



United Nations  
Educational, Scientific and  
Cultural Organization

FULL REPORT

# COST AND COST-EFFECTIVENESS ANALYSIS OF SCHOOL-BASED SEXUALITY EDUCATION PROGRAMMES IN SIX COUNTRIES

Commissioned by UNESCO and Implemented by  
Radboud University Nijmegen Medical Center

UMC  St Radboud



Published in August 2011 by the United Nations Educational,  
Scientific and Cultural Organization  
7, place de Fontenoy, 75732 Paris 07 SP, France

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This report was written and researched by Jari Kivela, MSc; Evert Ketting, PhD; and Rob Baltussen, PhD; commissioned by UNESCO and implemented by Radboud University Nijmegen Medical Center.

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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.

Mark Richmond  
UNESCO Global Coordinator for HIV and AIDS

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## Preface

This report documents the costs of sexuality education (SE) programmes in six countries (Nigeria, Kenya, Indonesia, India, Estonia and the Netherlands), and their impact and cost-effectiveness in two countries (Kenya and Estonia). It was commissioned by the United Nations Educational, Scientific and Cultural Organization (UNESCO) and implemented by Radboud University Nijmegen Medical Center (RUNMC), in close collaboration with institutes in the six countries – through inception workshops, dissemination workshops, and numerous individual contacts between researchers. The research for this study was conducted over a period of 12 months between February 2010 and February 2011.

The research team would like to thank UNESCO, especially Chetty Dhianaraj, Joanna Herat and members of the Technical Advisory Group, for their constructive support and technical guidance during the study period. We would also like to thank all researchers in the participating institutes for their input. These institutes are: Action Health Incorporated (AHI, Lagos, Nigeria), Centre for the Study of Adolescence (CSA, Nairobi, Kenya), University of Indonesia (Jakarta, Indonesia), World Population Foundation, Indonesia (WPFI, Jakarta, Indonesia), National Rural Health Mission (Orissa, India), SCB Medical College (Cuttack Orissa, India), University of Tartu Department of Public Health (Tartu, Estonia), Rutgers WPF (Utrecht, the Netherlands) and Soa Aids Nederland (Amsterdam, the Netherlands).

This report is written in the hope that the economic analysis of the SE programmes will contribute to the decision-making process on the introduction of these programmes around the world.



# Acronyms

<b>AHI</b>	Action Health Incorporated (Nigeria)	<b>NEQC</b>	National Education Qualifications Centre (Estonia)
<b>AIDS</b>	Acquired Immune Deficiency Syndrome	<b>NERDC</b>	Nigerian Educational Research and Development Council
<b>ARSH</b>	Adolescent reproductive and sexual health	<b>NGO</b>	Non-governmental organisation
<b>CSA</b>	Centre for the Study of Adolescence (Kenya)	<b>NIHZ</b>	National Institute for Health Education and Disease Prevention (the Netherlands)
<b>CSO</b>	Civil society organisation	<b>NPEP</b>	National Population Education Project (India)
<b>EEK</b>	Estonian kroons	<b>NRHM</b>	National Rural Health Mission (India)
<b>ESHA</b>	Estonian Sexual Health Association	<b>R&amp;S</b>	Relationships and Sexuality (SE curriculum, the Netherlands)
<b>EU</b>	European Union	<b>RCH</b>	Reproductive and Child Health project (India)
<b>FGD</b>	Focus group discussion	<b>RFSU</b>	Swedish Federation for Sexual Education
<b>FLHE</b>	Family Life and HIV Education (Nigeria)	<b>RNG</b>	Rutgers Nisso Group (the Netherlands)
<b>FPE</b>	Free primary education	<b>RTI</b>	Reproductive tract infection
<b>GGD</b>	Municipal Health Service (Netherlands)	<b>SCERT</b>	State Council of Training, Research and Education (India)
<b>GOK</b>	Government of Kenya	<b>SE</b>	Sexuality Education
<b>HIV</b>	Human Immunodeficiency Virus	<b>SIDA</b>	Swedish International Development Agency
<b>ICPD</b>	International Conference on Population and Development (Cairo 1994)	<b>SLO</b>	Foundation for Curriculum Development (the Netherlands)
<b>IDR</b>	Indonesian rupiah	<b>SSS</b>	Senior Secondary School (Nigeria)
<b>IM</b>	Intervention mapping	<b>STD</b>	Sexually transmitted disease
<b>IPD</b>	Integrated Population and Development project (India)	<b>STI</b>	Sexually transmitted infection
<b>IPPF</b>	International Planned Parenthood Federation	<b>UBEC</b>	Universal Basic Education Commission (Nigeria)
<b>JSS</b>	Junior Secondary School (Nigeria)	<b>UNICEF</b>	United Nations Children's Fund
<b>KES</b>	Kenyan shilling	<b>UNESCO</b>	United Nations Educational, Scientific and Cultural Organization
<b>KRP</b>	Key resource person	<b>UNFPA</b>	United Nations Population Fund
<b>LLL</b>	Long Live Love (SE curriculum, Netherlands)	<b>WPF</b>	World Population Foundation
<b>LSMoE</b>	Lagos State Ministry of Education	<b>WSWM</b>	The World Starts With Me (SE curriculum WPF)
<b>MoE</b>	Ministry of Education	<b>YCC</b>	Youth Counselling Centre (Estonia)
<b>MoH</b>	Ministry of Health		
<b>NACO</b>	National AIDS Control Organisation (India)		
<b>NCC</b>	National Commission for Colleges of Education (Nigeria)		
<b>NCERT</b>	National Council for Education, Research and Training (India)		

## Executive Summary

There is a growing body of evidence indicating that school-based sexuality education<sup>1</sup> 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 STIs, including HIV.<sup>2</sup> In supporting the right to education, UNESCO recognises the need for young people to receive high-quality comprehensive sexuality education.<sup>3</sup>

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).

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.

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.

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 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.

<sup>1</sup> 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." UNESCO. 2009. *International Technical Guidance on Sexuality Education. An evidence-informed approach for schools, teachers and health educators*. Paris, UNESCO

<sup>2</sup> UNESCO. 2009. *International Technical Guidance on Sexuality Education. An evidence-informed approach for schools, teachers and health educators*. Paris, UNESCO.

<sup>3</sup> 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.

## 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).<sup>4</sup> 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.<sup>5</sup> India is in the course of implementing a programme in the State of Orissa.

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 behaviour.<sup>6</sup> 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.

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.

## 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

<sup>4</sup> This corresponds to the terms of reference for this study, which requested the evaluation of sexuality education programmes: i) in a sample of a six low-, middle- and high-income countries across different regional contexts; ii) in at least two countries with a generalized HIV-epidemic (Kenya and Nigeria); iii) in countries with high unintended teenage pregnancy rates; iv) that are preferably comprehensive (all, except for the programme in Nigeria); that are preferably scaled up (programmes in Nigeria, Estonia and the Netherlands); v) where there is access to data (all programmes); and vi) where the study team has strong existing partnerships. The latter criteria especially restricted the selection of sexuality education programmes for evaluation in Latin America. Most evaluated programmes happen to be secondary school programmes (although the programme in Estonia starts at primary school).

<sup>5</sup> It is unknown to what extent the same sexuality education programme is being implemented in other states in Nigeria.

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

update – and attendant inputs were identified to reflect all resources required for developing and implementing a sexuality education programme.

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.

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. student 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 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 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 into 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

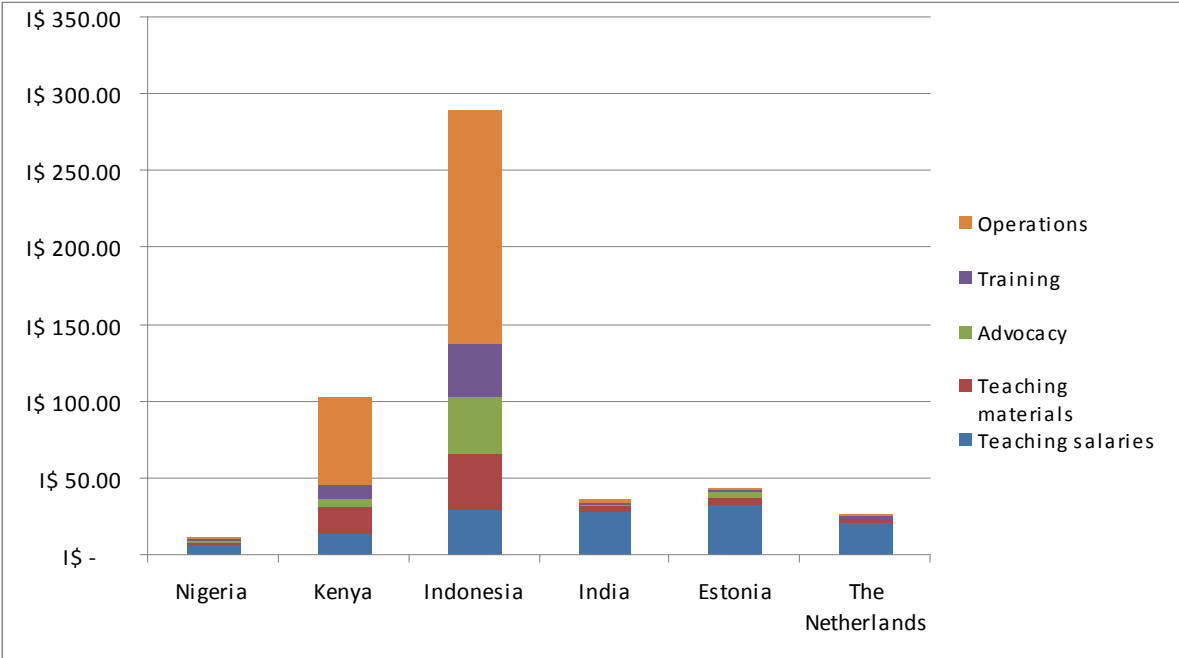
Study findings reveal a wide range of costs and coverage of sexuality education programmes across the countries studied. Total costs of sexuality education programmes, including development or adaptation, updating and implementation, range between US\$1.19 million in Indonesia to US\$12.1 million in 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 fall 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 1 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 1: 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 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 per cent 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.

## Key Observations

### Sensitivity of Sexuality Education and its 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.

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 they are intra-curricula, 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 impact 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 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, and functions as a follow-up to a more elaborate sexuality education programme taught at primary school.

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). 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 its integration 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 cannot be realized 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, sensitization 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 programmes 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 additional to an extensive foundation established at the primary level and in the core curriculum), to some 40 hours in most 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 (typically lasting 45 minutes to an hour) over several years. More intensive programmes are more likely to achieve an impact.<sup>7</sup>

## 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.

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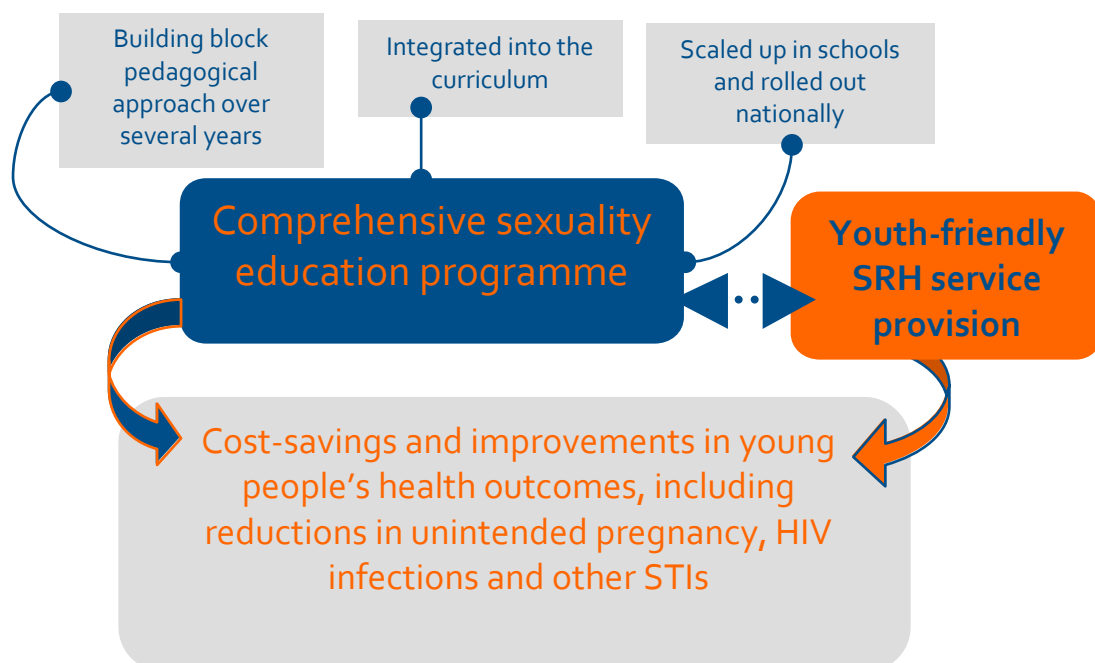
<sup>7</sup> UNESCO. 2009. *International Technical Guidance on Sexuality Education. An evidence-informed approach for schools, teachers and health educators*. Paris, UNESCO.

# 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 2)
- 2** For optimal use of education resources, the following characteristics of a sexuality education programme should be prioritised:
  - Scaled up, good quality programmes, delivered with full uptake in schools in order to best reach a critical mass of young people;
  - National coverage, or if not possible, scale-up in given geographical locations is recommended;
  - 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, i.e. 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 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 2: Key characteristics of sexuality education programmes and their potential to lead to improved health outcomes and optimal cost-effectiveness



There is a growing body of evidence indicating that school-based sexuality education (SE) programmes are valuable and have a positive impact on young people's sexual health, by improving preventive behaviour and thus reducing the risks of unwanted pregnancy and sexually transmitted infections (STIs), including HIV. At the same time, research has clearly shown that SE does not cause earlier onset of sexual contacts, nor having such contacts with multiple partners.<sup>8</sup> UNESCO supports the right to education, including the need for young people to receive high quality, comprehensive sexuality education.

Policy-makers worldwide who are involved in decisions about school-based SE programmes face three important economic questions: what are the costs of developing SE programmes, what are the costs of implementing and scaling them up, and do the programmes give value for money? Knowing the answers to these questions would help them invest education and health resources more effectively in programmes that deliver better health outcomes, particularly in the context of HIV/AIDS. This report responds to the above questions by assessing the costs, health effects and cost-effectiveness of SE programmes in a range of countries.<sup>9</sup> 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).

This report is one of the first to fill in the huge gaps in data on the economic aspects of SE programmes worldwide, in low-, middle- and high-income countries. It also comes at a time when interest in SE programmes is growing considerably, because they offer a way to prevent adverse health effects including unintended pregnancy and STIs, and help people make conscious, responsible decisions about their sexual life. In addition, SE programmes can also reduce gender inequality, improve overall communication and quality of interpersonal relationships, increase self-awareness and self-efficacy in a range of decision-making areas and reduce sexual violence. This report only considers the health effects of SE programmes.

The evidence put forward is not only relevant to the countries and the SE programmes studied, but also to other countries planning to implement or scale up existing SE programmes. For example, it 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 programmes. It also sets out the economic benefits of SE programmes that are integrated in the regular school curriculum, rather than those that are stand-alone or extracurricular.

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).<sup>10</sup> It also reflects a spread in terms of experiences: the Netherlands has a fairly long tradition of SE whereas Estonia introduced its programme only about 15 years ago, though it is now firmly established nationwide. In Nigeria, the programme is now implemented in Abuja state,<sup>11</sup> and India is in the course of doing so in Orissa State. In Indonesia and Kenya, we evaluate recently implemented pilot programmes, which operate on a relatively small scale.

Table 1-1 provides background characteristics on the countries and summarizes the programmes as evaluated in this report.

<sup>8</sup> UNESCO. 2009. *International Technical Guidance on Sexuality Education. An evidence-informed approach for schools, teachers and health educators*. Paris, UNESCO.

<sup>9</sup> This report uses to the same terminology for different types of schools as used in the countries concerned. Because of differences in educational systems it is not possible to use one standard terminology.

<sup>10</sup> This corresponds to the terms of reference for this project, which requested the evaluation of SE programmes: i) in a sample of a six low-, middle- and high-income countries across different regional contexts; ii) in at least two countries with a generalized HIV-epidemic (Kenya and Nigeria); iii) in countries with high unintended teenage pregnancy rates; iv) that are preferably comprehensive (all, except for the programme in Nigeria); that are preferably scaled up (programmes in Nigeria, Estonia and the Netherlands); v) where there is access to data (all programmes); and vi) where the study team has strong existing partnerships. Especially the latter criteria restricted us in the selection of SE programmes for evaluation in Latin America. Most evaluated SE programmes happen to be secondary school programmes (although the programme in Estonia starts at primary school).

<sup>11</sup> It is unknown to what extent the same SE programme is being implemented in other states in Nigeria.

Table 1-1: Characteristics of countries and evaluated Sexuality Education programmes<sup>12</sup>

Country	Nigeria	Kenya	Indonesia	India†	Estonia	The Netherlands
Population size (million)	140	39	238	1,190	1.3	16.5
Population <15 years (million and as a % of population)	59 (42%)	16 (42%)	64 (27%)	357 (30%)	0.2 (15%)	3 (18%)
Gross domestic product per capita (US\$)	1,142	912	2,329	1,031	14,267	48,223
Net enrolment in primary school (%)	63	76	85	83	94	98
Net enrolment in secondary school (%)	29 (female) 36 (male)	42 (female) 43 (male)	61 (female) 60 (male)	49 (female) 59 (male)	92 (female) 90 (male)	89 (female) 88 (male)
Overall HIV prevalence (%)	3.1	6.7	0.2	0.3	1.3	0.2
Teenage (aged 15-19) pregnancy rate (births per 1,000)	127	104	40	68	21	4
Name of SE programme	Family Life and HIV Education	World Starts With Me	Daku!	Adolescent reproductive and sexual health curriculum	Human Studies (SE is part of it)	Long Live Love
Geographical area for programme evaluation	Lagos State	4 provinces	4 provinces	Orissa State	Whole country	Whole country
Intra-/extracurricular	Intra-curricular	Extra-curricular	Extra-curricular	Intra-curricular	Intra-curricular	Intra-curricular
Integrated / stand-alone	Integrated	Stand-alone	Stand-alone	Integrated	Integrated	Stand-alone
Targeted age-group/ classes	13-15 y Junior secondary school (grades 1-3)	13 -16 y Secondary school (grades 1-4)	15-17 y Senior high school (grade 2)	13-16 y High school (grades 8-10)	7-14 y Basic school (grades 1-7)	13-15 y Secondary school (grade 2 or 3)
Period considered	1999-2009	2005-2009	2005-2009	2010-2014	1991-2009	1999-2009
Programme duration (years)	3	1	1	3	3(7)	1
Total number of hours	43	46	47	34	24	11
Schools covered in 2009	319	112	77	5,560	382	174
Cumulative number of students reached	694,000	13,000	6,240	990,000	190,000	376,000
Students covered in 2009	246,000	7,300	1,805	780,000	28,000	25,300

† Data in India refers to the planned implementation period 2010-2014. Where 2009 is stated, it should read 2014 for India.

<sup>12</sup> All data refer to 2009. The duration of the SE programme is as follows: core lessons (directly related to sexuality education) are concentrated in three grades (Grades 5–7) whereas life-skills lessons (indirectly related to sexuality education) are spread across seven grades (Grades 1–7).

SE programmes are not developed and implemented in a vacuum, but in real-life historical, cultural, social and political contexts. This context determines to a large extent what is acceptable and possible. Ultimately it also influences the relative cost of such programmes, because if the context is very receptive it will be much easier to generate support for it, and extensive investments in advocacy will not be needed. Therefore it is useful to discuss some crucial contextual characteristics of SE.

### 2.1 The sensitive nature of sexuality education

In many societies or cultures, sexuality is a sensitive subject, which can hardly be discussed openly. As a result, it can be very difficult to introduce SE in schools. Organizations advocating its introduction have used various arguments and tactics to gain support. A very important argument is that SE does not, as is widely feared, encourage young people to start having sexual contact at ever younger ages, with more partners, or more frequently. Already in 1993, the World Health Organization released the first results of a meta-study on this issue, which indicated that this fear was not justified<sup>13</sup> – on the contrary. Since then a large number of studies have been published that provide similar evidence.<sup>14, 15</sup> Nevertheless, opposition to SE has remained strong in many countries. Another way of dealing with this opposition has been to avoid the sensitive word ‘sexual’ or ‘sexuality’. In many countries it is therefore called ‘family life education’, ‘life-skills education’ or simply ‘health education’. A wide variety of other titles are being used around the globe. These different titles are sometimes chosen to avoid unnecessary disputes, but they may also indicate real differences in objectives and content of programmes. In some cases a valid question is whether a ‘family life education’ programme can still be perceived as an SE programme. In this study, the six SE programmes differ widely on the aspect of how explicitly they deal with human sexuality and sexual behaviour, and those differences can only be understood after taking the sensitivity of the subject of sexuality in the different contexts into account.

In western Europe, SE has a fairly long tradition, which started when in 1955 Sweden made it a mandatory subject in all schools. In the past half century it was also introduced, and gradually became acceptable, in many other countries in this region, and it is now barely controversial at all. In this context, the primary and secondary school SE curricula in the Netherlands can be explicit and detailed, and they do not require extensive advocacy action to get them accepted.

In some central and eastern European countries, SE has gradually become acceptable in the past two decades.<sup>16</sup> During the communist period in these countries, sexuality had been a controversial and largely taboo issue. Where SE is concerned, the 1990s saw this part of Europe experience what western Europe went through in the 1960s and 1970s. There was no tradition of SE, curricula had to be developed from scratch, and there was still opposition. However, these countries had the experience of western European countries to draw upon, and the exchange of knowledge and experience was rapid.

The SE programme in Estonia included in this study has been strongly influenced by close contact with SE specialists from Scandinavia and the Netherlands in particular. On one hand, because of the absence of a tradition of SE, quite extensive political lobbying and advocacy was needed in Estonia. But on the other hand there was a unique opportunity to introduce the subject in schools, because after the country’s

In the context of an innovative educational spirit it was easier to introduce an entirely new subject than it would otherwise have been.

<sup>13</sup> World Health Organization. Press release, 30 November 1993.

<sup>14</sup> Kirby D.B., Laris B.A., Roller L et al. 2007. Sex and HIV education programmes: their impact on sexual behaviours of young people throughout the world. *Journal of Adolescent Health*, Vol. 40, No. 3, pp. 206–217.

