Estonia (2001-2009)	(c) Lifetime treatment costs per HIV infection	(a) Programme costs US\$5.6 million	
		(e) No. of averted HIV infections equal to programme cost (a)/(c)	Required impact to make sexuality education cost-saving (e)/(b)
1,970	US\$ 67,825	83	4%

If the programme prevented 83 out of 1,970 of the observed reduced HIV infections during the period 2001-2009, cost savings from averted treatment would equal the US\$ 5.6 million of sexuality education programme costs. These quantitative estimates are conservative, as they do not include the healthcare costs of abortions (in a proportion of all unintended pregnancies) and STI treatment, nor do they incorporate the value of non-health outcomes. Youth-friendly sexual health services, which were provided in tandem with the sexuality education curriculum, were excluded from the analysis. Results are therefore conditional on the presence of these centres and should be interpreted accordingly.

KENYA

THE WORLD STARTS WITH ME

Impact Assessment

The World Starts with Me programme in Kenya has been under an impact evaluation by the implementing organisation since 2008-2009, which includes pre- and post-intervention assessments among representative samples of students in implementing schools, as well as comparable assessments in control schools. This dataset was used for the impact assessment for this study and, after being checked and cleaned, includes survey responses from 2,076 pupils in the intervention group that participated in the curriculum, and 904 pupils from control schools. The results of these analyses were disappointing in terms of differences between the pre- and post-assessments in the intervention group, as well between the intervention group and the control group. None of the over 100 analyses and tests performed produced statistically significant results. No errors could be identified and the lack of expected results does not appear to emanate from the study design, which is methodologically correct and includes sufficient numbers of respondents to potentially produce significant outcomes. Because of the lack of statistically significant results, it was not possible to conduct the planned cost-effectiveness analyses.

Conclusions

Two hypotheses were tested to explain the non-statistically significant results from the intervention and control groups. The first was that the students were too old, with a mean age

over 16 years, and as a result, changes in knowledge, attitudes, behaviour and behavioural intentions did not occur. The second hypothesis was that the curriculum was only partially and selectively implemented, and therefore could not have the expected impact. Both hypotheses had to be rejected after testing. An evaluation using the same type of analyses led to several statistically significant outcomes in Thailand and Uganda, making it highly unlikely that the programme would have no effect at all. The most likely explanation for the sheer lack of results is a very strong tendency among respondents to give socially desirable answers, possibly stimulated by a generally punitive social and school context regarding sexual activity before marriage. To confirm this hypothesis, more research (particularly qualitative research), is needed.

Impact indicator	Group	Pre-test mean	Post-test mean
General SRH Knowledge	Control	3.7897	3.8052
	Intervention	4.0050	4.0156
Perception of SRH Risks	Control	3.5351	3.5436
	Intervention	3.6094	3.6337
Attitude to condom use	Control	3.8863	3.4536
	Intervention	4.0599	3.5297

³⁵ Médecins Sans Frontières. Untangling the Web of Antiretroviral Price Reductions: 13th edition, July 2010.

³⁶ Schackman, B.R. et al. 2006. The lifetime cost of current HIV care in the United States. *Med Care*, Vol. 44, No. 11, pp 990-997.