<sup>15</sup> UNESCO. 2009. *The Rationale for Sexuality Education; Volume I, International Technical Guidance on Sexuality Education*. Paris, UNESCO, pp. 13–17.

<sup>16</sup> IPPF. 2007. *A guide for developing policies on the sexual and reproductive health and rights of young people in Europe*. The Safe Project. Brussels.



independence in 1991, an entirely new educational curriculum had to be developed. In the context of an innovative educational spirit it was easier to introduce an entirely new subject than it would otherwise have been.

The social, cultural and of course developmental context in India and Nigeria is entirely different. In these two countries there had not been any tradition of school-based SE until very recently. The immediate reason for starting a process of introducing SE in schools has been political commitments made at the 1994 International Conference on Population and Development in Cairo. Adolescent sexual and reproductive health, including SE, were important new issues at that important international gathering, and several national governments made commitments on improving adolescent health and preventing the further spread of HIV/AIDS in their countries. The SE initiatives that started shortly after 1994 in India and Nigeria were directly related to those commitments. However, in both countries, internal opposition to it turned out to be stronger than had been anticipated. The social and cultural context in the two countries was not yet receptive of the idea, and as a result the first attempt to introduce some form of SE failed in both countries. It subsequently took Nigeria 5 years and India almost 10 to start introducing SE in schools on a smaller scale – i.e. in one state – and extensive investments had to be made to prepare regional governments and many others involved in those initiatives. In Nigeria, a major concession was also needed; the originally developed comprehensive curriculum was reduced by deleting all parts that related to sexual activity (such as safe sex, contraceptive and condom use), after it met strong opposition.

Because this study focuses on the cost of SE programmes, it is important to stress that in countries where the social and cultural context is not (yet) receptive to the idea of school-based SE, considerable investments must be made in ‘preparing the ground’, through lobbying, advocacy and public education. In that way, the costs involved in such countries cannot directly be compared to those in more receptive countries.

The two programmes in Indonesia and Kenya, which are very similar, have solved the sensitivity problem in another way. In both countries adolescent sexuality and SE are seriously sensitive issues, and in both countries the programmes are initiated by NGOs, not the state. That approach has advantages and disadvantages. Major advantages are that explicit acceptance of governments is not required (although informal support is needed), and that only the most receptive schools can be involved. Another important advantage is that major concessions to the curriculum content, such as happened in Nigeria, can to some extent be prevented. Both programmes include issues such as safe sexual behaviour, condom and contraceptive use, which are absent in Nigeria. But this bottom-up instead of top-down approach has the disadvantage of having relatively small-scale acceptance results. It also requires relatively heavy investments in lobbying and advocacy at the local and individual school level. For those reasons the programmes are relatively expensive per trained student. But on the other hand such programmes can also legitimately be seen as in-depth investments in the form of large pilot projects that could at some point become national programmes, after they have been properly evaluated.

In summary, the sensitive nature of adolescent sexuality and thus of SE, which varies enormously, has serious consequences for the speed and scale at which SE curricula can be introduced, as well as for the scope, and therefore the potential impact of the curriculum.

In summary, the sensitive nature of adolescent sexuality and thus of SE, which varies enormously, has serious consequences for the speed and scale at which SE curricula can be introduced, as well as for the scope (comprehensive versus abstinence only), and therefore the potential impact of the curriculum. In this way, the cost-benefit balance of investments in SE can also largely vary with the sensitivity of the issue.

## 2.2 The boundaries of sexuality education curricula

Regarding the position in the school curriculum, two types of SE curricula can be distinguished: stand-alone and integrated programmes. Stand-alone programmes are usually of short duration and tend to have weak links with the wider curriculum. Integrated programmes are embedded in a broader carrying subject, such as human studies or health education, and they are spread throughout the curriculum, often covering several



years. Typically, they also tend to be adapted to the age and developmental phase of pupils ('age and development appropriate'<sup>17</sup>).

In practice, it is often difficult to define the boundaries of the SE part of both types of curricula. The questions here are 'what should be considered to be *sexual* education, and where does it become *general lifestyles* education?', and 'what is included in other curricula that should in fact be called SE?' Stand-alone SE curricula may very well have been introduced because the subject 'sexuality' is felt to be not *sufficiently* covered in another curriculum in the same school. Very often, basic biological information on human reproduction and immediately related subjects is included in the biology curriculum. A SE programme is sometimes added because it is felt that in biology classes, the focus is too much on knowledge only, and too little on attitudes, skills and behaviour. Still, the biological teaching, which may even include STI transmission and contraception, is often considered to be an essential part of SE. The 'Long Live Love' (LLL) stand-alone curriculum for secondary schools in the Netherlands is a good example. This course is very short, with only six lessons, but it *can be* short because by the time students are introduced to it they know almost all basic facts about sexuality, reproduction, STI/HIV transmission and contraception, which they have learned about in primary school and in biology lessons in secondary school. Therefore the LLL curriculum primarily deals with values, attitudes, communication and interaction skills. However, the same curriculum would not be sufficient in another country, where the knowledge issues have not been properly covered in another part of the overall school curriculum.

This study focuses on SE in secondary schools, although international guidelines stress the need to start such programmes at earlier stages.<sup>18</sup> The choice for secondary school programmes has been a pragmatic one: only a few countries (except for Europe) have primary school programmes. Still, as mentioned, the programme in Estonia starts at the age of 7, in the first grade of Basic School, whereas in the Netherlands several primary schools have included an SE programme in their curriculum, which is briefly explained in this report.

In the case of integrated programmes, defining the boundaries is difficult for another reason. The Estonian Human Studies curriculum, which covers 180 teaching hours, and which is spread throughout the 9 years of basic school (ages 7 to 16), is a good example of this. The aims of this programme are first, social orientation, and second, decent, satisfactory and safe behaviour. To some degree at least, one can distinguish between two types of lessons in the sphere of the second aim, which is the relevant one here. Lessons of the first type are those that aim at creating the *general* conditions needed for dealing satisfactorily with different kinds of challenges in life. The second type of lesson is that which concentrates on *specific* life challenges. Typical aims of the first type of lesson are creating mutual respect, building self-respect, improving communication and negotiation skills, value clarification, and resistance to peer pressure. These *general* orientations and skills are needed as a basis for dealing satisfactorily with *specific* challenges, which usually include prevention of alcohol and drug abuse, interpersonal violence, eating disorders and so on. Safe sexual behaviour is another *specific* challenge, which also requires the *general* orientations and skills. It could therefore be said that the SE curriculum includes all *general* plus *specific* sexuality parts of the curriculum. But these general parts are also the basis for *other* specific challenges, and therefore it is not realistic to assume that the entire *general* life orientation or life-skills part of the curriculum *only* serves as the basis for SE. This problem of defining how many lessons should be included as being SE has been solved in this study by allocating part of the general life-skills lessons to the SE curriculum, in a way that is proportional to the share that sexuality occupies in the total of specific challenge-related lessons. This can be illustrated by the following hypothetical example. Assume an entire life-skills curriculum covers 100 lessons, of which 40 are general and 60 challenge-specific; 15 of these 60 specific lessons deal explicitly with sexuality, which is 25 per cent. Then, 25 per cent of the 40 general lessons, i.e. 10 lessons, are allocated to the SE curriculum. So, the SE curriculum is 35 lessons. This method of allocation is used to calculate the duration and cost of the curriculum. But it should be stressed that this does not mean that 10 identifiable lessons out of the 40 general lessons are related to sexuality. All of them are, but they also serve other purposes.

<sup>17</sup> See for example: WHO Regional Office for Europe and BZgA. 2010. *Standards for Sexuality Education in Europe*. Federal Centre for Health Education. Cologne, BZgA. In this document all curriculum recommendations are presented per age group.

<sup>18</sup> UNESCO. 2009. *International Technical Guidance on Sexuality Education. An evidence-informed approach for schools, teachers and health educators*. Volume II: Topics and learning objectives. Paris, UNESCO. WHO Regional Office for Europe and BZgA. 2010. *Standards for Sexuality Education in Europe*. Federal Centre for Health Education. Cologne, BZgA.

## 2.3 Advantages of integrated versus stand-alone programmes

The distinction between stand-alone and integrated SE programmes is not only one of boundaries and costs – in fact, there is increasing consensus among specialists that integrated programmes are the preferred format for SE for a variety of reasons. The ‘Standards for Sexuality Education in Europe’ – the result of a series of consensus meetings with leading European specialists in the field – makes a strong case for integrated and long-term programmes. Major advantages are: the approach makes it possible to adapt lessons to the developmental level of pupils and students (‘age and development appropriate’); various themes can be revisited, gradually going more in depth, along with increasing age and level of understanding of pupils; and economies of scale can be reached by combining SE with other healthy lifestyle or social orientation subjects that require similar *general* life skills, such as self-esteem, communication and negotiation skills.

In practice, the dichotomy ‘integrated’ versus ‘stand-alone’ is a continuum; programmes are always integrated to a certain degree. An example of a highly integrated programme (not evaluated in this report) is France, where different elements of the SE programme are integrated in different carrier subjects that are most feasible for adoption of particular parts of the curriculum. In many cases, SE is fully integrated in a life-skills curriculum, such as in Estonia in this study. This ‘degree of integration’ continuum should not be confused with the dichotomy *intra-* versus *extracurricular*. Intra-curricular programmes are taught within regular school hours, whereas extracurricular programmes are taught outside these hours. And while intra-curricular programmes can be ‘stand-alone’ or ‘integrated’, extracurricular programmes are almost by definition the ‘stand-alone’ type. Furthermore, *intra-curricular* programmes are not necessarily *mandatory*. Sometimes an SE programme is an *optional* one, alongside other options that pupils can choose from, and in some cases pupils or parents have the right to opt out, although it is part of the regular curriculum. Such a choice option is sometimes referred to as *voluntary*. Extracurricular programmes are always voluntary, while intra-curricular ones may be.

In this study, more than half of the programmes are of the integrated type; these are the ones in the Netherlands for the primary school level, and the Estonian, Indian and Nigerian ones. The secondary school programme in the Netherlands is of the stand-alone type (and intra-curricular), but this is a special case. It basically *adds* life skills to the knowledge-focused lessons on sexuality that are already integrated in biology classes, and it *builds on* lessons learned at the primary school level. The similar ones in Indonesia and Kenya (‘The World Starts with Me’) are typical stand-alone programmes. They are even extracurricular, and for a selection of students only, which is a serious disadvantage. This curriculum has nevertheless been included in this study because it represents the few curricula<sup>19</sup> used in developing countries that really deal with sexuality and sexual ill-health prevention, and also because the programme is being used in an increasing number of developing countries.

This study presents to some extent the wide spectrum of sexuality education strategies, approaches and content currently implemented around the globe.

For reasons explained above, the different SE programmes analysed in this study are only partly comparable. The main common denominator is they all aim at enabling young people, through education, to deal with their sexuality in a responsible and healthy manner. Except for the programme in Nigeria, they all do so by offering a comprehensive SE curriculum. But on many other criteria the programmes differ from each other, which is predominantly caused by differences in socio-cultural context and by educational priorities set. This means that this study presents to some extent the wide spectrum of sexuality education strategies, approaches and content currently implemented around the globe.

<sup>19</sup> The same curriculum is used in large parts of South Africa under the name ‘Today’s Choices’, which is integrated in a more comprehensive life-skills curriculum.

## 2.4 Impact evaluation of integrated programmes

A significant difficulty with integrated programmes is they are much more difficult to evaluate, in terms of outcomes and impact, than stand-alone programmes. This is mainly because of their long duration – from 3 years in Nigeria to 7 years in Estonia. This long duration makes it impossible to implement the usual pre- and post-intervention design studies, because at the time of the start of such programmes, pupils are still very young and therefore do not display ‘sexual behaviour’ or have ‘behavioural intentions’. Furthermore, integrated programmes tend to be implemented nation- or state-wide (such as in Estonia, Lagos State and Orissa State), and therefore there is no possibility to create a control group of non-intervention students. It is probably not a coincidence that more than half of all case-control evaluation studies of SE programmes around the globe<sup>20</sup> have been done in the US, while only very few were done in European countries (excluding the UK). Many of the US and UK studies concern stand-alone interventions that are relatively easy to evaluate in terms of outcome and impact. Most of these studies also seem to be driven primarily by a research agenda, and not by one of public education. The sheer absence of such impact evaluation studies in continental Europe is not only related to the dominance of difficult-to-evaluate integrated and long-term programmes, but also to the different basic philosophy underlying SE, which is primarily rights-based: young people have a basic right to learn about their bodies, their sexuality and about intimate human relationships, because these are essential human characteristics that people should be able to manage in a satisfactory manner. Within that context they also should learn about ways to protect their sexual health, but that is not the starting point of those integrated programmes.

Programme implementation gradually became of higher quality, and its coverage gradually became almost universal. The analysis is supported by using the results of various nationally representative surveys that include variables directly or indirectly related to the SE curriculum.

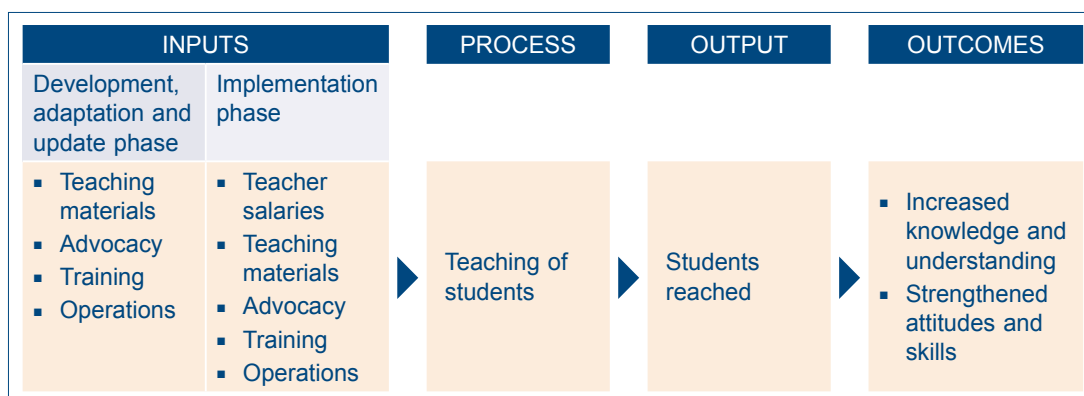
Because integrated and long-term programmes are very difficult – if not impossible – to evaluate by case-control, pre- and post-intervention methodology, less conventional study designs have to be applied to evaluate their outcomes and impact. In this study, such an evaluation of the SE programme in Estonia is included, i.e. of a curriculum that is spread out throughout the entire 9 years of the basic school curriculum. This is done by means of a systematic analysis of a time series of national sexual health indicators that cover a period of almost 20 years, from just before the introduction of the programme until the programme became fully operational. During that period, programme implementation *gradually* became of higher quality, and its coverage *gradually* became almost universal. The analysis is supported by using the results of various nationally representative surveys that include variables directly or indirectly related to the SE curriculum.

<sup>20</sup> UNESCO. 2009. *The Rationale for Sexuality Education. Volume I, International Technical Guidance on Sexuality Education*. Paris, UNESCO, pp. 13–17.

This chapter provides a description of the methodology to assess costs of SE programmes as applied in all study countries, the impact in two countries and the cost-effectiveness in one country. Methods that are unique to each country are described in the country chapters.

Figure 3-1 illustrates our overall approach in an input-process-output-outcome diagram. The ‘input’ reflects all resources required for developing and implementing an SE programme, and in this study we categorize the costs of these inputs across various programme phases and activities in all study countries (see section 3.1 for more detail). The ‘process’ reflects the teaching of the students in the SE programme – note that the quality of the teaching is not a topic of evaluation in this study. The ‘output’ reflects the students reached, whereas the ‘outcome’ reflects the impact of the SE programme, and this is multidimensional. In this study, we concentrate on the health effects resulting from risk-reducing behaviour in Kenya and Estonia. ‘Input’ can then be compared to ‘output’ to establish the cost per student reached, and be compared to ‘outcome’ to establish the cost-effectiveness of SE programmes (see section 3.2 for more detail).

Figure 3-1 Input-Process-Output-Outcome diagram of SE programmes



## 3.1 Cost analysis

### Overall approach

Our overall approach to costing analysis closely follows the WHO-CHOICE methodology – an internationally accepted standard for the conduct of economic analysis of health programmes in low- and middle income countries.<sup>21</sup> We evaluated the costs of the SE programmes from the programme perspective. This means that we included all costs as borne by governmental and non-governmental organizations, and by international organizations supporting the programme. Where relevant we report the division of costs by (funding) organizations. We performed an economic analysis, and this implies we included all resource use, paid for or not. We also estimated budgetary outlays, i.e. costs of running the programmes incremental to already existing expenditure on teacher salaries.

The implementation of SE programmes in schools varies from programme to programme. We evaluated the costs of SE programmes that are implemented well in schools, as this best reflects the resources needed to run an effective programme.<sup>22</sup>

<sup>21</sup> Tan Torres, T, Baltussen R, Adam T et al. 2003. Making choices in health: WHO guide to cost-effectiveness analysis. Geneva, World Health Organization.

<sup>22</sup> Note that these estimates reflect the costs of well-implemented programmes, based on our surveys among well-implementing schools. For this reason, the estimates do not necessarily reflect the way programmes are implemented now.

## Data collection

We estimated costs on the basis of a detailed inventory of all resource use associated with the SE programmes in the study countries. This involved detailed inspection of available financial records and interviews with programme staff and teachers. We distinguished all costs in four consecutive programme phases: development, adaptation, update and implementation. Each of these phases includes five standardized costs categories: teachers' salaries, teaching materials, advocacy, training, and operations. Teachers' salaries contain the SE programme-related portion of gross salaries (including applicable tax, social and pension contributions of teachers). Teaching materials costs comprise development, testing and production costs of materials, for both paper-based and computer-based SE programmes (the latter also includes the SE-related portion of computer costs). Advocacy costs relate to a broad scope of activities; stakeholder meetings, working group meetings, workshops, sensitization meetings, seminars, lobbying, and public information. Training costs relate to training of master trainers and teachers. Operation costs include programme staff, fees of individual consultants, transport, communication, office, administration, and monitoring and evaluation (the latter to the extent that they are an integrated part of the programme).

In addition, we carried out school surveys to identify resource use: i) teachers' time used in the programme and associated salary level; ii) use of teaching materials such as books and computers and associated costs; and iii) the degree of implementation (except in India where the programme was had only just started in autumn 2010). For interviews, we selected schools where the SE programme was well implemented. We sampled 10 to 12 schools per programme, with the exception of Estonia, where 80 schools were surveyed to obtain nationally representative data. School-level costs are mainly composed of teachers' salaries and material costs. These costs were relatively homogeneous (within the same programme) and therefore larger sample sizes were not necessary. Where there were abnormal variations in the costs we requested additional information from the interviewer and the interviewed teachers.

We defined scale-up scenarios of the SE programmes in Kenya and Indonesia to assess the cost implications of reaching higher coverage levels, and to draw recommendations on the most efficient pathways to achieve these levels. These include scenarios that reflect an increased uptake among students in schools already covered, an increased coverage of schools, or an increased geographic coverage. In India, we evaluated different scenarios reflecting the success of implementing the formal programme implementation plan. Scenarios were tailored to the local circumstances. No scenarios were defined for the SE programme in Estonia and Lagos state in Nigeria, because the SE programmes were already achieving near-full coverage.

We carried out school surveys to identify resource use: i) teachers' time used in the programme and associated salary level; ii) use of teaching materials such as books and computers and associated costs; and iii) the degree of implementation.

## Data analysis

We attributed recurrent costs to the years for which they were incurred, and annualized capital costs for the useful lifespan of capital goods. Teacher training costs were seen as investments to the programmes and were therefore annualized over 5 years. We assumed a useful life for computers (in Kenya and Indonesia) and recycled student text books (in Estonia) of respectively five and three years. We also considered development and adaptation activities as capital goods, and assumed a useful life of respectively ten and five years.

We used an ingredient approach to costing analysis, i.e. separate reporting of quantities and prices, wherever possible. However, we often obtained estimates on gross costs only, and could not break these down to quantities and prices. This is the reason that details on costing ingredients are not always provided in the report.

All costs are at 2009 prices. Historical cost data were adjusted for inflation (annual inflation rates can be found in Appendix 12.2). All costs were analysed in local currencies and converted into US dollars using 2009 exchange rates (exchange rates are listed in the country chapters). Future costs of the scale-up scenarios were reported in 2009 prices, and were therefore not discounted.



## Reporting of results

We report total costs of the SE programmes (including development, adaptation, update and implementation costs) over the whole study period, and annualized costs in 2009. The latter costs were i) divided by number of schools covered to estimate the 'cost per school'; ii) divided by the number of students in the SE programme in 2009, to estimate the 'cost per student reached in 2009'. This was then multiplied by the duration of the programme to estimate the 'cost per completed curriculum'; and iii) divided by number of student learning hours (estimated by multiplying the number of programme hours by the number of students), to estimate 'cost per learning hour'. Because of the fluctuation in the number of trained teachers over time, we divided the total training costs of SE programmes by the total number of trained teachers over the whole study period, to assess the 'cost per trained teacher'.

As costing results are specific to SE programmes, it is difficult to judge whether they are cheap or costly in comparison to other educational or health programmes. However, it is instructive to compare SE programmes to each other, to identify relatively cheap and costly programmes, and to identify those aspects that render some SE programmes more efficient than others. For these comparisons, we predominantly use the 'cost per student reached who has completed the curriculum' as our indicator of efficiency. In the comparative analysis in Chapter 10, this is also conveniently referred to as 'cost per student reached'. This indicator should be carefully interpreted – it cannot simply be multiplied by the number of students to estimate total SE programme costs because of so-called economies of scale. Some costs vary with the number of students reached (these are 'variable costs', for example, the cost of exercise books), but other costs will not (these are called 'fixed costs', for example, the cost of advocacy activities). This means that average cost per student reached will be reduced if more students are covered by the SE programme.

To foster the international comparability of results, we expressed all costs in US dollars (US\$) and international dollars (I\$). International dollars have the advantage that they account for difference in price levels between countries, and allow a comparison of the actual resource use by the SE programmes in the countries concerned. The value of an I\$ is the amount of resources a person in any given country can buy, equivalent to the amount of resources a person could buy for one dollar in the United States.

Since the SE programmes under study differ widely in their characteristics, implementation quality and their context, head-to-head comparisons of these programmes are difficult to make. Our comparative analyses are thus limited to a number of general observations and recommendations, and while we made many efforts to take into account the impact of context, these findings should be interpreted carefully in a given context and not be used as a blueprint for implementation.

### 3.2 Cost-effectiveness analysis

We performed an impact evaluation of the SE programme in Estonia, and expressed its lifetime health effects in natural units (i.e. unintended pregnancies and STI cases, including HIV infections averted). The specific methods of the impact evaluation are reported in the country chapter. We calculated the cost-effectiveness of the SE programme by dividing the total programme costs by the total health effects over the whole period considered. We also included the health care cost savings that are associated with averted health effects, especially averted antiretroviral treatment costs. We thereby adhered to WHO-CHOICE standardized methodology on cost-effectiveness analysis,<sup>23</sup> and discounted costs and health effects at 3 per cent. Discounting reflects the time preference of individuals to receive goods (including resources and health) sooner rather than later, and thus attributes less value to goods received in the future compared to those received now.

<sup>23</sup> Tan Torres, T., et al. 2003. *Making choices in health: WHO guide to cost-effectiveness analysis*. Geneva, World Health Organization. (need to standardize with previous citation – all names included)

The cost-effectiveness analysis does not capture the broader individual and social benefits of SE programmes (such as reductions in sexual violence, increased self-awareness and self-efficacy in a range of decision-making areas, or improved overall communication and quality of interpersonal relationships), and can therefore be interpreted as conservative.

We did not establish the cost-effectiveness of the SE programme in Kenya in the absence of identifiable health effects.



## Country Summaries

Nigeria	32
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## The Family Life and HIV Education Programme in Lagos State, Nigeria

### Selected country characteristics

Population size (millions)	140
% population <15 years	42%
Gross GDP per capita (US\$)	1,142
Net secondary school enrolment Male/female	M: 36% F: 29%
Overall HIV prevalence (%)	3.1
Teenage birth rate (per 1,000 15–19 years)	127

Map 4-1: Map of Nigeria and Lagos State



### Programme description

Contributions by: Abokede Damilola, Nelly Onwordi, Felix-Mary Okpechi and Adenike Esiet

### Cost analysis

Contributions by: Nelly Onwordi and Deji Doris

## 4.1 Programme description

### Country Background Information

Nigeria is a federal constitutional republic made up of 36 states and a Federal Capital Territory. The country is located in West Africa and shares land borders with the Republic of Benin in the west, Chad and Cameroon in the east, and Niger in the north. Its coast in the south lies on the Gulf of Guinea, on the Atlantic Ocean. Nigeria's gross domestic product per capita was US\$1,142 (NGN 169,419) in 2009<sup>24</sup> and the country is ranked 142 in the UNDP's Human Development Index.<sup>25</sup>

The current population of Nigeria is 140 million, with an estimated annual growth rate of 2.9 per cent. According to estimates from the 2006 census, Nigerians aged 0 to 14 years account for 42.2 per cent of the population.<sup>26</sup> This large and young population is due in part to high fertility levels, and the median age (i.e. the age at which 50 per cent of the population is above and below) of the population is 17.9 years.

<sup>24</sup> International Monetary Fund. April 2010. *World Economic Outlook Database*.

<sup>25</sup> United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

<sup>26</sup> National Population Commission, 2006: Report of the final 2006 census results. <http://www.population.gov.ng/index.php?id=3> (Accessed 1 May 2011).

Nigeria provides free, government-supported education. The education system consists of six years of primary school, three years of junior secondary school, three years of senior secondary school, and four years of university education, leading to a bachelor's degree. The rate of secondary school attendance is 32 per cent for boys and 27 per cent for girls. Education is compulsory for all students aged six to 15 years.

## Goal and development of the Family Life and HIV education (FLHE) curriculum

In recognition of the unique role that education plays in preventing and mitigating the impact of sexual and reproductive health problems, including HIV infection among young people, the National Council on Education approved the integration of the Nigerian Sexuality Education Curriculum into the school system at all levels in 1999. The Council gave the directive that appropriate steps be taken by relevant agencies to ensure the integration of comprehensive SE into school curricula.

Following this directive, a National Implementation Committee was set up by the Federal Ministry of Education (FME) to carry out this mandate. The Committee included representatives of the Federal Ministries of Education and Health, the Nigerian Educational Research and Development Council, UNFPA, WHO, UNESCO, UNAIDS, UNICEF, the Ford Foundation and Action Health Incorporated (AHI).

The curriculum was developed through an inclusive, representative, participatory process led by three key institutions: The Nigerian Education Research and Development Council (NERDC), the Federal Ministry of Education, the Universal Basic Education Commission (UBEC) and AHI, between 1999 and 2001. This process drew on the perspectives of reviewers and experts from the six geopolitical zones in Nigeria, to ensure national coverage and socio-cultural applicability to the diverse communities in the country. A range of other groups and individuals including academics, state ministries of education, civil society organizations (CSOs), and religious groups also contributed to the development and review of the curriculum. The technical and plenary sessions of the Joint Consultative Committees on Education held in 2000 and 2001 also contributed to shaping the curriculum into a nationally acceptable document.

Subsequently, in August 2001, the NERDC presented the final draft of the curriculum for final review and official endorsement by the 48<sup>th</sup> session of the National Council on Education. On 17 August the council approved the 'National Sexuality Education Curriculum for Upper Primary, Secondary and Tertiary Institutions' and urged government at all levels to create more awareness on the effects of HIV/AIDS through SE programmes.

In the course of the programme implementation, two changes were made. The first was the title, which was changed from 'Sexuality Education' to 'Family Life and HIV Education' (FLHE). This was for the same reason that the content of the curriculum was changed – many parents, politicians and religious leaders found the programme's original curriculum, which included discussion of condoms, contraception and masturbation, too explicit. These and other controversial issues were therefore removed from the curriculum. While the revised curriculum did not contain everything its planners had intended it to include, compromise ensured that many of its original objectives continued to be met.

In particular, Action Health Incorporated, a leading youth and health development NGO based in Lagos, actively partnered with the Lagos State Ministry of Education (LSMoE) to hold a series of advocacy and consultative meetings between 2000 and 2003 with various stakeholders, including the Lagos State Agency for the Control of AIDS, the Parents-Teachers Association, The National Union of Teachers, the All-Nigerian Conference of Principals of Secondary Schools, the State Primary School Board, the Conference of Primary School Headmasters of Nigeria, government officials in the education sector, media practitioners, religious leaders, and community gatekeepers.

The results of the baseline research clearly revealed the need for the FLHE programme as most of the students interviewed scored the equivalent of failing grades on a knowledge scale that included questions on physiology, sexually transmitted infections, pregnancy and contraception.

The classroom implementation of the curriculum was preceded and informed by findings from a wide-ranging needs assessment conducted in 25 public junior secondary schools in Lagos State in late 2002, and the signing of a memorandum of understanding between LSMoE and AHI. The results of the baseline research clearly revealed the need for the FLHE programme as most of the students interviewed scored the equivalent of failing grades on a knowledge scale that included questions on physiology, sexually transmitted infections, pregnancy and contraception. Findings from the baseline research helped the LSMoE to sharpen the aim, objectives and strategies of the programme as well as identify the programme strategies for meeting these objectives. These strategies included: i) providing information about 'sexuality' (later changed to 'humanity' in response to the religious sensitivities of some stakeholders); ii) helping students clarify attitudes and values that promote good health and behaviour; iii) helping students develop the interpersonal skills they need to safeguard their health; and iv) training students to exercise responsibility when making decisions concerning relationships, sexual health and HIV/AIDS.

The main goal of the FLHE curriculum is the promotion of awareness and prevention of HIV/AIDS. The specific objectives are:

- to assist individuals in having a clear and factual view of sexuality (referred to as 'humanity');
- to provide individuals with information and skills necessary for rational decision-making about their sexual health;
- to change and affect behaviour on humanity;
- to prevent the occurrence and spread of HIV/AIDS.

The curriculum is structured in such a way that it provides a framework for the acquisition of knowledge of self and family, from childhood to adulthood. It also reflects an age-adjusted approach to HIV prevention education, from primary to tertiary levels of education. The curriculum is available for all levels of education from the lower primary school level to tertiary education level.

In Lagos State, actual classroom delivery of the FLHE curriculum commenced in 100 public junior secondary schools in early 2004 and by 2007, all the public junior secondary schools (over 300) were covered. Recently, the LSMoE has commenced implementing activities of the FLHE curriculum in all public senior secondary schools.

In 2006, the National Commission for Colleges of Education (NCCE), in association with Action Health Incorporated and the Federal Ministry of Education, developed the draft Family Life and Emerging Health Issues (FLEHI) curriculum, an adaptation of FLHE curriculum for Colleges of Education in Nigeria. This was followed by the approval and introduction of the curriculum as a compulsory course in year one of the student-teachers' education in 2008-2009. Implementation at the pre-service level has commenced and all student-teachers take FLEHI courses. The FLEHI curriculum aligns with the themes and content of the FLHE curriculum. This initiative to scale up to pre-service was developed from the lessons learned from the in-service teacher training and classroom implementation of FLHE. It was observed that it would cost less and be more effective to do pre-service training in order to ensure that in the future all graduated student-teachers from the Colleges of Education have the knowledge to teach FLHE at the in-service level (i.e. in their classrooms). This will reduce the cost of training and retraining of in-service teachers in the future. AHI has since worked with the NCCE to also develop the FLEHI quality assurance tools and the SLEHI curriculum implementation strategic framework.

### Position in the wider curriculum and characteristics of the curriculum

The Family Life and HIV Education curriculum is age and grade specific. It is being infused in carrier subjects at all levels. For instance, in Lagos State, the curriculum is integrated into two main carrier subjects;

In Lagos State, FLHE is taught to all students in grades JS1-JS3. Up to three periods of 40 minutes per week are spent on FLHE topics. Content covers five main themes at junior secondary schools: human development, personal skills, sexual health, relationships, and sexuality, society and culture.

integrated science and social studies, while in Sokoto State, the curriculum is infused in subjects in health education, social studies, Islamic religious knowledge and home economics.

In Lagos State, FLHE is taught to all students in grades JS1-JS3. Up to three periods of 40 minutes per week are spent on FLHE topics. Content covers five main themes at junior secondary schools: human development, personal skills, sexual health, relationships, and sexuality, society and culture. Specific topics include behaviour that puts people at risk of getting STIs or HIV, sexual abuse (forms, effects, prevention, and sources of help); stigmatisation and discrimination of people living with or affected by HIV/AIDS.

Depending on the learning objectives, one of the following teaching methods is selected: group discussions, role-plays, lectures, brainstorming, debates, drama, sketches or plays, songs, games as well as skills-building activities. A class aimed at influencing behaviour change, for instance, would use group discussions and role-play. A session aimed at increasing knowledge would use brainstorming or a lecture. A major challenge to effective implementation of the programme is the overcrowded population in schools, which limits the use of participatory methods. A mitigating strategy has been using energizers, ice-breakers and songs to facilitate classroom implementation.

In response to suggestions by teachers about the need for age-appropriate resource materials for classroom delivery of FLHE, '*Family Life and HIV Education for Junior Secondary Schools: Teachers' Guide and Students' Handbook*' were published in 2007 by the inclusive, collaborative efforts of AHI and education ministry officials. The *Teachers' Guide* is not a textbook, but rather a 'how to do' guide for teachers. Each chapter in the guide is divided into the following sections for effective delivery of FLHE curriculum: lesson objectives, teaching aids, activities and evaluation questions, while the *Students' Handbook* is a supplementary text with factual information on the FLHE curriculum, organized around the five key concepts in the approved FLHE curriculum (the handbook is to be purchased by the students and only very few do so). The material is the only available recommended textbook for classroom implementation of FLHE in Nigeria.

## Teachers

Teacher training focuses on three areas: technical content; teachers' comfort level in teaching sexuality; and teaching methodologies appropriate to the core domains of cognitive, affective and behavioural learning. The training seeks to provide opportunities for teachers to:

- examine their personal and professional sexual attitudes;
- increase their knowledge of the content of FLHE concepts;
- develop the skills with which to provide effective teaching of the concepts.

Master-trainers and carrier-subject (integrated science and social studies) teachers were each time fully trained over ten days in a sequenced manner through a process facilitated by AHI. The first six days consisted of classroom sessions, in which participatory learning approaches were used. The last three days were devoted to teaching practice, where each trainee was given a topic to teach. Participants took turns teaching the class, with a trained teacher supervising. The last day of the training was devoted to the development and review of an action plan.

Topics covered in the training included the following:

- Goal and concepts of FLHE
- Adolescence
- Values and values clarification
- Gender issues
- Communication
- Human anatomy and physiology
- What gets in the way of talking comfortably about sexuality?
- Defining sex and sexuality over a life-cycle
- Dealing with hard-to-teach topics
- HIV/AIDS

- Care of people living with HIV/AIDS
- Principles of adolescent sexuality counselling
- Facilitation techniques
- Teaching aids/sourcing for materials

The training used a variety of methods, which trainees were expected to use in their classrooms. These included the following:

- Effective methods to enhance participants' understanding of their feelings and values through individual group discussions.
- Behavioural methods to help participants develop skills and practice what they learn. An example is role-play.
- Cognitive methods to provide information, stimulate the gathering of information and ideas, and encourage learning of new concepts. Examples include brainstorming, presentations by guest speakers, and use of charts, posters, books and videos.
- Introspective methods to help participants see the relevance for their own lives of what they learn. Examples include writing a journal on the content and process of training/learning.
- Anonymous questions to provide participants with the opportunity to ask questions they might be embarrassed to ask aloud. The number of anonymous questions declined during the course of the training, as the trainees became more comfortable about the issues discussed and began to ask questions in class.
- Games to increase the comfort level of participants with talking about sexual activities and body parts. In the word game, names of body parts are written on piece of a cardboard and participants are asked to read them aloud.

Over 1,500 teachers, including inspectors of education, have been trained on FLHE in Lagos State.

Teacher training on FLHE for colleges of education was introduced in 2007 and a total of 209 lecturers, including National Commission of Colleges of Education officials, have been trained.

### Evaluation: PRA study (changes in knowledge and attitudes)

Lagos State has the additional distinction of being the state where the longest running systematic impact evaluation of classroom teaching of FLHE has been carried out (2003-2009). Conducted by Philliber Research Associates (PRA) under the guidance of AHI and the Lagos State Ministry of Education,<sup>27</sup> impact evaluation was integrated from the outset of the programme into its basic design and implementation, starting with the formative research and needs assessment conducted in 2002.

The extracts below form the summary and conclusions from the five-year evaluation study of the implementation of the FLHE in Lagos State,<sup>25</sup> which capture the difference that this curriculum is making to young people's sexual health and overall well-being:

- 1) Students who had a full three years of exposure to the curriculum compared to students with no exposure to the curriculum had significantly higher knowledge about sexuality and reproductive issues (63 per cent versus 53 per cent correct answers respectively). This difference applied to both young men and young women.
- 2) Significantly larger percentages of Senior Secondary School, grade one (SSS1) students with a full three years of exposure to the curriculum than SSS1 students with no exposure expressed gender equitable attitudes (78 per cent versus 65 per cent endorsing gender equity). This difference applied to both young men and young women. In 2009, girls exposed to the curriculum expressed more gender equitable attitudes than did boys.

<sup>27</sup> Esiet A.O., Esiet U., Philliber S., Philliber, W.W. 2009. Changes in knowledge and attitudes among junior secondary school students exposed to Family Life and HIV Education curriculum in Lagos State, Nigeria. *African Journal of Reproductive Health*, Vol. 13, No. 3, pp. 37–46.



- 3) Boys who had been exposed to the curriculum were less likely than SSS1 boys with no exposure to say they would pressure girls to have sex with them (67 per cent versus 62 per cent respectively answered they would not pressurise; not significant).
- 4) Significantly larger percentages of SSS1 girls exposed to the curriculum than girls with no programme exposure felt that they had the ability to say no to boys in intimate situations (95 per cent versus 88 per cent).
- 5) Significantly larger percentages of SSS1 students who had a full three years of the curriculum were likely to say no to sexual intercourse if asked by someone they liked than SSS1 students with no exposure (68 per cent versus 61 per cent). In both cohorts girls were significantly more likely to say no than boys.
- 6) About one in five SSS1 students in each cohort was sexually active. Each year significantly fewer girls than boys report being sexually active. Among the boys, 5 per cent fewer reported being sexually experienced if they were in the group that received this instruction. This difference was not significant but is positive.

The above-quoted findings from the five-year evaluation of the *Family Life and HIV/AIDS Education Programme in Lagos State public junior secondary schools* suggest strongly that it is having a positive impact on the participating students, especially since those who were exposed to the curriculum responded more positively than an earlier unexposed SSS1 cohort around: i) knowledge of sexuality and reproductive health issues; ii) gender equitable attitudes; iii) the ability to say no to sexual intercourse if asked by someone they liked; iv) boys being less likely to pressure girls to have sex with them; and v) girls' ability to say no to boys in intimate situations.

## Other issues

The National Commission for Nomadic Education (NCNE) has adapted the FLHE curriculum for schools run for nomads, infusing it into six of their eight subject areas: English, social studies, primary science, health education, Islamic religious and Christian studies.

In addition, an interactive e-Learning tool on FLHE curriculum (Learning About Living) targeted at schoolchildren in basic and secondary education was launched in 2007 by OneWorld UK in collaboration with Nigerian and international stakeholders. The tool, which uses information, communication technologies (ICT) to educate in- and out-of-school youth about adolescent sexual and reproductive health issues, including HIV/AIDS, was being piloted in Lagos, Cross River States and the Federal Capital Territory in collaboration with state ministries of education.

An interactive e-Learning tool on FLHE curriculum (Learning About Living) targeted at schoolchildren in basic and secondary education was launched in 2007 by OneWorld UK in collaboration with Nigerian and international stakeholders.

## 4.2 Cost analysis

This section reports on the costs of the SE programme in Lagos State, Nigeria. We answer the following questions: i) What are the costs of the development of the programme? ii) What are the annual costs of implementing the programme in a school, reaching a student or training a teacher?

### Methods

Chapter 3 provides a detailed description of the costing methodology as applied in all study countries. This section describes the methods that are unique to Nigeria, including the sources of costing data. We report on how we estimated i) programme coverage; ii) costs of development and update phase; iii) costs of implementation phase; iv) annual costs by school, teacher trained and learner reached. All costs are grouped



in five standardized cost categories: teaching salaries, teaching materials, advocacy, training, and operations. Historical cost data were adjusted for inflation (annual inflation rates can be found in Appendix 12.2). All costs are presented in 2009 US\$ and 2009 Nigerian Naira (NGN). Costs in NGN were translated to US\$ at a rate of 149.76.<sup>28</sup>

### *Timeline and coverage*

We summarized key milestones of the Nigerian SE programme in a timeline, which was used to support programme costing. In the absence of records on the actual number of students reached by the programme, we estimated the programme coverage by combining: i) number of teachers teaching FLHE, and ii) number of students per FLHE teacher. In total, AHI trained 1,500 teachers during the period 2003–2009. We assumed that half of these teachers would have started to teach FLHE in the same year that training was given, and the other half in the following year. (Training was provided in the course of the school year.) Furthermore, we assumed annual turnover of teachers to be 5 per cent. In the interviewed schools there were on average 203 students per one FLHE teacher.<sup>29</sup> We defined a learner reached as a student who had started the FLHE programme.

### *School survey*

A school survey was carried out to find out how the SE programme was being implemented and what the school-level costs were in school year 2009/2010. We selected 12 schools that were implementing the programme well for interviews. The selection of these 'good schools' was based on opinions of AHI's staff. Interview appointments were arranged with teachers who are teaching the FLHE curriculum, and in total, 52 teachers were interviewed. The interviews were based on a structured interviewer-administered questionnaire. Results of the survey were used as inputs for the programme costing. Summary of school survey results can be found in Appendix 12.3.

### *Development phase*

The FLHI curriculum was developed between 1999 and 2002. Financial records of AHI were used for costing of this phase.

### *Implementation phase*

The first students started the SE curriculum in 2003, and this year was used as a cut-off point between the development and implementation phases. Financial records of AHI were available for the entire implementation period 2003–2009. Teaching salary costs included the SE programme-related portion of gross salaries of teachers. The SE programme-related portion of teachers' salaries was calculated by dividing their annual working hours by their annual SE programme-related working time. Salary levels were retrieved from the state Ministry of Education, 2009. Teaching material costs included their development and production costs. Advocacy costs relate to advocacy meetings with the Lagos State Ministry of Education, and capital levels, orientation and integration seminars for government officials, stakeholder meetings and advocacy visits to schools. Training costs relate to training of master trainers and teachers. Since 2003, 1,500 teachers have received AHI in-service SE training. Costs of the evaluation mentioned in the programme description in Section 4.1.5 were excluded from the costing analyses, because this had not been an integrated component of the SE programme. Operation costs include salaries of AHI staff, fees of individual consultants, AHI office, communication, administration and transport costs.

### *Annual costs per school, trained teacher and learner reached*

<sup>28</sup> The World Bank. Average annual exchange rate NGN-US\$ 2009. <http://go.worldbank.org/S1BICLCQU0> (Accessed 1 May 2011).

<sup>29</sup> School survey, Lagos State, Nigeria, 2010.

The annual costs of programme implementation include the costs of implementation, plus a certain share of the programme development and programme update costs – the latter reflecting that its use is not limited to the year it is paid for, but also beyond that. We assumed a useful life of development costs of ten years, and annualized these costs accordingly. We defined a learner reached as a student who has started the FLHE programme. A SE leaning hour was defined as 45 minutes of a student’s time in a classroom. To estimate cost per teacher trained, we considered the total number of trained teachers and total training costs over the whole programme period. We did not consider a single year only, as the number of trained teachers fluctuates considerably over time.

## Results

### Timeline and programme coverage

We summarized the FLHE SE programme description in the previous chapter in a timeline (Figure 4-1), to support programme costing. The programme timeline provides an overview of key milestones of the SE programme. Firstly, we distinguish two programme phases: development, 1999–2002, and implementation, 2003–2009. Second, key decisions are shown under the programme phases. Third, timing of development of key materials, teacher training and coverage changes can be found below the year line.

Figure 4-1: Timeline of the Sexuality EDUCATION programme in Lagos state, Nigeria 1999–2009

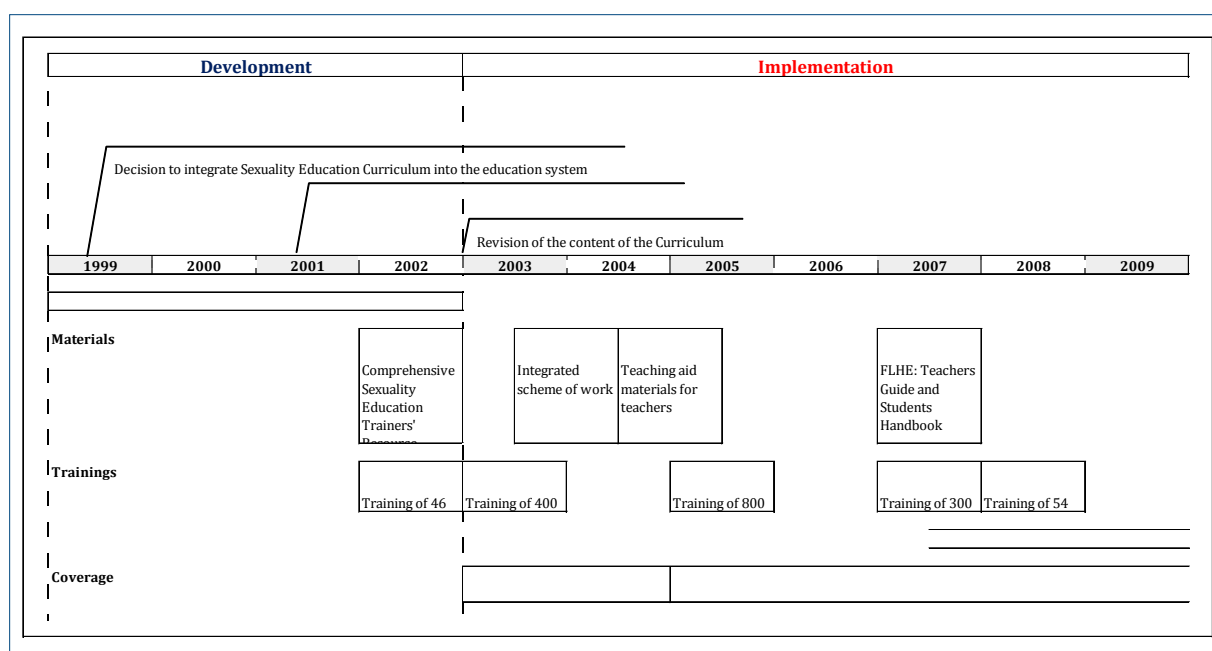
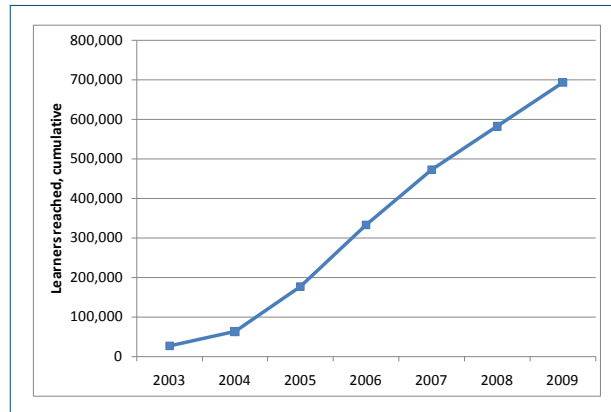


Figure 4-2 illustrates the estimated *cumulative* number of learners reached during the period 2003–2009. The first 400 teachers were trained in 2003, and these teachers taught FLHE for 63,000 students in grades JSS1 and JSS2 in 2004. In 2005, the duration of the curriculum was extended to JSS3 and 800 new teachers were trained. As a result the number of reached learners increased fivefold, to 333,000 in 2006. In 2007 the teaching capacity was increased further by training another 300 teachers. The number of students reached continued to increase and doubled to 694,000 at the end of 2009.

Figure 4-2: Cumulative learners reached in Lagos state 2003–2009

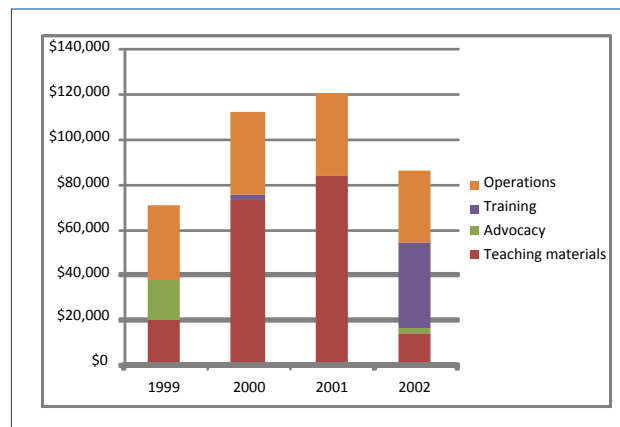


## Economic costs

### Programme development

How much did it cost to develop the FLHE SE programme? The initial development of the curriculum was done in the period 1999–2002. The total development costs were US\$387,000 (NGN 58 million). An overview of annual costs is shown in Figure 4-3. The largest cost was for teaching materials (49 per cent). The second largest cost was for operations (36 per cent), while 10 per cent related to training of master trainers and 5 per cent to advocacy activities.

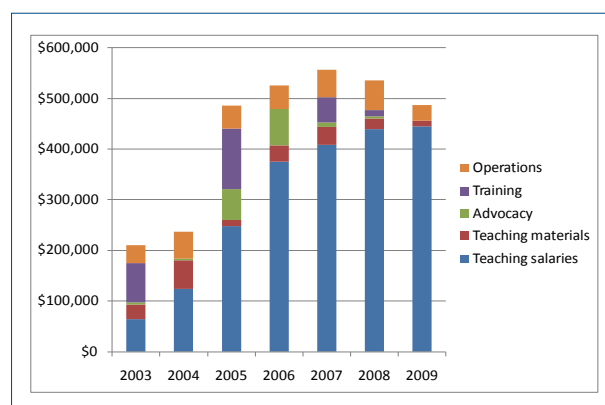
Figure 4-3: Development cost of FLHE curriculum (1999–2002) in US\$



### Programme implementation

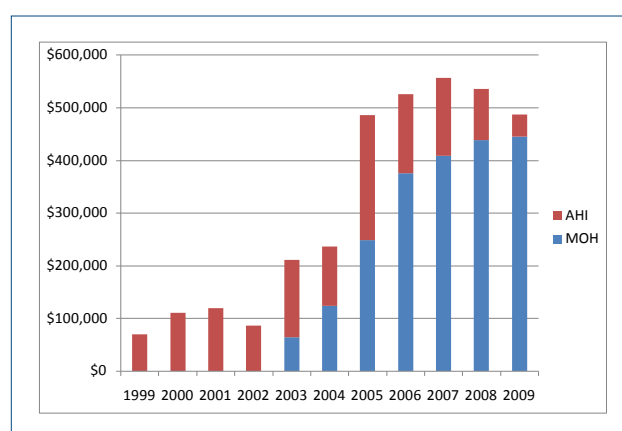
How much did it cost to implement the SE programme? The total implementation costs of the seven-year implementation period were US\$3 million (NGN 455 million). Annual implementation costs are shown in Figure 4-4. Implementation of the programme was started by training the first batch of 300 teachers in 2003. The programme was rolled out and annual implementation costs rose to US\$486,000 (NGN 73 million) in 2005, when the second batch of 800 teachers was trained. In 2005 and 2006 there were many advocacy activities and the programme was scaled up further. In 2007 the third group of 300 teachers was trained and the costs rose to US\$557,000 (NGN 83 million). The downward trend during the last two years was caused by declining implementation costs of AHL.

Figure 4-4: Annual implementation costs 2003–2009 in US\$



A breakdown of the total implementation costs 2003–2009 is shown in Figure 4-5. Teaching salaries were the largest cost component. These costs were estimated to cumulate to US\$2.1 million (NGN 315 million), which is 69 per cent of the implementation costs. Our school survey showed that FLHE teachers on average spent 3.7 per cent of their working time on teaching and preparing SE lessons.<sup>30, 31</sup> The same portion of teachers' annual gross salary was then allocated as a salary cost of SE. JSS teachers' average monthly gross salary was US\$350 (NGN 52,300) in 2009. It was estimated that there were 1,250 teachers teaching the human studies curriculum in 2009.<sup>32</sup> The second largest cost category was operations, at US\$326,000 (NGN 49 million) (11 per cent), which included salaries of AHI staff. Teacher training accounted for US\$258,000 (NGN 39 million) (9 per cent). Teaching material development and production costs totalled US\$196,000 (NGN 29 million) (6 per cent). Advocacy activities were US\$154,000 (NGN 23 million) (5 per cent).

Figure 4-5: Implementation costs 2003–2009 in US\$



### Budget impact for the ministry of education

Figure 4-6 illustrates how the costs of FLHE programme have been divided between AHI and the Lagos State Ministry of Education (LSMoE) – 61 per cent of the costs were the LSMoE's at school level, and this figure has increased as the programme has been scaled up. These costs relate to FHLE-related portions of teachers' salaries. The LSMoE incurs costs of teachers' salaries even if there is no FLHE programme, so, in the current programme setting where AHI is the organizer, the SE programme has only a minor budget

<sup>30</sup> Lagos State school survey 2010 (conducted for this study).

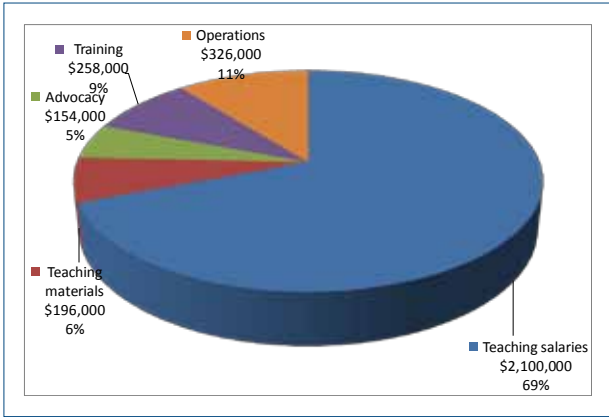
<sup>31</sup> The share of working time that teachers spent on SE programmes is an important input to the costing analysis, but not an indication on the relative efficiency of the programme. The reason for this is that this share depends on the number of teachers that happen to be involved in the SE programmes at school level, and this can (for many reasons) vary considerably between schools.

<sup>32</sup> Lagos State school survey 2010 (conducted for this study).

impact for the Ministry of Education. The portion of AHI was 39 per cent of the total cost. AHI is the organizer of the programme and therefore bears the cost of development, AHI staff, training, advocacy, and operations. Contributions of AHI have been gradually decreasing during the past 4 years.

What would be the budget impact for the LSMoE if it covered all programme costs? To answer this question, we only consider the incremental costs, i.e. costs in addition to the teacher salary costs that are already a regular expense of the LSMoE. If the ministry covered costs of AHI in 2009, the programme would increase LSMoE's costs by US\$0.59 (NGN 88) per learner reached.

Figure 4-6: Breakdown of FLHE programme costs 1999–2009 in US\$



*Cost per school, learner reached, learning hour and teacher trained*

Table 4-1 shows the cost per school and learner reached, learning hour taught, and teacher trained. Annualized costs of 2009 were used for calculating costs: per school, learner reached and learning hour. These costs amounted to US\$562,000 (NGN 84 million). Cost per school was US\$1,762 (NGN 264,000). Cost per learner reached and completed three-year FLHE curriculum were US\$2.28 (341 NGN) and US\$6.84 (NGN 1,024) respectively. Costs per SE learning hour were US\$0.32 (NGN 47). In the period 1999–2009, total training costs were US\$298,000 (NGN 45 million) and costs per trained teacher were US\$199 (NGN 29,800).

Table 4-1: Cost per school, learner reached, learning hour and teacher trained in Nigeria in 2009

Unit	Annualized cost	Number of units	Cost per unit
School	US\$562,000	319	US\$1,762
Learner reached:			
■ per year	US\$562,000	246,000 <sup>33</sup>	US\$2.28
■ completed curriculum		3 years	US\$6.90
Learning hour	US\$562,000	1,774,000 <sup>34</sup>	US\$0.32
Teacher trained	US\$298,000 †	1,500	US\$199

† Refers to total training costs in the period 1996–2009

Limitations of costing analysis

<sup>33</sup> Calculations based on: i) number of teachers trained (AHI training records) and ii) student–FLHE teacher ratio (Lagos State school survey 2010).

<sup>34</sup> Calculations based on: i) number of FLHE lessons taught (Lagos State school survey 2010), and ii) number of learners reached in 2009.

This programme costing has some limitations. Firstly, the actual number of learners reached is not known and the programme coverage was estimated from the number of teachers trained and the student–teacher ratio from the 2010 school survey. Second, the schools survey was carried out in schools that are implementing the FLHE programme well. The results represent a situation where all JSS schools in Lagos State would be implementing the programme equally well. Therefore the school-level costs are likely to overestimate the real costs of the SE programme in the country. However, as discussed in Methods, Chapter 3, we deliberately do so, as our estimated costs best reflect the resources needed to run an effective programme. Third, costing was based on AHI’s financial records and therefore detailed unit level cost assessments were not always possible. Finally, the costing results and scale-up scenarios are subject to uncertainty and are sensitive to changes of the main cost drivers.

## Sensitivity analysis

We performed one-way sensitivity analysis with minimum and maximum values of respectively -20 per cent and +20 per cent around the point estimate for a number of selected parameters (see Chapter 3). Results show that our costing analysing is sensitive to a number of parameters. Whereas our point estimate shows a cost of US\$6.90 per learner reached (completed curriculum), this value differs when we use alternative values for class size (US\$5.70 to US\$8.55), teachers’ salaries (US\$5.76 to US\$7.92), teaching time per class (US\$6.08 to US\$7.60) and lesson preparation time (US\$6.52 to US\$7.16).

## Discussion

The FLHE programme has been implemented in a state where sexuality, and therefore SE, is a sensitive issue. The content of the initial comprehensive ‘National Sexuality Education Curriculum for Upper Primary, Secondary and Tertiary Institutions’ was reduced: all elements related to actual sexual and preventive behaviour (including contraception and condoms) were deleted.<sup>35</sup> This change has likely reduced the impact of the programme. Nevertheless, the FLHE programme is a fully scaled up, integrated, intra-curricular programme in Lagos State, and may hold important lessons for other countries that wish to do so.

The total costs of the FLHE programme over the period 1999–2009 amounted to US\$3.4 million (NGN 513 million). Of this, 89 per cent were implementation costs, and the remainder (11 per cent) were development costs. Teachers’ salaries were the most important implementation cost component and accounted for 69 per cent of the total implementation costs. Costs of teaching materials were relatively low (6 per cent of implementation costs) and this can be explained by low material production costs and the low use of students’ handbooks.<sup>36</sup> Students need to purchase these books, and the costing analysis only included the costs of purchased books.

The cost per learner reached (completed curriculum), US\$6.90 (NGN 1,024), is relatively low in comparison to that of SE programmes in other study countries. There are two main reasons for this. Firstly, the programme is an integrated component of the curriculum of JSS in Lagos State, and is therefore implemented on a large scale, reaching 246,000 students in 2009. This obviously reduces costs per student of state level activities, such as programme development or management. Closely related, because the programme is mandatory, it covers a high proportion of students per school, and as such reduces school-level costs per student, such as teachers’ salaries.

What level of quality of implementation and (ultimately) impact can be achieved in very large classes with low use of student handbooks?

<sup>35</sup> The FLHE programme is not a comprehensive SE programme, and may therefore not be the best example on how SE should be implemented in a country. We nevertheless included it in the report as it is an example of a well-integrated, intra-curricular programme that is scaled up, and holds lessons for other countries aiming to achieve this.

<sup>36</sup> Lagos State school survey 2010 (conducted for this study).



Second, class sizes are relatively large in Lagos State. The FLHE curriculum is taught to between 75 and 150 students simultaneously. This obviously also reduces the school-level cost per learner. While strategies are developed to deal with such large classes, the relevant question is what level of quality of implementation and (ultimately) impact can be achieved in very large classes with low use of student handbooks? SE programmes typically require interactive teaching methods with high levels of student involvement, which is difficult to achieve in overcrowded classes.

Since salary costs are already a regular expense of the LSMoE, the budget impact for the LSMoE – if it ran the programme – would only be the incremental costs. These equal US\$0.59 (NGN 88) per learner completing the curriculum. In comparison to programmes in other countries, these costs are relatively small because the programme is mature (portions of operation and training costs are relatively low) and being implemented on a large scale (spread over large number of learners). Accurate information on public spending on education in Lagos State or federal levels was not available. Therefore comparing the programme cost with secondary education expenditure was not possible.

## 'The World Starts With Me' computer-based curriculum in Kenya

### Selected country characteristics

Population size (millions)	39
% population <15 years	42%
Gross GDP per capita (US\$)	912
Net secondary school enrolment Male/female	M: 43% F: 42%
Overall HIV prevalence (%)	6.7
Teenage birth rate (per 1,000 15–19 years)	104

Map 5-1: Map of Kenya



### Programme description

Contributions by: Albert Obbuyi, Rosemarie Muganda-Onyando, Martin Omondi

### Cost analysis

Contributions by: Chris Pescott

### Impact Evaluation

Contributions by: A. van Ledeghem, J. Leerlooijer, M. Omondi

## 5.1 Programme description

### Country background information

Kenya covers 582,646 square kilometres, bordering Tanzania to the south, the Somali Republic to the east and northeast, Ethiopia to the north, Sudan to the northwest, Uganda to the west and the Indian Ocean to the southeast. Kenya has a population of 39 million, of which 42 per cent are under 15 years old.<sup>37</sup> It has about 42 ethnic groups, including Kikuyu, Luo, Kalenjin, Luhya, Kamba, Kisii, Mijikenda, Somali and Meru. The country is divided into eight provinces and recent administrative changes created over 102 districts. The majority of people live in rural areas, with the current rate of urbanization estimated at 19 per cent.<sup>38</sup> Gross domestic product per capita in Kenya was US\$912 (66,834 Kenyan shillings – KES) in 2009,<sup>39</sup> and the country is ranked 128 in the UNDP's Human Development Index.<sup>40</sup>

<sup>37</sup> Central Bureau of Statistics, Ministry of Finance and Planning. Projections based on 1999 Population and Housing Census.

<sup>38</sup> Government of Kenya. 2007. *Kenya Facts and Figures*. Kenya National Bureau of Statistics, Nairobi, Kenya.

<sup>39</sup> International Monetary Fund. April 2010. *World Economic Outlook Database*. <http://www.imf.org/external/pubs/ft/weo/2010/01/weodata/index.aspx> (Accessed 1 May 2011).

<sup>40</sup> United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

Economically, Kenya registered economic gains in the 1960s and 1970s, which were rapidly reversed in the 1980s as a result of poor governance and economic mismanagement. However, progress has been made since 2003 with the economy maintaining a rapid growth of 5 per cent to 7 per cent between 2005 and 2007. This was short-lived, with a major decline of up to 1.6 per cent following the post-election violence in 2007-2008. Interventions by the government have included expansionary fiscal policies such as the introduction of an economic stimulus package, promoting investor confidence and maintaining price stability. These interventions improved economic growth by 2.1 per cent in 2009,<sup>41</sup> and although further growth is anticipated, recurrently failing or poor rainy rains, sustained high food prices, environmental degradation, outbreaks of disease and flooding have led to deteriorating food security conditions throughout Kenya. This has strained people's coping mechanisms, exacerbating pre-existing chronic poverty, and contributing to increased inter-ethnic conflict over access to limited land and water resources.<sup>42</sup>

Since 2003, the Kenyan government has invested in free primary education (FPE) aimed at increasing the number of children attending school. Further efforts have been made by providing partial free education in secondary schools. As a result, the national enrolment rate increased from 77 per cent registered in 2002 to 84 per cent in 2005. Enrolment increased in all regions with the introduction of FPE, with more than 1.3 million children entering school for the first time. It is however estimated that about 1 million children are still out of school for various reasons, including poverty.<sup>43</sup>

The health sector in Kenya has continued to restructure and reposition itself in order to respond to emerging national health needs. Initiatives have included health sector reforms, and the introduction of a new health sector strategy with a focus on community involvement and participation.

## Development of the sexuality education curriculum

Critical problems affecting young people are those associated with early and unprotected sexual activity. Problems such as teenage pregnancy, HIV/AIDS which affects young people directly and indirectly, as well as lack of adequate access to reliable and accurate information on sexuality are, among others, major hindrances to the growth and development of young people. In addition, the rise in truancy, drug use and indiscipline have plagued the school system in recent years, creating a crisis in the education sector. Yet most young people do not have access to the information and services to help them either avoid or cope with negative consequences such as abortion, STI and HIV infection, or having to drop out of school.<sup>44</sup>

Critical problems affecting young people are those associated with early and unprotected sexual activity.

In 2003, the World Population Foundation (WPF) in cooperation with Butterfly Works and School Net Uganda, developed and implemented an innovative, computer-based curriculum on sexual and reproductive health and rights for young people aged 12 to 19, called the World Starts With Me (WSWM).

A partnership was developed between WPF and the Kenyan Centre for the Study of Adolescence (CSA) in 2005 to adapt the Ugandan curriculum to address sexuality challenges facing youth in Kenya. The WSWM programme was initiated in 2005, improving young people's capacity to respond to the challenges, aspirations and needs that arise during adolescence, and helping prepare them for the future.

## Adaptation and piloting of the WSWM curriculum in Kenya

The adaptation of the curriculum required preparatory steps to involve key partners and stakeholders. The entire process of initiating and piloting the WSWM curriculum in Kenya was guided by these intervention mapping steps:

<sup>41</sup> Government of Kenya. 2010. *Kenya economic survey 2010 highlights*. Nairobi, Kenya National Bureau of Statistics.

<sup>42</sup> USAID. 2010. *Kenya food insecurity – situation report No. 4*.

<sup>43</sup> Government of Kenya/UNICEF. 2008. *Review of Universal Free Primary Education in Kenya*. Nairobi, UNICEF.

<sup>44</sup> Centre for the Study of Adolescence. 2009. *The World Starts with Me revised brief*. CSA, Nairobi, Kenya.

1	Involvement
2	Needs assessment/situation analysis
3	Setting of objectives
4	Evidence-based intervention design
5	Adaptation
6	Monitoring and evaluation

Based on these steps, sensitization meetings were held with various stakeholders, including government officials, non-governmental organization staff, UN agencies, the private sector and schools. The information collected and shared during these sessions formed a basis for conducting a situation analysis and needs assessment. A needs assessment was conducted which collected information on the following key areas: adolescent sexual and reproductive health and rights (SRHR), pregnancy, child bearing, condom and contraceptive use, access to education, and policy framework, among others.<sup>45</sup>

Another key intervention step was to establish an advisory board for WSWM adaptation and implementation in Kenya. The board had overall responsibility for SRHR policy issues, advocating for WSWM implementation and providing links to other programmes. Representatives of relevant government institutions, specialist (international) agencies, and the director of CSA were represented in this board.

Closely related to the advisory board was the formation of a working group. The working group consisted of teachers and students drawn mainly from the schools that were selected to pilot the WSWM curriculum in Kenya. Besides general day to day oversight, including planning and supervision of implementation, the working group played a significant role in reviewing the curriculum and proposing changes to its content, design and presentation.

The working group, together with CSA and the Kenyan Ministry of Education, conducted two review workshops of the Ugandan version of the WSWM to enable the adaptation of the content to the Kenyan context. The two workshops were held at the Kenya School of Monetary Studies in 2005. The main adaptations made to the curriculum during this period included the change of the two Ugandan 'digital peer educators', David and Rose, to the new Kenyan educators, Maria and Jemo. The change of the two digital educators was done by an external illustrator while the content, including insertion of Kenya-specific text, development and insertion of lesson 6 (see section 5.1.6) and revision of all handouts, was done by CSA with technical support from NairoBits Digital Design School. The images below show an example of the modifications made to produce the Kenyan digital peer educators Maria and Jemo.

Figure 5-1: Digital Peer Educators for Uganda and Kenya respectively



<sup>45</sup> World Population Foundation/Centre for the Study of Adolescence. 2009. *Report situation analysis/needs assessment, Kenya*. Utrecht, Netherlands, WPF [internal publication].

Support received from the Kenyan Ministry of Education, and especially the Provincial Directorate of Education in Nairobi, enabled the piloting of the WSWM curriculum in five schools in Kenya.

The piloting process included sensitization of the schools' management, selection of specific teachers to be trained, training of teachers to be involved in the piloting process and development and provision of materials for piloting, including manuals and discs. The piloting of the curriculum was guided by criteria as shown in Table 5-1.

Table 5-1: Schools and criteria for participation in the WSWM pilot

No	School	Criteria for participation
1	Nile Road school	Located in the poor Eastland section of Nairobi; girls-only school
2	Pumwani school	Located in the poor Eastland section of Nairobi; girls-only school
3	Nairobi school	Located in the wealthy part of Nairobi; National boys school
4	Langata school	Located in the poor southern section of Nairobi next to the largest slum in Nairobi. Students from poor background
5	Bar union	Rural mixed school from Nyanza

The piloting period in 2005 and 2006 generated lessons for improvement, including the need for more comprehensive sensitization and involvement of line ministries to avoid conflict and opposition, to generate more support from within the schools so as to have teachers support the implementation process, assessing availability and functioning of computers, and more engagement with the Ministry of Education headquarters for support and involvement. An end-of-pilot exhibition was held at Langata school to enable students, parents and government officials to share experiences gained during the pilot period. The piloting period provided the basis for the expanded implementation of the WSWM in subsequent years.

Table 5-2 shows the estimated number of students reached through the WSWM programme since 2005. The indirect numbers are estimated by the consideration that each directly trained student reaches out indirectly to two or three other school students.

Table 5-2: Cumulative numbers of students reached by WSWM

Year	Directly reached	Indirectly reached
2005/2006	750	–
2007	2,000	5,000
2008	5,000	10,000
2009	7,300	18,000

## WSWM Objectives and Target Groups

WSWM combines IT skills-building and creative sexual and reproductive health and rights education. WSWM uses experiential learning as the didactic method and follows the principles of three combined approaches: adolescents' development, behaviour change, and the human rights-based approach. This combination empowers young people not only to obtain required knowledge, but also to develop appropriate attitudes and learn healthy and responsible behaviour and life skills. In addition, young people learn to unfold their creative and IT skills as preparation for modern job opportunities.<sup>46</sup>

<sup>46</sup> World Population Foundation. 2003. *Computer-based Sexuality HIV/AIDS and life-skills education in secondary schools in Kenya, Uganda, Indonesia and Thailand*. Utrecht, Netherlands, WPF.

## Overall objective

The overall objective of the programme is improved SRHR of young people – improved safe sexual behaviour among sexually active young people and delayed sexual onset among sexually inactive young people. The programme:

- empowers young people to obtain required knowledge;
- stimulates development of appropriate attitudes and healthy and responsible behaviour;
- improves life skills (communication skills and learning how to refuse and negotiate, using health services, buying and using condoms and contraceptives).

To enable the realization of the above objectives, the following key result-based strategies have been used since 2005 to guide the implementation of the WSWM curriculum in Kenya.

## Key results areas

- The curriculum is effectively developed/adapted
- The curriculum is effectively implemented
- Educators are capable of implementing the curriculum
- Counselling and (referral to) health services is established in schools
- Education policy and legislation on SRHR are implemented (this means there is a supportive school environment)
- Parents and the wider community have positive attitudes towards the programme/curriculum
- The curriculum is sustainably implemented

Annual specific activities are planned against the above key result areas and implemented to support the realization of the programme objectives.

## Schools Implementing the Programme

Since the 2005 pilot in which five schools participated, the programme scope has gradually expanded, reaching out to 135 schools in four provinces in 2010, namely coast, Nairobi, Nyanza and central provinces. Because different schools use different criteria for selecting students for the programme, the following are only examples of different approaches used by schools to select students for the programme:

- Selection based on class, hence form 1, 2, 3 or 4 (only one class participates per year)
- Implementation across all the classes – select a few students from each class
- Participation based on individual interest
- Participation by virtue of belonging to a certain life-skills group/club

From 2005, each school selected different numbers of students to participate in the programme – some schools had more than 100 students while others had as few as 15. From 2008, however, efforts have been made to standardize and make it a requirement for schools to have a minimum of 55 students per year. Trained students are (on average) expected to reach out to other students within the school (an average of five or more students per trained student is the goal, but in practice this is usually fewer). Students participating in the programme vary in age between 13 and 20 years; most of them are aged 15 to 18.



## Position of WSWM in the wider national curriculum

SE has not been introduced formally into Kenyan schools. However, several efforts have been made by the Ministry of Education to incorporate aspects of SE into the national school curriculum. Issues about sexuality are taught and referred to in different curriculum subjects. For example, the biological and emotional changes that young people face in puberty are addressed during science and social studies in primary schools, and biology classes in secondary schools. In 2009, the Ministry of Education introduced life-skills education as part of the national curriculum both for primary and secondary schools. The curriculum does not address comprehensive sexuality but deals with skills regarding communication, assertiveness, decision-making and dealing with emergency situations, among others.

The WSWM is one of many sexuality programmes that are sponsored by non-governmental organizations. The programme has not been integrated into the school curriculum in Kenya and is implemented as an extracurricular activity outside class hours. It is therefore not compulsory for students, nor examinable. As a non-examinable extracurricular activity, the intensity and seriousness of implementation is somewhat compromised, as more efforts by teachers are directed at examinable subjects. However, teachers conduct the WSWM sessions during games time, in the evenings after classes, during private study sessions, and during weekends.

## Characteristics of the WSWM curriculum in Kenya

The Kenyan version of the WSWM curriculum has 15 lessons that are set up in an evidence-based, logical sequence of themes to guarantee the efficacy of the curriculum. Lessons 1 to 3 lay the foundation for decision-making by building self-esteem, getting insight in one's own sexual development (puberty and adolescence) and exploring the processes of developing individual autonomy, values and norms.

Lessons 4 to 6 focus on the social environment that helps young people shape their own relationships and value systems. Gender roles and sexual and reproductive rights are also addressed here. Lesson 6 on culture (focusing, among other things, on female genital cutting and early marriage) was specifically added to the Kenyan WSWM, based on input from the working group.

Lessons 7 to 11 outline sexuality as a vital source for life, communicating openly and discussing sexual and reproductive health risks related to pregnancy, STIs and HIV/AIDS. This section also emphasizes that respecting the rights to self-determination, to physical and mental integrity and to protection and health care is the core value in addressing stigma, sexual harassment and abuse.

Lessons 12 to 15 are used for planning for the future, setting goals and learning to share them with peers and community. The curriculum is completed by making peer books and inviting parents and community members to an exhibition showing the class results; slogans, posters, action plans, and peer books.<sup>47</sup>

Below are the main lesson topics covered in the WSWM in Kenya:

<b>L.1</b>	The world starts with me (self-esteem)	<b>L.9</b>	Pregnancy
<b>L.2</b>	Emotional ups and downs	<b>L.10</b>	Protect yourself – STI/HIV/AIDS
<b>L.3</b>	Is your body changing too?	<b>L.11</b>	HIV/AIDS – U have a role 2 play 2
<b>L.4</b>	Friends and relationships	<b>L.12</b>	Love shouldn't hurt (sexual abuse)
<b>L.5</b>	Boys and girls, men and women (gender)	<b>L.13</b>	Future, dreams, plans
<b>L.6</b>	Culture and our lives	<b>L.14</b>	Top tips book (tips for peers)
<b>L.7</b>	Fight for your rights!	<b>L.15</b>	Exhibition or moving action
<b>L.8</b>	Sexuality and love		

<sup>47</sup> World Population Foundation. 2003. *Computer-based Sexuality HIV/AIDS and life-skills education in secondary schools in Kenya, Uganda, Indonesia and Thailand*. Utrecht, Netherlands, WPF.

The WSWM curriculum has an inbuilt handout section that teachers are encouraged to refer to or otherwise download for future reference. Based on need, additional materials and handouts are given to schools on a case-by-case basis. A teacher's printed manual of the WSWM is available to every school to facilitate teaching. However, for schools without computers, the teachers' manual becomes the main teaching material and a minimum of five copies per school are provided. Currently all teaching materials, including the CD and the printed materials, are available only in English. No adaptation or translations have been made to meet the needs of special groups, including people with disabilities.

## Teachers, Teacher Training and Teaching approaches

Teachers and the teaching role are an important part of the implementation of the WSWM curriculum in Kenya. The teachers are prepared for SE through teacher training sessions, and are drawn from schools that have been sensitized about WSWM by CSA. Such teachers are nominated by schools, and their names put forward for consideration and training. The selected teachers, usually two per school (preferably male and female), undertake a five-day residential training aimed at strengthening their capacities to discuss and deliver SE using computers. Such trainings have traditionally accommodated 20 to 25 participants per training group. Teachers who successfully complete this training and the subsequent WSWM implementation are given certificates of participation. A few of the teachers are then considered for more intense, one-week training as trainers of WSWM. Since 2005, CSA, with support from WPF and the Kenyan Ministry of Education, has trained 270 teachers to support programme implementation. A total of 60 trainers have also been trained to support teacher training in all implementing provinces.

The trained teachers employ a rights-based approach to sexuality, using participatory learner-centred methods, including use of role plays, games and simulations.

The trained teachers employ a rights-based approach to sexuality, using participatory learner-centred methods, including use of role plays, games and simulations. Although the computer is central to the process, it does not replace the teacher and allows teacher reinforcement and clarification in the process of teaching.

## Use of printed version of the WSWM curriculum

WSWM is a low-tech, computer-based programme that aims not only to address sexuality challenges facing young people, but also to enable them to develop ICT skills through the use of computers. However, as of now, almost a *quarter* of the schools (32) that are currently participating in the programme do not have computers, or have computers that are inadequate for effectively delivering the programme.

The policy of CSA is to make comprehensive SE available to as many youth as possible. However, CSA recognizes that lack of computers remains a hindrance in achieving this goal, and therefore offers assistance to schools without (adequate) computers who are requesting to be a programme partner. In these cases, CSA conducts the following preparatory activities:

- A request for inclusion is sent to CSA by a school or by an education official. CSA enters into communication with the relevant school.
- Discussion with the school administration on the nature and requirements of the programme.
- Sensitization of the school heads and board members before implementation.
- Schools without computers are supported with a printed version of the curriculum for implementation.
- A maximum of five printed copies are provided to schools based on the number of students enrolled.
- Joint training of teachers (those with/without computers) is conducted by CSA, demonstrating both use of computers and the print version.
- Follow up and supervision of implementation is conducted providing support to all implementing teachers.

Experiences in implementation have shown that the printed version can be used as an effective alternative tool of providing SE in schools without electricity and computers. In some cases schools that started without computers have seen the need and purchased computers for WSWM and other needs (for example: Nile Road school). However, in some schools, computers have been used to start implementation but reverted to print version (Jamhuri school). In such cases, implementation has been difficult, because students are demotivated and subsequently drop out of the programme. However some schools have been consistent in using the print version for the last few years (such as the Obede and Wachara schools).

## Evaluation

The programme undertakes regular follow-up of implementation, collecting information on the status of implementation, availability of teachers, numbers of sessions conducted, and challenges, among others. An impact evaluation was conducted in the 2008/9 period and results are forthcoming.

## Other issues

Partnership with other SRHR partners in Kenya is presently playing an important role in the expansion of the WSWM programme. From 2009, AMREF has used the WSWM programme in its nomadic adolescent sexual and reproductive health programme in Kajiado and Loitokitok, reaching 30 schools in that region. Other current potential partnerships include the International Child Support's use of the programme in western Kenya and the use by SEED Samburu-supported schools in Samburu in the southern region of the Kenya Rift Valley.

## 5.2 Cost analysis

### Introduction

This section reports on the costs of WSWM programme in Kenya. We answer the following questions: i) What are the costs of the adaptation of the programme? ii) What are the annual costs of implementing the programme? iii) What are the costs per school, reaching a student or training a teacher?

### Methods

Section 3.1 provides a detailed description of the costing methodology as applied in all study countries. This section describes the methods that are unique to Kenya, including the sources of costing data. We report on how we estimated i) programme coverage; ii) costs of adaptation phase; iii) costs of implementation phase; iv) annual costs by school, teacher trained and learner reached; and iv) scale-up costs. All costs are grouped in five standardized costs categories: teaching salaries, teaching materials, advocacy, training, and operations. Historical cost data were adjusted for inflation (annual inflation rates can be found in Appendix 12.2). All costs are presented in 2009 US\$ and Kenya shillings (KES). Costs in KES were translated to US\$ at a rate of 77.4.<sup>48</sup>

### *Timeline and coverage*

We summarized key milestones of the WSWM programme in a timeline, which was used to support programme costing. The programme coverage information was based on CSA's records on the number of students who have completed the programme.

<sup>48</sup> The World Bank, average annual exchange rate KES-USD 2009.

## *School survey*

A school survey was carried out to find out how the SE programme was implemented and what the school-level costs were in school year 2009. At the end of 2009, WSWM was being implemented in 112 schools. We selected ten schools implementing the programme well: four in Nairobi province and three in both Coast and Nyanza provinces. The selection of 'good schools' was based on the opinions of CSA staff. Interview appointments were arranged with a teacher who was teaching the topic. An interviewer travelled to the provinces and interviews were carried out in the schools. The interviews were based on a structured interviewer-administered questionnaire, and results of the survey were used as inputs for the programme costing. The school survey summary can be found in Appendix 12.3

## *Adaptation phase*

The original Ugandan version of WSWM software was adapted to Kenya in 2005–2006. The first students enrolled in the programme in 2006. Therefore costs of 2006 were divided into adaptation and implementation costs. Financial records of CSA and WPF Netherlands were used for calculating the adaptation costs. The Kenyan WSWM programme has not been updated.

## *Implementation phase*

The cut-off point between the adaptation and implementation phases has been defined as the year in which the first pupils started the WSWM programme (2006). We used financial records and certified audit reports of CSA and results of the school survey for calculating the implementation cost. The teaching salaries category included the SE-related portion of gross salaries of teachers<sup>49</sup> (including applicable tax, social and pension contributions). The SE-related portion of teacher salaries was calculated by dividing the annual number of working hours by the annual number of SE-related working hours.<sup>50</sup> Teachers' time spent on organizing the exhibition at the end of the curriculum was excluded, because these activities were not seen as SE teaching. Teaching materials costs included: design and development of materials and production costs of software and manuals, as well as school computers. The WSWM-related portion of schools' computer costs was calculated by dividing the annual number of computer class hours by the annual number of WSWM computer hours. Advocacy costs related to a broad scope of activities, including sensitization meetings for school staff and health care providers, working group meetings as well as seminars and workshops. The training costs included training of master trainers and teachers. Programme evaluations were excluded from the costing analyses, because no evaluation had been deliberately planned as an outcome or impact study of the SE programme, and they were therefore not directly linked to the programme costs. Routine monitoring and evaluation activities were captured in operations. Operation costs further include: CSA's staff, office costs, communication, transport and fees of consultants.<sup>51</sup>

## *Annual costs per school, trained teacher and learner reached*

The cost calculations per school, learner reached and learning hours were based on annualized costs in 2009. The annualized programme costs include the costs of implementation, plus a certain share of the programme adaptation costs – the latter reflecting that its use is not limited to the year it is paid for, but also relates to future years. We assumed a useful life of adaptation costs to be five years and annualized these costs accordingly. We defined a learner reached as a student who completed the programme. A SE learning hour was defined as 60 minutes of a student's time in a classroom.

The total number of trained teachers and training costs over the whole programme period were used for calculating cost per teacher trained. The training costs were annualized over 5 years. We did not consider a single year only, because the number of trained teachers fluctuates considerably over time.

<sup>49</sup> Teachers' Service Commission, 2009 guidelines.

<sup>50</sup> Kenya schools survey 2010 (conducted for this study).

<sup>51</sup> Financial records of CSA Kenya.

## Scale-up scenarios

As the Kenyan WSWM is currently a pilot programme, we defined three alternative scale-up scenarios for the period 2010–2014. Objectives of the scenarios were to: i) demonstrate how scaling up the programme influences total costs and cost per learner reached, and ii) compare costs of different ways to expand the programme in the Kenyan context. The purpose was not to address practical challenges of expansion of the programme.

We made the cost projections in the following way: i) actual costs of 2009 were divided into fixed and variable costs for each of the scenarios;<sup>52</sup> ii) programme coverage projections were made for the three scenarios 2010–2014; iii) future costs were calculated by combining the cost inputs and the coverage projections; and iv) future costs were calculated as 2009 US\$ and KES, and were therefore not discounted. In addition we calculated costs per learner reached in 2014 by dividing *annualized* costs in 2014 with the projected numbers of students in the programme in the same year.

In the first scenario, our objective was to demonstrate what large-scale expansion of the programme would cost and how it would change the cost per learner reached. We assumed the Kenyan Ministry of Education would make a decision to introduce WSWM as a mandatory part of their curriculum in one province. This hypothetical province was assumed to have 188 eligible schools,<sup>53</sup> which would have 36,000 students in form one.<sup>54</sup> The programme would be introduced in 38 schools per year. In total, 300 schools would be covered in 2014. WSWM would be an intra-curricular subject and therefore would cover all students. Coverage in the current schools would remain on the current 5.8 per cent of all students in forms one to four. We assumed the Ministry of Education would be responsible for implementation and management of the programme. CSA's role would be limited to training of teachers and providing the WSWM software. Even though substantial expansion of the programme may not currently be realistic, we wanted use this scenario to illustrate how a larger scale-up with 100 per cent uptake would influence costs.

In the second scenario we wanted to demonstrate how increasing programme uptake in the schools that are currently covered would influence costs. We assumed voluntary programme uptake in the current schools to gradually increase from the current 5.8 per cent to 25 per cent of all students in forms 1 to 4 in 2014. In the long run, this would mean that all students in the schools would be reached. The programme would not be expanded to any new schools or geographic regions.

In the third scenario the objective was to estimate costs if the programme continues to grow at the same pace as during the period 2006–2009. We assumed WSWM to be introduced in 20 new schools per year in the current four provinces where the programme is being implemented. Uptake of the extracurricular programme was assumed to remain at 5.8 per cent of all students in forms one to four.<sup>55</sup>

## Results

### Timeline and programme coverage

We summarized the WSWM programme description in the previous chapter in a timeline (Figure 5-2). The programme timeline provides an overview of key milestones of the Kenyan SE programme. Firstly, we distinguish two programme phases: adaptation in 2005–2006 and implementation 2006–2009. The programme has not been updated. Second, key decisions are shown under the programme phases. Third, timing of key developments, materials, teacher training and coverage changes can be found below the year line.

<sup>52</sup> Teacher salaries were adjusted for the new Teachers' Service Commission's salary scales 2010–2011, TSC circular no. 5/2010, Ref. No. TSC/ADM/192A/Vol.VII/153.

<sup>53</sup> Together with the current 112 programme schools this would total 300 schools in 2014.

<sup>54</sup> Kenya National Bureau of Statistics, 2009, average school size.

<sup>55</sup> School survey 2010, forms 1 to 3, because WSWM students come from all forms.

Figure 5-2: Timeline of WSWM programme in Kenya 2005–2010

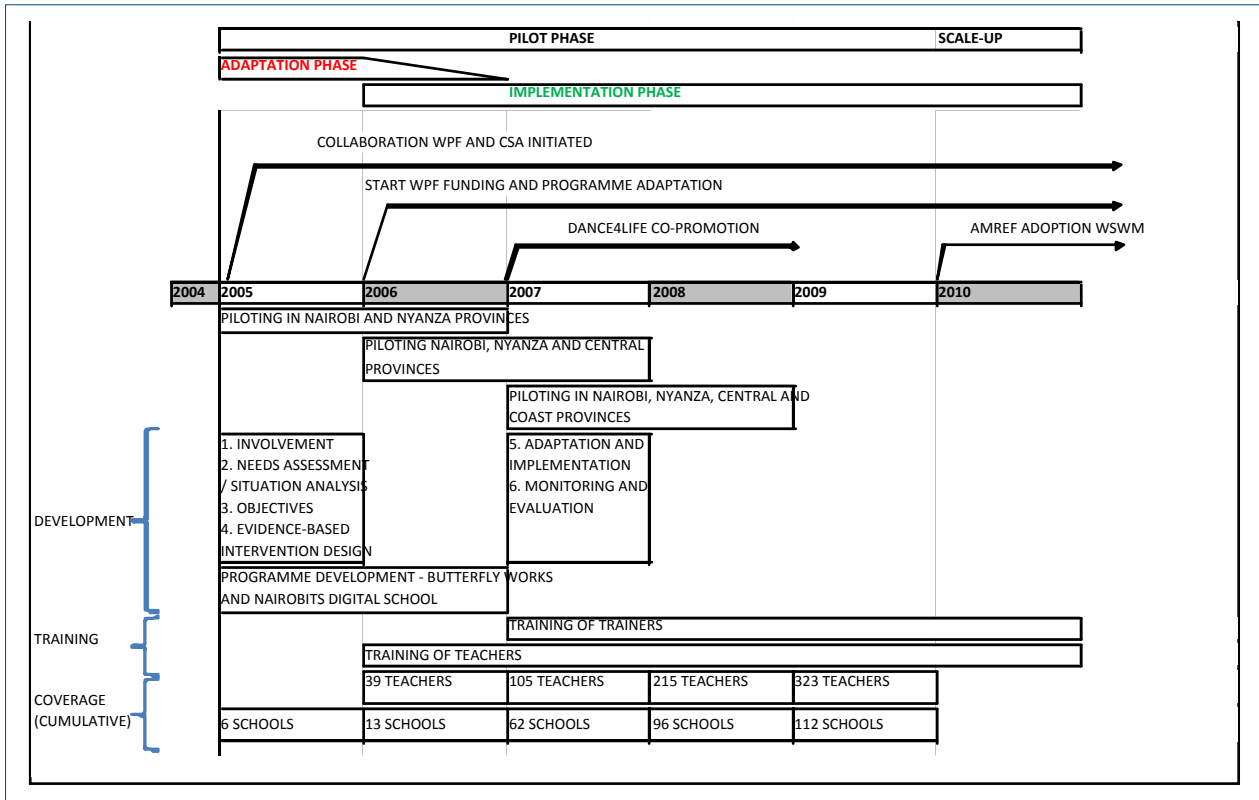
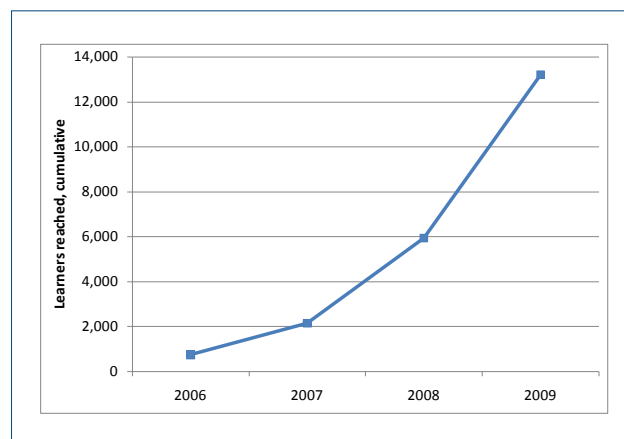


Figure 5-3 illustrates the cumulative number of learners reached during the period 2006–2009. Implementation of the SE programme started in five pilot schools. Students participating in the programme are from forms one to four. In subsequent years, additional schools were added to the programme, explaining the exponential growth of learners reached in the initial years of the programme. At the end of 2009, more than 13,000 learners had been reached. The figure was adjusted for 7.5 per cent of students who, for various reasons, did not complete the programme.<sup>56</sup>

Figure 5-3: Cumulative learners reached in Kenya 2006–2009



<sup>56</sup> Kenya school survey 2010. This is based on the number of certificates given to students for completion of individual lessons. It does not mean that 92.5% of all students followed all lessons.

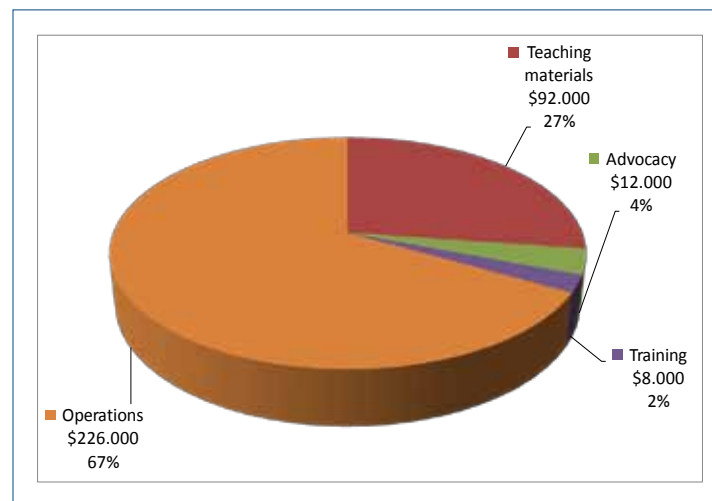


## Economic costs

### Programme adaptation

How much did it cost to adapt the Ugandan WSWM programme to Kenya? The adaptation was carried out in 2005-2006 and the total costs were US\$338,000 (KES 26.2 million). A breakdown of the total adaptation costs is shown in Figure 5-4. The majority of the costs (67 per cent) were related to operations, mainly used for NGO staff, travel and communication costs. The second largest cost component was teaching materials (27 per cent), this includes software development costs. A further 4 per cent of the total cost was for advocacy and 2 per cent for training. Teaching salaries in the year 2006 were captured in the implementation phase.

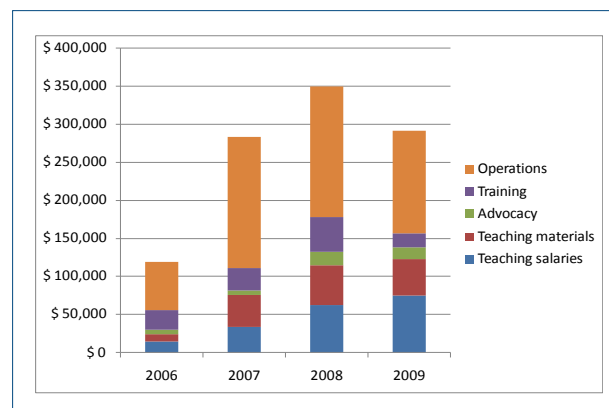
Figure 5-4: Adaptation cost of WSWM programme 2005–2006 in US\$



### Programme implementation

How much did it cost to implement WSWM? The total costs of the four-year implementation phase were US\$1.04 million (KES 81 million). Annual implementation costs are shown in Figure 5-5. The programme was gradually expanded and annual implementation costs rose from US\$119,000 (KES 9 million) in 2006 to US\$350,000 (KES 27 million) in 2008. The costs of 2009 are lower than 2008, due to the high inflation rate of 26.2 per cent in 2008.<sup>57</sup>

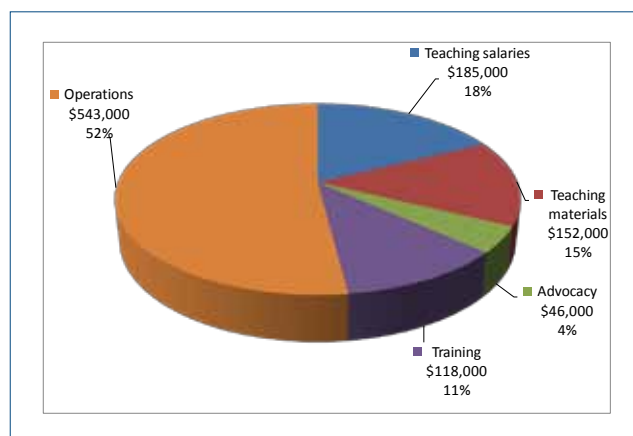
Figure 5-5: Annual implementation costs 2006–2009 in US\$



<sup>57</sup> The World Bank. Consumer price inflation update 2010-06-11.

A breakdown of the total implementation costs 2006–2009 is shown in Figure 5-6. Operation costs were the largest cost component at US\$543,000 (KES 42 million) (52 per cent). This relates to salaries of CSA staff, office costs, international and domestic travel. Teaching salaries accounted for US\$185,000 (KES 14 million) (18 per cent). Our school survey shows teachers on average spend 3.1 per cent annual working time on teaching and preparing SE lessons.<sup>58, 59</sup> The same portion of teachers' annual gross salary was then allocated as the salary cost of SE. Secondary school teachers' average monthly gross salary was US\$467 (KES 36,200).<sup>60</sup> It was estimated that out of the total of 323 trained teachers,<sup>61</sup> 307 were still teaching WSWM in 2009.<sup>62</sup> Teaching materials accounted for 15 per cent, at US\$152,000 (KES 12 million). Training costs were US\$118,000 (KES 9 million) (11 per cent), and advocacy activities accounted for US\$46,000 (KES 3.6 million) (4 per cent).

Figure 5-6: Implementation costs 2006–2009 in US\$



### *Budget impact for the ministry of education*

Figure 5-7 illustrates how the costs of WSWM programme have been divided between CSA, WPF Netherlands and the Kenyan Ministry of Education. CSA covered 50 per cent of the costs, 24 per cent were covered by WPF Netherlands and 26 per cent were the Ministry of Education's costs at the school level. CSA is the organizer of the programme and therefore bears the cost of adaptation, CSA staff, training, advocacy and operations. The role of WPF Netherlands relates to technical support, especially at the beginning of the programme. The Ministry of Education's costs include WSWM-related portions of teachers' salaries and school computer costs, and teaching material costs. Of these costs, the Ministry of Education incurs costs of teacher salaries and school computers also in the absence of the WSWM programme. Therefore, in the current programme setting, where CSA is the organizer, WSWM has only a minor budget impact for the Ministry of Education. If the programme is scaled up, the portion of the ministry's costs will increase.

What would be the budget impact for the Ministry of Education if it covered all programme costs? To answer this question, we only consider the incremental costs, i.e. costs in addition to the teacher salary costs that are already a regular expense of the ministry. If the ministry covered the costs of CSA and WPF in 2009, the programme would involve a budgetary outlay of US\$28 (KES 2,200) per learner reached.

<sup>58</sup> Kenya school survey 2010.

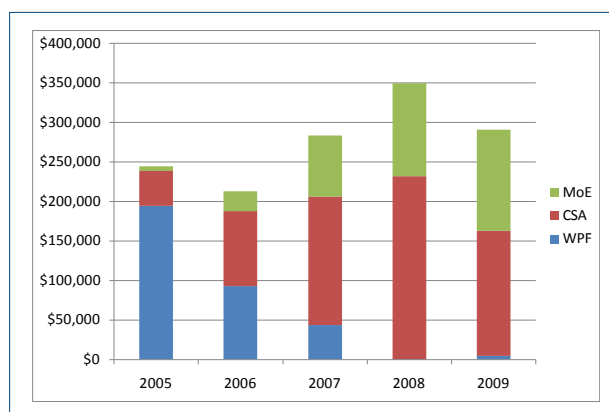
<sup>59</sup> The share of working time that teachers spent on the SE programme is an important input to the costing analysis, but not an indication on the relative efficiency of the programme. The reason for this is that this share depends on the number of teachers that happen to be involved in the SE programmes at school level, and this can vary considerably between schools for many reasons.

<sup>60</sup> The Teachers' Service Commission (TSC) publishes official salary scales. Salaries for 2010 and 2011 were calculated based on TSC circular No. 5/2010, Ref. No. TSC/ADM/192A/Vol.VII/153.

<sup>61</sup> CSA. 2010. Internal teachers' training records.

<sup>62</sup> Assumption of 5% annual staff turnover.

Figure 5-7: Division of Cost of WSWM programme 2005–2009 in US\$



### Cost per school, learner reached, learning hour and teacher trained

Table 5-3 shows the cost per school and learner reached, learning hour taught, and teacher trained. Annualized costs of 2009 were used for calculating costs per school, learner reached and learning hour. These costs amounted to US\$364,000 (KES 28 million). Cost per school was US\$3,250 (KES 251,000). Cost per learner reached and completed one-year WSWM programme was US\$49.98 (KES 3,900). Costs per SE learning hour were US\$1.08 (KES 84). In the period 2005–2009, the total training costs were US\$126,000 (KES 9.7 million) and costs per trained teacher were US\$389 (KES 30,000).

Table 5-3: Cost per school, learner reached, learning hour and teacher trained in Kenya in 2009

Unit	Annualized cost	Number of units	Cost per unit
School	US\$364,000	112 <sup>63</sup>	US\$3,250
Learner reached			
– per year	US\$364,000	7,300 <sup>64</sup>	US\$50
– completed curriculum <sup>†</sup>		1 year	US\$50
Learning hour	US\$364,000	337,000 <sup>65</sup>	US\$1.08
Teacher trained	US\$126,000 <sup>††</sup>	323 <sup>66</sup>	US\$389

† Since the curriculum lasts one year, the costs per learner reached is equal to cost per learner who completed the programme.

†† Refers to total training costs in the period 2005–2009

### Scale-up scenarios

How would scaling up the programme influence total costs and cost per learner reached? What would be the cost impacts of different ways of scaling up WSWM in the Kenyan context? Figure 5-8 and Figure 5-9 show cumulative learners reached and cumulative total costs for each of the scenarios for the period 2010–2014.

In the first scenario we assumed that the Ministry of Education would introduce WSWM as a mandatory part of their curriculum in one province. This hypothetical province was assumed to have 188 qualifying schools,

<sup>63</sup> CSA. 2010.

<sup>64</sup> CSA. 2010. Number of WSWM certificates given to students in 2009.

<sup>65</sup> Calculations based on: i) number of WSWM lessons taught (Kenya school survey 2010), and ii) number of learners reached in 2009.

<sup>66</sup> CSA. 2010. Training records.

which would have 36,000 students in form one. The programme would be introduced in 38 additional schools each year. Together with the current schools, this would cumulate to 300 schools at the end of 2014. WSWM would be a mandatory topic in the new schools and the cumulative number of students reached would be 480,000 at the end of 2014. The total costs would have cumulated to US\$9.3 million (KES 726 million) and the cost per learner reached in 2014 would be US\$16 (KES 1,240) in 2014.

In the second scenario we assumed programme uptake to be gradually increased from the current 5.8 per cent to 25 per cent of all students in forms one to four in 2014. The programme would not be introduced in any new schools. The cumulative number of students reached would be 87,000 by the end of 2014. The total costs of this alternative would be US\$3 million (KES 235 million) and the cost per learner reached in 2014 would be US\$19 (KES 1,500) in 2014.

In the third scenario we assumed WSWM would be introduced in 20 new schools per year in the current four counties where the programme is being implemented, while maintaining the present low uptake in schools of 5.8 per cent. In total there would be 212 schools at the end of 2014. WSWM would have been taught to 69,000 students and the total costs would cumulate to US\$3.7 million (KES 285 million) and the cost per learner reached in 2014 would be US\$41 (KES 3,140) in 2014.

Figure 5-8: Cumulative learners reached, 2010–2014

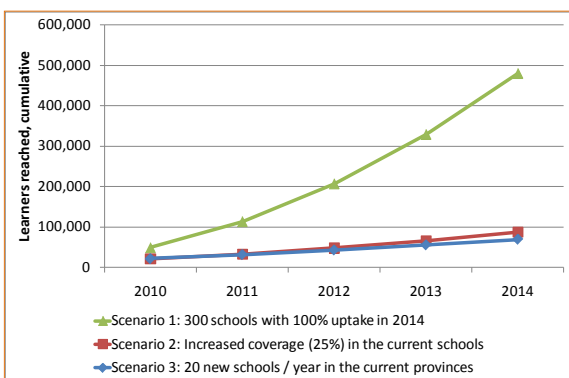
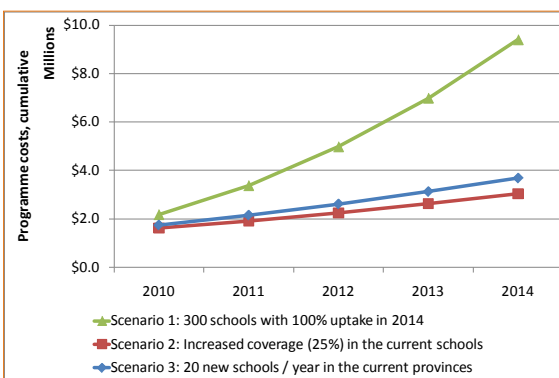


Figure 5-9: Cumulative programme costs, 2010–2014 in US\$



## Limitations of costing analysis

This programme costing has some limitations. Firstly, the schools survey was carried out in schools that were implementing the WSWM programme well. Consequently, the results represent a situation where all WSWM schools would be implementing the programme equally well. Therefore the school-level costs are likely to overestimate the real costs of the SE programme in the country. However, as discussed in Methods, Chapter 3, we deliberately do so, as our estimated costs best reflect the resources needed to run an effective programme. Second, costing was based on CSA's financial records on a budget line level, and therefore detailed unit-level cost assessments were not always possible. Third, there are no records on contributions of third parties, e.g. time contributions of advisory board members or Ministry of Education personnel. These costs were estimated based on interviews with the people involved. Fourth, the scale-up scenarios are subject to uncertainty and are based on how the WSWM programme was being implemented in 2009. Practical challenges with the expansion of the programme or unseen operational changes cannot be taken into account. Therefore the results of scale-up scenarios should be used as trend indicators, not precise costs. Finally, the costing results and scale-up scenarios are subject to uncertainty and are sensitive to changes of the main cost drivers.

## Sensitivity analysis

We performed one-way sensitivity analysis with minimum and maximum values of respectively -20 per cent and +20 per cent around the point estimate for a number of selected parameters (see Chapter 3). Results show that our costing analysis is sensitive to a number of parameters. Whereas our point estimate shows a cost of US\$50 per learner reached (completed curriculum), this value differs when we use alternative values for class size (US\$45.60 to US\$55.50), teachers' salaries (US\$47.90 to US\$52) and the percentage of teachers' WSWM-related working time (US\$47.90 to US\$52).

In the first scenario, cost of per learner reached was US\$16. This value varied with alternative values of mandatory uptake (US\$17.2067), teachers' salaries (US\$15.60 to US\$16.40) and the percentage of teachers' WSWM-related working time (US\$15.60 to US\$16.40). In the second scenario the cost per learner reached was US\$19.40 and varied with voluntary uptake (US\$18.20 to US\$21.10), class size (US\$18.60 to US\$20.30), teachers' salaries (US\$19.10 to US\$19.60) and the percentage of teachers' WSWM-related working time (US\$19.10 to US\$19.60). And finally, in the third scenario, the cost per learner reached was US\$40.60 and varied with voluntary uptake (US\$35.60 to US\$48), class size (US\$37.90 to US\$43.90), teachers' salaries (US\$40 to US\$41.30) and the percentage of teachers' WSWM-related working time (US\$40 to US\$41.30).

## Discussion

The WSWM programme has been implemented in Kenya, where sexuality, and therefore SE, is a sensitive issue. The sensitive nature of the issue is one of the reasons why the programme is NGO-initiated and extracurricular – it does not require explicit acceptance of the government. The advantage is that major concessions to a comprehensive curriculum content can to some extent be prevented (unlike in some other study countries). The disadvantage is that the programme in its current form, also beyond its pilot phase, may only be able to achieve relatively small coverage, and is therefore relatively expensive. Yet, an important asset of the WSWM programme is that it stimulates the discussion on SE in Kenya, and as such may be an important first step towards the development of national SE programmes in Kenya. The total costs of WSWM programme, including adaptation and implementation, were US\$1.38 million (KES 105 million) in the period 2005–2009. Of these costs, 76 per cent were for implementation, and the remainder were for adaptation. The cost per student reached equals US\$50 (KES 3,900) and is it is relatively high in comparison to most of the other SE programmes in this study. This is a result of number of factors. Firstly, because of a combination of low coverage of WSWM and its high operational costs, the cost per student is relatively high. On the former, WSWM is a pilot programme and has a limited coverage – in 2009 some 7,300 students were reached. On the latter, WSWM is implemented by a non-governmental organization (CSA), and supported by an international organization (WPF), and hence involves relatively high salary and international travel (operation) costs in the pilot phase. Second, the present SE programme is geographically spread out, and therefore holds relatively large travel (operation) costs. Operation costs constitute more than half of the cost per learner reached, whereas this is less than one-sixth in other countries in this study (except Indonesia). As a consequence, the cost per student reached would diminish considerably if the programme grew beyond the pilot phase and was scaled up. However, it is unclear to what extent WSWM in its current form, as a stand-alone programme, can operate at a large scale – it may need to be integrated in the national curriculum to achieve that.

The disadvantage is that the programme in its current form, also beyond its pilot phase, may only be able to achieve relatively small coverage, and is therefore relatively expensive.

Third, WSWM is a computer-based SE programme and this has several implications for the cost of the SE programme. Most importantly, schools have a limited number of computers available and uptake in schools – on average 44 students – is therefore constrained. This constrained uptake leads to relatively high teachers' salary costs per student reached, and efficiency gains are difficult to achieve (the costs of the present

<sup>67</sup> One side only, because 120% coverage is not possible.

computers were included in the costing analysis to the extent they were used by the programme. If additional computers were purchased for the SE programme, their cost would be fully levied on the programme). In terms of learning materials, computers do not appear to be more expensive than printed materials in programmes in other studies. Furthermore, the implementation of computer-based programmes in a low-tech environment may create challenges at the operational level (e.g. electricity ruptures) as well as challenges to the scaling up of the programme (implementation is conditional on the availability of computers in schools). Fourth, WSWM is based on voluntary enrolment of students and this may also explain the low uptake in schools referred to above.

Although the Kenyan WSWM and the Indonesian Daku! programmes are very similar in their design, the cost per learner reached in WSWM is lower than Daku!. There are a number of explanations. Firstly, the coverage in the WSWM programme is higher than in Indonesia (in 2009, 7,300 versus 1,800 students), which results in relatively low costs per student reached of national-level activities. Second, in Kenya the class size is larger (WSWM 44 versus 30 Daku! students), and third, in Kenya more students share a computer (WSWM 3.9 versus 1.4 students per computer in Daku!). Third, one teacher in Kenya and two in Indonesia facilitate the SE classes.

In all three scale-up scenarios, the cost per learner reached fell considerably. If the Ministry of Education implemented WSWM to 300 schools and achieved (mandatory) full coverage (scenario 1), costs per learner reached would be reduced to US\$16 (KES 1,240). If voluntary uptake of WSWM were increased from the current 5.8 per cent to 25 per cent of all students (scenario 2), cost per learner reached would reduce to US\$19 (KES 1,500). Introduction of WSWM in new schools, while keeping the 5.8 per cent uptake (scenario 3), would also somewhat reduce cost per student reached to US\$41 (KES 3,140). The scenario analyses clearly show that if the WSWM programme were to be implemented on large scale as a compulsory topic, it would be much cheaper per student reached. The scenario analyses also show that increasing programme uptake in schools is economically more attractive than introducing the programme to new schools with the current low voluntary uptake.

Since salary costs are already a regular expense of the Ministry of Education, the budget impact for the ministry – if it ran the WSWM programme – would only be the incremental costs. These equal US\$28 (KES 2,200) per learner completing the curriculum. In comparison to programmes in other countries, these costs are relatively high because the programme is only in its pilot phase (and therefore has a relatively low coverage, and high operation and training costs). Kenya spent US\$419 (KES 32,500) per learner on secondary education (2009 prices).<sup>68</sup> Budgetary outlays would thus constitute some 6 per cent of current expenditure per student in secondary education.

In all three scale-up scenarios, the cost per learner reached fell considerably.

## 5.3 Impact evaluation

### Introduction

The WSWM programme has been developed by WPF and is currently being implemented in six countries in Asia and Africa. In 2008–2009 a series of studies was started in four of those countries (Indonesia, Thailand, Uganda and Kenya) to evaluate the impact of the programme. The studies included pre- and post-intervention assessments among representative samples of students in schools where the programme was implemented, as well as comparable assessments in control schools. The four studies are still in the process of being analysed and reported upon. Preliminary reports have been completed for Thailand and Uganda, whereas for Indonesia and Kenya, analyses are still being conducted.

<sup>68</sup> UNESCO. 2011. *EFA Global Monitoring Report 2011*. Paris, UNESCO.



WPF and CSA have given permission to the Radboud University Nijmegen Medical Center (RUNMC) research team for this study to use the dataset of the Kenya evaluation study as a basis for the planned cost-effectiveness assessment of WSWM Kenya. The impact analysis was conducted by a joint team from Maastricht University. After being carefully checked and cleaned, this dataset includes the results of the questionnaires filled in by 2,076 pupils in the intervention group that participated in WSWM, and by 904 pupils from control schools. A substantial number of statistical analyses were subsequently performed.

The results of these analyses turned out to be 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 analyses produced statistically significant results. Several re-checks have been made to exclude possible errors, but none could be identified. The lack of expected results does not emanate from the study design, which is correct, and includes sufficient numbers of respondents in the intervention and control groups to potentially produce significant outcomes. Because of the lack of statistically significant results it was not possible to conduct the planned cost-effectiveness analyses.

The same lack of results led to intensive discussions among the members of the research team on the possible reasons for this, particularly because the same evaluation study in Thailand had resulted in a wide variety of significant results, and the study in Uganda resulted in at least some of them. The lack of significant results renders it not useful to report on all analyses that have been conducted. Instead, therefore, a selection of the analyses is presented here and some potential explanations are given for the absence of significant results.

## Material and methods

A quasi-experimental design was used for assessing the effect of WSWM in two categories of schools: intervention schools and comparison schools. In the intervention schools the teachers were first trained on implementation of the programme before data from students was collected. The comparison schools were selected from the group of schools that had asked to be included in the WSWM programme in the future, thus reducing the selection bias that could result from 'being interested in the programme', but no intervention was to be in place until after the post-intervention data was collected. For each intervention school, a matching comparison school was identified with similar characteristics. The evaluation started in May 2008 for both the intervention and the comparison schools with the filling in of the pre-test questionnaires, and ended in March 2009, after students had gone through the programme and filled in the post-test questionnaires. The post-test was done seven to eight months after the pre-test, i.e. shortly after finishing the programme.

The pre-test questionnaire included 125 questions, both for the intervention and comparison schools. In the post-test the same questionnaire was used for comparison schools, but for the intervention schools two additional questions on lessons covered by each student were included. The student questionnaire was self-administered with guidance from the research assistants, and it had a closed response format. The instrument was developed by WPF in close collaboration with CSA. The questionnaire is based on existing, validated questionnaires and was pre-tested among young people who had characteristics similar to those included in the subsequent study. The questionnaire had a boys and a girls' version which were similar but tailored to each sex (i.e. questions related to pregnancy, boyfriend versus girlfriend). The questions were structured in such a way that they gradually pass from less to more sensitive issues affecting young people. For some questions, the skipping approach was used, e.g., if a person had never had sexual intercourse, he/she did not have to answer the questions related to their personal condom use or other sexual activities.

Most questions were asked using a validated five-point Likert scale ranging from 'strongly agree' to 'strongly disagree'. For certain questions the option 'I don't want to talk about this' was included; in this way the study could measure the capability/ability of young people to express themselves openly on different issues. Another category of 'I don't know' was added to the questions for the respondents who did not have any answer to the questions. Questions were also included on demographic variables (age, place of living, family composition, etc.), socio-economic situation of the respondent, and some other student characteristics.

The evaluation was carried out among 4,766 students in secondary schools and in two institutions for out-of-school youth targeting young people from informal urban settlements in Nairobi. Three categories of respondents were excluded: i) out-of-school youth; ii) those who had not filled in the pre- or the post-questionnaire; iii) those who had not indicated the number of lessons they had attended. This last category was excluded because the analyses included correlations between outcome variables and quality of implementation of the programme, i.e. how many of the 15 curriculum lessons had been followed. In total, 1,786 out of 4,766 students were excluded for these reasons. Table 5-4 presents a brief overview of sample characteristics.

Table 5-4: Sample characteristics

	Intervention (n=2076)	Comparison (n=904)
Sex	Male 1131 (54.7 %) Female 945 (45.3 %)	Male 458 (50.7 %) Female 446 (49.3 %)
Mean age (age range)	16.38 (12 to 20 years)	16.45 (12 to 20 years)

## Selected results

For most analyses the ‘mixed model repeated measures (multilevel)’ has been applied. This analysis combines differences between mean scores (on 5-point scales) of the intervention and comparison groups at both pre-test and post-test. Scales that are based on several related questions (such as level of knowledge) are only used if the internal validity level is sufficient. In the tables below, missing values are not included.

Table 5-5: General sexual and reproductive health knowledge (6 items; 5-point scale)

		Mean	Standard deviation	N
Pre-test Knowledge general	Comparison	3.7897	.68031	661
	Intervention	4.0050	.61392	1732
	Total	3.9455	.64009	2393
Post-test Knowledge general	Comparison	3.8052	.68007	661
	Intervention	4.0156	.62070	1732
	Total	3.9575	.64441	2393

The level of knowledge was already quite high (3.9455) in the pre-test. In both the intervention and comparison groups it increased very slightly in the post-test: from 4.0050 to 4.0156 in the intervention, and from 3.7897 to 3.8052 in the comparison group. Because of the high initial scores, there was hardly a possibility for further increase; this phenomenon is called the ‘ceiling effect’.<sup>69</sup> The fact that in *both* groups there was this marginal increase automatically means that in the multivariate test (time \* aComp) the result is not significant (p= .819; see Table 5-6).

<sup>69</sup> In attitudinal scales such as this, a ceiling effect may already occur above 4 and below 2 because of the tendency among respondents not to choose the extreme answers (i.e. 5 and 1)

Table 5-6: Multivariate Tests<sup>b</sup>

	Effect	Value	F	Hypothesis df	Error df	Significance
Time	Pillai's Trace	.001	1.477 <sup>a</sup>	1.000	2391.000	.224
	Wilks' Lambda	.999	1.477 <sup>a</sup>	1.000	2391.000	.224
	Hotelling's Trace	.001	1.477 <sup>a</sup>	1.000	2391.000	.224
	Roy's Largest Root	.001	1.477 <sup>a</sup>	1.000	2391.000	.224
time * aComp	Pillai's Trace	.000	.052 <sup>a</sup>	1.000	2391.000	.819
	Wilks' Lambda	1.000	.052 <sup>a</sup>	1.000	2391.000	.819
	Hotelling's Trace	.000	.052 <sup>a</sup>	1.000	2391.000	.819
	Roy's Largest Root	.000	.052 <sup>a</sup>	1,000	2391.000	.819

Table 5-7: General perception of SRH risks (6 items; 5-point scale)

		Mean	Standard deviation	N
Pre-test risk perception	Comparison	3.5351	.80361	651
	Intervention	3.6094	.80736	1703
	Total	3.5889	.80684	2354
Post-test risk perception	Comparison	3.5436	.80140	651
	Intervention	3.6337	.79653	1703
	Total	3.6087	.79873	2354

In the intervention group there was a minor increase in risk perception, and in the comparison group there was hardly any change. But in the multivariate test (see before) the p-value is only .586, which is negligible.

Table 5-8: Attitude to condom use (3 items; 5-point scale)

		Mean	Standard deviation	N
Pre-test attitude condom use	Comparison	3.8863	1.34059	636
	Intervention	4.0599	1.25684	1699
	Total	4.0126	1.28224	2335
Post-test attitude condom use	Comparison	3.4536	1.05943	636
	Intervention	3.5297	.99109	1699
	Total	3.5090	1.01050	2335

The results on this scale are surprising, because contrary to expectation, the attitude toward condom use has become *more negative* in the post-tests in both the intervention and comparison group. A possible explanation for this is the usually very negative atmosphere surrounding toward condoms in most schools. If a student is found to have a condom, this is in many cases a sufficient reason to be expelled from school. It is perceived by the schools as proof or intention to sexual activity, which is strongly denounced. The longer a student is in school, the more he/she may be influenced by this condemning stance.

Table 5-9: Multivariate Tests<sup>b</sup>

	Effect	Value	F	Hypothesis df	Error df	Significance
time	Pillai's Trace	.107	279.214 <sup>a</sup>	1.000	2333.000	.000
	Wilks' Lambda	.89 <sup>3</sup>	279.214 <sup>a</sup>	1.000	2333.000	.000
	Hotelling's Trace	.12 <sup>0</sup>	279.214 <sup>a</sup>	1.000	2333.000	.000
	Roy's Largest Root	.12 <sup>0</sup>	279.214 <sup>a</sup>	1.000	2333.000	.000
time* aComp	Pillai's Trace	.001	2.867 <sup>a</sup>	1.000	2333.000	.091
	Wilks' Lambda	.99 <sup>9</sup>	2.867 <sup>a</sup>	1.000	2333.000	.091
	Hotelling's Trace	.00 <sup>1</sup>	2.867 <sup>a</sup>	1.000	2333.000	.091
	Roy's Largest Root	.00 <sup>1</sup>	2.867 <sup>a</sup>	1.000	2333.000	.091

The multivariate analyses indicate that this change to a more negative attitude in the post-test is statistically significant within both the intervention and the control group ( $p < .000$ ). But because this is the case in *both* groups the combined analysis (time \* aComp) does not reach the level of significance ( $p = .091$ ). It seems like the general attitudinal context of the school is much more influential at this point than participation in the SE programme. Interestingly, among females, the negative trend in attitude toward condom use in the post-test is even stronger than among males (not shown), which could indicate that they are more affected by this attitudinal context.

On this, and on other variables, analyses have also been conducted for male and female respondents separately. In all those cases, significant outcomes were also not found.

### Sexual experience

One of the factors possibly influencing respondents' answers is the tendency to give socially desirable answers. This can be illustrated by the results on the question asking respondents if they had ever had sexual intercourse. In the intervention group the percentages answering that they *ever* had intercourse *declined* between the pre- and the post-test. Among males this decline went from 36.3 per cent in the pre- to 33.2 per cent in the post-test, and among females from 19.3 per cent to 17.6 per cent. In reality, this is of course impossible because this concerns sexual contacts *ever*, which can only increase. In this age group of young people aged 16-17, a sizeable increase should be expected, because this is the age group in which many have their first sexual experience. In a recent study among high-school students in Nairobi<sup>70</sup> a strong positive correlation was found between sexual contacts ever and age of respondents. The fact that respondents even report a *decrease* may very well indicate that an effect of the SE programme has been an increased reluctance to admit sexual experience. The decrease did not occur in the comparison group. The same tendency also occurred on the question about sexual experience in the previous 6 months. Both males and females reported fewer experiences after the programme, but the percentages of those who did not want to answer this question rose. The latter outcome may again be interpreted as an indication of increased reluctance to admit sexual activity.

The results on the question on the number of sexual partners could, probably for a similar reason, not be used because around two thirds of respondents refused to answer this question. This makes the outcomes too unreliable to perform further analyses.

### Condom use

For those who admitted they had been sexually active during the past six months, we looked at condom use. The numbers of respondents are small because the majority of them did not answer the question on sexual activity. Table 5-10 presents the results.

<sup>70</sup> Kabiru, C.W. and Orpinas, P. 2008. Factors associated with sexual activity among high-school students in Nairobi, Kenya. *Journal of Adolescence*, XX, 1-17.

Table 5-10: Condom use in the past six months among sexually active respondents (% yes)

Gender	Intervention group				Comparison group			
	Pre-test		Post-test		Pre-test		Post-test	
	%	N	%	N	%	N	%	N
Male	65.1	54	66.3	55	45.0	27	45.0	27
Female	64.8	35	64.8	35	50.0	3	16.7	1

These results are amazing in several respects. First, there is no change at all among male respondents, both in the intervention and comparison groups. This also holds for the female students; in the comparison group the numbers are too small to be meaningful. Second, there is a difference in the proportions of condom users between the intervention and control groups, which cannot be explained. And third, there are hardly any female respondents in the comparison group who answered the question in the pre- and in the post-test. The only conclusion that can be drawn is that sizeable proportions of respondents seem to use condoms. Similar results were found regarding use of oral contraception, although use of this method is much lower than condom use.

Although not as extreme as with condom use, similar outcomes as the ones presented in Table 5-10 were found on the variables 'ever had an STI' and 'ever been pregnant' (or 'ever made a girl pregnant' in the case of males).

### *Differences by age*

One potential explanation for the lack of significant results could have been that the average age of the respondents is quite advanced – almost 16.5 years in both groups. SE specialists usually recommend to start SE at much earlier ages, before young people start sexual activity. The same study in Thailand did result in many significant changes in the intervention group, and in that country the students were 12 to 14 years old. We therefore performed several analyses in the lower age bracket of the samples (15 years and below), to see whether in that group any significant changes took place between the pre- and the post-test. But these analyses also did not produce significant outcomes, so this hypothetical explanation also had to be rejected. It would have been surprising if this procedure had resulted in significant outcomes, because, given the fact that there are no changes in the entire group, significant *positive* changes in the younger age bracket would necessarily have meant there were significant *negative* changes in the older age bracket.

### *Quality of implementation of the WSWM programme*

SE programmes are often not implemented as planned, for a variety of reasons. In evaluation research, increasing attention is therefore paid to the quality (including completeness) of implementation. The WSWM programme in Kenya is an extracurricular one, which means in practice that it is often difficult to find time for implementing it. A process evaluation of the programme's implementation, conducted simultaneously with the outcome evaluation by Rutgers WPF and its Kenyan partner CSA, documents such problems. The main ones are indeed lack of time in general, and particularly strong competition for use of computer facilities, which are scarce and in high demand for many other purposes. In the outcome evaluation questionnaire a question has therefore been added on the number of lessons the students in the intervention group had eventually taken. Indeed, the results indicate that in many cases students were only subjected to part of the curriculum. On average, students in the intervention group turned out to have been subjected to only 56.6 per cent of the entire curriculum. The process evaluation in some cases found that especially some of the more sensitive lessons dealing with sexual behaviour and risk prevention tended to be skipped, because teachers sometimes find it difficult to handle them, although all of them have been trained for this purpose.

To test the potential impact of partial implementation of the curriculum, the intervention group was subdivided into three categories: 'adequate', 'moderate', and 'inadequate' implementation, based on the number of core lessons (those that deal with sexual behaviour and prevention of STI/HIV and unintended pregnancy) that the student had taken. This data was available for 71 per cent of the sample. The 'adequate' category included

661 students (44.9 per cent), 'moderate' included 342 students (23.2 per cent), and 'inadequate' included 468 students (31.9 per cent).

One example of the analyses that take quality of implementation into account is given below. It concerns the scale on risk perception in the intervention group related to having sexual intercourse.

Table 5-11: Scale on risk perception related to having sexual intercourse

	Participation in the programme	Mean	Standard deviation	N
Pre-test risk perception	Inadequate	3.5608	.80280	440
	Moderate	3.6227	.82895	325
	Adequate	3.6097	.81517	630
	<b>Total</b>	<b>3.5973</b>	<b>.81434</b>	<b>1395</b>
Post-test risk perception	Inadequate	3.5361	.82402	440
	Moderate	3.6526	.84111	325
	Adequate	3.6483	.77067	630
	<b>Total</b>	<b>3.6139</b>	<b>.80564</b>	<b>1395</b>

Table 5-12: Multivariate Tests<sup>b</sup>

	Effect	Value	F	Hypothesis df	Error df	Significance
Time	Pillai's Trace	.001	.818 <sup>a</sup>	1.000	1392.000	.366
	Wilks' Lambda	.999	.81 <sup>a</sup>	1.000	1392.000	.366
	Hotelling's Trace	.001	.818 <sup>a</sup>	1.000	1392.000	.366
	Roy's Largest Root	.001	.818 <sup>a</sup>	1.000	1392.000	.366
time * Participation	Pillai's Trace	.002	1.644 <sup>a</sup>	2.000	1392.000	.194
	Wilks' Lambda	.998	1.644 <sup>a</sup>	2.000	1392.000	.194
	Hotelling's Trace	.002	1.644 <sup>a</sup>	2.000	1392.000	.194
	Roy's Largest Root	.002	1.644 <sup>a</sup>	2.000	1392.000	.194

The results show that this risk perception decreased marginally in the 'inadequate' implementation group, whereas it did change somewhat in the expected direction in both the 'moderate' and the 'adequate' group. However, these differences are still far from being statistically significant (P=.194 in the combined analysis). Similar analyses were performed on several other outcome variables, but none of those produced statistically significant results either.

## Conclusions

Although there are no indications that the study has been designed and implemented sub-optimally, and although the sample sizes of the intervention and comparison groups are sufficiently large to have the potential to produce statistically significant results, those were not found. Two hypotheses were tested that could possibly explain this. One possible explanation could have been that the groups were rather old (almost 16.5 years) and for that reason expected changes in knowledge, attitudes, behavioural intentions and actual behaviour did not occur. The other hypothesis was that the WSWM curriculum was only partially and selectively implemented, and therefore could not have the expected impact. However, both those 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, so the conclusion that the programme would have no effect at all is not acceptable. 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 is badly needed, particularly qualitative research. One possible mechanism that should be explored could be the following one. The introduction of the SE programme stimulates a more open discussion in the entire school environment on adolescent sexual behaviour. This in turn reinforces and strengthens norm-setting by school authorities, and so makes the norm of abstinence for the students more explicit, which in turn makes students more fearful to admit in a questionnaire that they are sexuality active.

## 'Daku!' computer-based curriculum in Indonesia

### Selected country characteristics

Population size (millions)	238
% population <15 years	27%
Gross GDP per capita (US\$)	2,329
Net secondary school enrolment Male/female	M: 60% F: 61%
Overall HIV prevalence (%)	0.2
Teenage birth rate (per 1,000 15–19 years)	40

Map 6-1: Map of Indonesia



### Programme description

Contributions by: Siti Rokhmawati Darwisyah, Sri Kusyuniati, Hendri Hartati, Mardiati Nadjib, Dadun Mkes and Rita Damayanti

### Cost analysis

Contributions by: Hendri Hartati, Mardiati Nadjib and Dadun Mkes

## 6.1 Programme description

### Introduction

Indonesia is located in southeast Asia. It is the world's fourth most populous country, with a population of 238 million – 27 per cent of which are under 15 years old.<sup>71</sup> Gross domestic product per capita in Indonesia was US\$2,329 (IDR 24 million) in 2009<sup>72</sup> and the country is ranked 108 in the UNDP's Human Development Index.<sup>73</sup>

Although there are hardly national data that show the reproductive health (RH) situation of young Indonesian people, numerous small-scale studies to assess the RH status of Indonesian adolescents indicate that Indonesian adolescents and young people, especially female, are vulnerable to many reproductive health problems. These include early marriage, premarital sex, unintended pregnancy and abortion, pregnancy and

<sup>71</sup> Badan Pusat Statistik. *Projections based on results of the 2000 Population Census*. <http://dds.bps.go.id/eng/>. (Accessed 2 May 2011).

<sup>72</sup> International Monetary Fund. April 2010. *World Economic Outlook Database*. <http://www.imf.org/external/pubs/ft/weo/2010/01/weodata/index.aspx> (Accessed 2 May 2011).

<sup>73</sup> United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

delivery complications, as well as reproductive tract infections (RTIs) and sexually transmitted infections (STIs), including HIV/AIDS.

SE is not given formally at school and talking about sex in public is taboo.<sup>74</sup> There is a widespread misconception that information on RH and sexuality would encourage sexual activity – as a result, Indonesian adolescents in general are lacking accurate and complete information on sexuality and RH. They mostly obtain information from their peers or media, which is not always accurate or adequate. This leads to risks of infections and unintended pregnancies among sexually active adolescents, and to an inability to seek timely and effective care and treatment. Although some efforts have been made by NGOs and institutions/agencies to provide RH information for adolescents, most of the information has been distributed with unclear and unfocused messages, especially when talking about sexuality.

## Development of the Daku! Curriculum

DAKU! or Dunia Remajaku Seru! (My Youth is Fascinating!) is a computer-based curriculum which combines IT skills-building and creative expression with sexual health and rights education. It follows the principles of three combined approaches: adolescents' development, behaviour change, and the human rights-based approach.

Figure 6-1: Digital Peer Educators of Daku!



Daku! was initially adapted from an award-winning programme, The World Starts With Me (WSWM), which was developed in 2001–2003 for young people in Uganda by the World Population Foundation and Butterfly Works. As well as Indonesia, WSWM was also adapted in Kenya, South Africa, Thailand and Vietnam.

The adaptation process in Indonesia was started in Jakarta in 2005, in collaboration with a local NGO, Pelita Ilmu Foundation. To support a literature study on policies on youth, sexuality education, reproductive health and HIV/AIDS in Indonesia, small focus group discussions (FGD) with students and teachers were conducted by Pelita Ilmu Foundation to assess the need for a comprehensive sex education programme. They also showed the WSWM module to the group to get their opinion on it. The FGD results showed that both students and teachers had relatively inadequate knowledge and negative attitudes regarding the sexuality and reproductive health of young people in Indonesia. On the other hand, they had positive opinions about the module and appreciated having an Indonesian version of it.

In February 2005, a working group consisting of both teachers and students, and an advisory board consisting of the main stakeholders (the Indonesian Ministry of Education, the Jakarta AIDS Committee, the Family Planning Association, religious leaders and other local NGOs), was established. With the support from the advisory board, the working group was responsible for reviewing the WSWM programme and developing

<sup>74</sup> Bennett, L.R. 2007. Zina and the enigma of sex education for Indonesian Muslim youth. *Sex Education*, Vol. 7, No. 4, pp. 371–386.

a draft that was tailored to the Indonesian (youth) culture, context and language. Specially trained in the principles underlying WSWM, the working group took six months to complete the adaptation process.

After adaptation, nine teachers were trained to pilot the draft curriculum. The teacher training consisted of four main components: Adolescent Reproductive Health and Rights (ASRH), basic computer skills, basic facilitating skills, and training on facilitating the Daku! curriculum. The pilot of the Daku! module took place in three senior high schools in Jakarta, and 60 students in total participated.

In 2006, following revisions based on the result of the pilot, the Daku! programme was first implemented in three senior high schools in Jakarta for one semester (six months). In the same year, Daku! was also introduced in three other provinces: Jambi, Lampung and Bali. The first two provinces are in Sumatra, while the last one is in Bali. As in Jakarta, WPF Indonesia collaborated with local NGOs to implement and monitor the programme in each province: Mitra Aksi Foundation in Jambi, PKBI Lampung in Lampung, and PKBI Bali in Bali. Based on the input from the pilot and first implementation in Jakarta, in the middle of 2006 it was decided to implement the Daku! curriculum in the first grade.

There was strong demand from the advisory board and the working group to include sessions on stress and drug abuse in the module, as those are relevant issues for young people in high schools in Indonesia. These were added in 2008, meaning Daku! has 15 lessons, where the original WSWM programme had just 14.

In 2007, Daku! was also adapted for three different target groups: boys in prisons, deaf students, and blind students. For boys in prison, the module is called Seru!, for deaf students it is Maju!, while for blind students it is Langkah Pastiku. In January 2010, the same adaptation process was started for high school students in Papua.

## Objectives and target groups

The programme aims to empower young people not only by imparting vital information, but also by facilitating the development of appropriate attitudes, guiding participants towards healthy and responsible behaviours, and promoting valuable life skills, such as communication and negotiation skills, and assertiveness.

The Daku! curriculum in Indonesia is provided for senior high school students aged 15 to 17. For practical reasons it was decided to provide the module for 2<sup>nd</sup> grade students. Some schools also implement the programme in the 1<sup>st</sup> grade.

The programme aims to empower young people not only by imparting vital information, but also by facilitating the development of appropriate attitudes.

## Position in wider curriculum

The Daku! programme is an extracurricular activity. The need to use computers to teach the module makes it a difficult subject for the main curriculum, as computer facilities in schools are not sufficient to cater for all students. On the other hand, students in the focus group discussion before the project started and students in the working group suggested that using computers would be the best way to attract young people to learn about sexuality and reproductive health issues. The result of providing the curriculum as an extracurricular activity is a limited number of students who can join the programme. In one batch (one year), the programme can only reach 20 to 60 students in one school, out of around 500 students in total.

In 2007, advocacy for the adoption of Daku! in the regular curriculum intensified in the hope that the programme could reach more schools and students. Each province has a specific target: Jakarta, Lampung and Jambi aim to integrate the Daku! programme as an option in the 'local content'<sup>75</sup> subject into the school curriculum; in Bali, where it is not possible to add more options to the 'local content' subject, advocacy is

<sup>75</sup> 'Local Content' is one subject in the high school curriculum. Unlike other subjects, the Ministry of Education does not provide schools with specific substance or material. The decision of which theme to be taught in this subject is up to each school. For the Daku! programme, this is seen as an opportunity to integrate the Daku! module into the school curriculum.

focusing on the acceptance of the Daku! programme as an official extracurricular activity, with funding from local government.

## Characteristics of curriculum

Daku has 15 lessons (in comparison to the original model based on 14 lessons), set up in a logical sequence of themes to guarantee the efficacy of the curriculum:

Lessons 1 to 3 lay the foundation for decision-making by building self-esteem, getting insight into one's own sexual development (puberty and adolescence) and exploring the processes of developing individual autonomy, values and norms.

Lessons 4 to 6 shift the focus to the social environment. Decreasing dependency on parents is addressed, while mapping young people's own social relationships is used to get insight into how young people develop their own value system, and role modelling of life skills. Cultural and political influences in the environment are explored and students learn to take a position by swapping gender roles and becoming empowered through sexual and reproductive rights.

Lessons 7 to 12 address sexual health problems, while maintaining a positive perspective of sexuality as a vital source for life. Learning to communicate openly and discuss sexual health risks related to pregnancy, STIs and HIV/AIDS are supported by strengthening personal decision-making on one's own sexual behaviour and learning to respect the decisions of a partner. Respecting the rights to self-determination, to physical and mental integrity and to protection and health care is the core value in addressing stigma, sexual harassment and abuse.

Lessons 13 to 15 are used for planning the future, goal setting and learning to share these goals with peers and community. The curriculum is completed by inviting parents and community members to an exhibition displaying the results of the classes' work – slogans, posters, action plans, peer books, etc.

Each lesson starts with a theme-based warm up, followed by a presentation by Mira and Adit, the virtual peer educators, who guide students through their own learning process. The next step is often a game (like the body-change game, personality game, who's responsible game, safe sex quiz, etc) which helps students internalize information or explore opinions. The final step and the main part of most lessons is the assignment. The assignment is always a creative 'do' activity, e.g. the students have to create a storyboard, art work or participate in a role play.

Teachers are expected to conduct class assignments and games to help students internalize and apply this information, explore opinions and exercise skills.

Teachers are expected to conduct class assignments and games to help students internalize and apply this information, explore opinions and exercise skills. Instead of lecturing, Daku! teachers are process facilitators. They encourage young people to input into lessons, develop their own attitudes and make their own choices.

## Teachers

Despite their important role in education, teachers are rarely involved in the distribution of reproductive health information to adolescents. They often lack the competence and commitment to teach these topics in an already overcrowded and examination-driven curriculum, and little or no training for them in this area has been provided. Guidance for them is frequently inadequate. Nevertheless, teachers play a major role in the Daku! programme. As the facilitator of the module, their qualification determines the success in achieving its objectives.

A range of support is provided for teachers. To become a Daku! facilitator, teachers receive training, and during the implementation of the module in class, they also receive assistance from local NGO staff – although they are not allowed to intervene in the facilitation process in class. Local partners also hold regular meetings (once monthly to once per three months) where teachers can share experiences and gain input or suggestions for issues they face during facilitating the curriculum. Furthermore, reading material is also available for teachers, which provides more detailed information related to the issues/lessons in the module.

Each school is advised to have two to three teachers trained to be Daku! facilitators. The headmaster holds the decision on which teachers should be involved. However, with the list of criteria set by the local partner, the headmaster usually assigns biology, counselling, or physical health teachers.

## 6.2 Cost analysis

### Introduction

This section reports on the costs of the SE programme in Indonesia. We answer the following questions: i) What are the costs of the adaptation of the programme? ii) What are the annual costs of implementing the programme in a school, reaching a student or training a teacher?

### Methods

Chapter 3 provides a detailed description of the costing methodology as applied in all study countries. This section describes the methods that are unique to Indonesia, including the sources of costing data. We report on how we calculated i) programme coverage; ii) costs of the adaptation phase; iii) costs of the implementation phase; iv) annual costs by school, teacher trained and learner reached, and v) scale-up scenarios. All costs are grouped in five standardized costs categories: teaching salaries, teaching materials, advocacy, training, and operations. Historical cost data were adjusted for inflation (annual inflation rates can be found in Appendix 12.2). Costs are presented in 2009 US dollars (US\$), Indonesian rupiah (IDR) and Euros (€). Costs in IDR were translated to US\$ at a rate of 10,386<sup>76</sup> and from Euros to US\$ at a rate of 1.59.<sup>77</sup>

### *Timeline and coverage*

We summarized key milestones of the Daku! programme in a timeline, which was used to support programme costing. The programme coverage information was based on WPF's records on schools implementing Daku! and actual number of students who have completed the curriculum.

### *School survey*

A school survey was carried out to find out how the SE programme is being implemented and what the school-level costs were in school year 2009/2010. At the end of 2009 Daku! was being implemented in 77 schools.<sup>78</sup> We selected ten schools implementing the programme well: three in Jakarta city, and three in both Jambi and Lampung provinces. The selection of 'good schools' was based on opinions of WPF staff. Interview appointments were arranged with a teacher responsible for teaching the topic, and an interviewer travelled to the province to interview the teacher in school. The interviews were based on a structured interviewer-administered questionnaire and the results of the survey were used as inputs for the programme costing. School survey summary can be found in Appendix 12.3.

<sup>76</sup> The World Bank, average annual exchange rate IDR-USD 2009

<sup>77</sup> The World Bank, average annual exchange rate EUR-USD 2009

<sup>78</sup> WPF 2010, adjusted for 17 schools which have stopped teaching Daku!.



## *Adaptation phase*

The original Ugandan version of World Starts with Me (WSWM) software was adapted for the Indonesian context in 2005. Financial records of WPF were used for calculating the adaptation costs.

## *Implementation phase*

The first students started the SE curriculum in 2006, and this year was used as a cut-off point between the adaptation and implementation phases. We used financial records of WPF Indonesia and WPF Netherlands, and results of the school survey for calculating the implementation costs. The teaching salaries category included only the SE programme-related portion of gross salaries of teachers<sup>79</sup> (including applicable tax, social and pension contributions). The SE programme-related portion of teachers' salaries was calculated by dividing their annual working hours by their annual Daku!-related working time. Teachers' time spent on organization of the exhibition at the end of the curriculum was excluded, because these activities were not seen as SE teaching. Teaching materials costs included: i) design and development of materials and production of software and manuals, and ii) the Daku!-related portion of schools' computer costs, which was calculated by dividing the annual number of computer class hours by the annual number of Daku! computer hours. Advocacy costs relate to working group meetings, workshops, exhibitions, campaign activities and launching events in new schools. Training costs relate to training of master trainers and teachers. Since 2005, 281 teachers have completed the Daku! teacher training package. Costs of programme evaluation in 2009 were excluded, because the evaluation was not seen as an integrated component of the SE programme. Routine monitoring and evaluation was categorized as operation costs. The operation costs include also: gross salaries of WPF's programme staff<sup>80</sup>, fees of individual consultants, office costs for WPF and four local NGO partners, transport and communication. Finally, we separated Daku! programme costs of WPF and the Ministry of Education to illustrate budget impact of the SE programme for the ministry.

In 2008 a lesson on stress management and drugs was added to Daku!. Because the change was minor we decided that the addition alone would not qualify as a programme update. These costs were included in the material costs. Furthermore, cost of the adapted Daku! versions for deaf, blind, and boys in prisons were excluded as they are outside of focus of this study. Finally, costs of the new adaptation process for high school students in Papua in 2010 were excluded, because the costs had not yet materialized.

## *Annual costs per school, trained teacher and learner reached*

The cost calculations per district, school, learner reached and learning hours were based on annualized costs in 2009. The annualized programme costs include: the costs of implementation, plus a certain share of the programme development costs and programme updates costs – the latter reflecting that its use is not limited to the year it is paid for, but also beyond that. We assumed a useful life of programme adaptation costs to be 5 years and annualized these costs accordingly. We defined a learner reached here as a student who was in the programme in 2009. A SE leaning hour was defined as 45 minutes of a student's time in a computer class. For calculation of cost per teacher trained we considered the total training costs over the whole programme period, and divided this by the total number of trained teachers. We did not consider a single year only, because the number of trained teachers fluctuates considerably over time.

<sup>79</sup> Indonesia school survey 2010.

<sup>80</sup> Financial records of WPF Indonesia.

## Scale-up scenarios

Daku! is currently a pilot programme. Therefore we made three alternative programme scale-up scenarios for the period 2010–2014. Objectives of the scenarios were to: i) demonstrate how scaling up the programme influences total costs and cost per learner reached, and ii) compare costs of different ways to expand the programme in the Indonesian context. The purpose was not to address practical challenges of expansion of the programme.

We used the following approach for the scale-up cost projections: i) annual costs of 2009 were divided into fixed and variable costs for each of the scenarios. These were then used as cost inputs for the calculations; ii) projections on number of schools and students reached were made for the three scenarios; iii) then the cost inputs and the coverage projections were combined, and cost forecasts for the period 2010–2014 were made. The future costs were calculated as 2009 US\$ and IDR and were therefore not discounted. In addition we calculated costs per learner reached in 2014 by dividing annualized costs in 2014 by the projected numbers of students in the programme in the same year.

In the first scenario our objective was to demonstrate what large-scale expansion of the programme would cost and how it would change the cost per learner reached. We assumed the Ministry of Education would make a decision to introduce Daku! as a mandatory part of the curriculum in one province. This hypothetical province was assumed to have 223 eligible schools,<sup>81</sup> which would have 54,000 students on grade one. The programme would be introduced in 45 schools per year. In total 300 schools would be covered in 2014. Daku! would be an intra-curricular subject and therefore would cover all the students in the new schools. Uptake in the current school would remain unchanged at 5.8 per cent of all students. We assumed the Ministry of Education to be responsible for implementation and management of the programme and WPF's role would be limited to training of teachers and providing the Daku! software. Even though substantial expansion of the programme may not be currently realistic we wanted use this scenario to illustrate how larger scale-up with 100 per cent uptake would influence the costs.

In the second scenario we wanted to demonstrate how increasing programme uptake in the schools that are currently covered would influence the cost. We assumed voluntary uptake of Daku! to gradually increase from the current 5.8 per cent to 33 per cent of all students in grades one, two and three in 2014. In the long run, this would mean that all students in the schools would be reached as there are three grades. The programme would not be expanded to any new schools or geographic areas.

In the third scenario the objective was to estimate costs if the programme continued to grow at the same pace as during the period 2006–2009. We assumed Daku! would be introduced in 20 new schools per year in the current four districts where the programme is being implemented. Uptake of the extracurricular programme was assumed to remain at 5.8 per cent of all students in grades one, two and three.<sup>82</sup>

**Our objective was to demonstrate what large-scale expansion of the programme would cost and how it would change the cost per learner reached.**

## Results

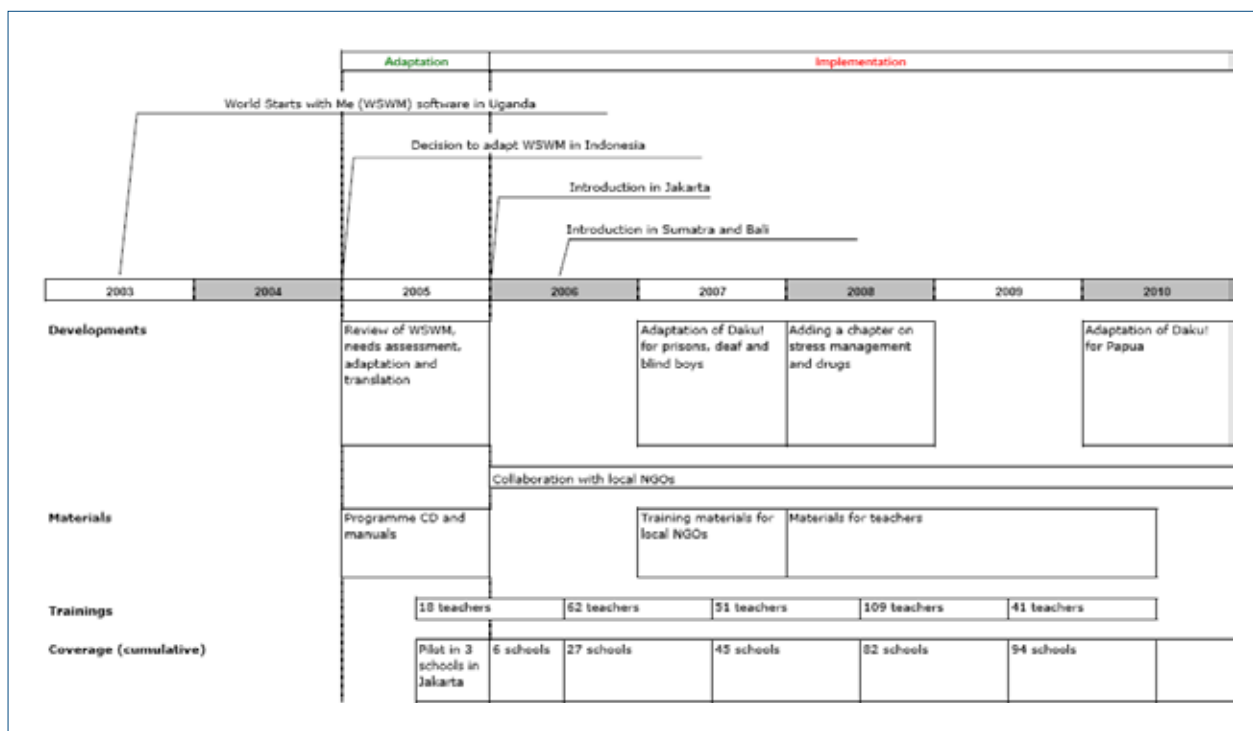
### Timeline and programme coverage

We summarized the Indonesia SE programme in a timeline (Figure 6-2). The programme timeline provides an overview of key milestones of the SE programme. Firstly, we distinguish two programme phases: adaptation in 2005 and implementation 2006–2009. The programme has not been updated. Second, key decisions are shown under the programme phases. Third, timing of key developments, materials, teacher trainings and coverage changes can be found below the year line.

<sup>81</sup> The number of new schools (223) was selected to cumulate in total 300 schools at the end of 2014 (77 current schools + 223 new schools) and to ensure better comparability with WSWM programme where 300 schools were also used in scenario 1

<sup>82</sup> Indonesia school survey 2010. Grades 1, 2 and 3 because Daku! students come from all grades.

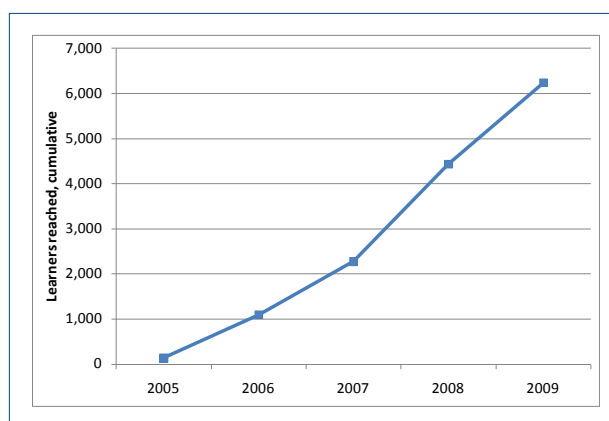
Figure 6-2: Timeline of Sexuality Education programme in Indonesia 2003–2009.



\* Cumulative schools that have started teaching Daku!

Figure 6-3 illustrates the cumulative number of learners reached during the period 2005–2009.<sup>83</sup> Implementation of Daku! started in six senior high schools in Jakarta in 2006. In the same year, the programme was also introduced to the three other provinces. During the next two years approximately 1,000 new students per year completed the programme. Later in 2008 the programme was expanded to cover approximately 2,000 students per year. At the end of 2009 the SE curriculum had been taught to 6,240 students.

Figure 6-3: Cumulative learners reached in Indonesia 2006–2009



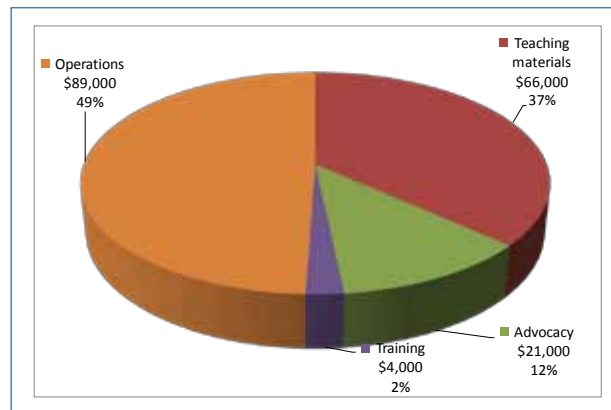
<sup>83</sup> WPF Indonesia's records on the number of students completing Daku! programme 2010.

## Economic costs

### Programme adaptation

How much did it cost to adapt the Ugandan WSWM programme to Indonesia? The total adaptation costs were US\$180,000 (IDR 1.9 billion). The adaptation costs in Indonesia were US\$106,000 (IDR 1.1 billion) and in the Netherlands US\$73,000 (€46,000). A breakdown of the total adaptation costs is shown in Figure 6-4. The largest cost group was operations (49 per cent), which included office and travel costs, and salaries of WPF staff. The second largest cost component was teaching materials (37 per cent), which relates to adaptation and testing the software, while 12 per cent were related to advocacy activities, and 2 per cent to training.

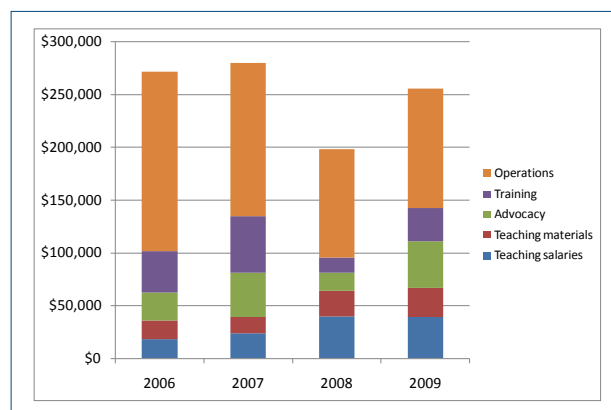
Figure 6-4: Adaptation cost of Daku! programme in 2005 in US\$



### Programme implementation

How much did it cost to implement Daku!? The total implementation costs were US\$1 million (IDR 9.8 billion) from 2006–2009. Annual implementation costs are shown in Figure 6-5. During the first two years of implementation, annual costs remained at around US\$270,000 (IDR 2.7 billion). Year 2008 was lower because of funding shortages of WPF. In 2009 annual implementation costs rose to US\$256,000 (IDR 2.4 billion).

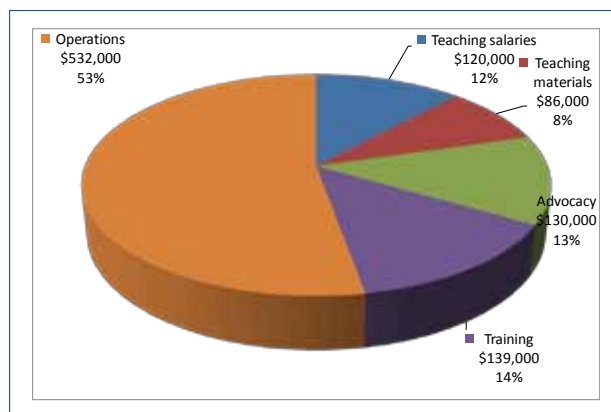
Figure 6-5: Annual implementation costs 2006–2009 in US\$



A breakdown of the total implementation costs 2006–2009 is shown in Figure 6-6. Operation costs were the largest cost component at US\$532,000 (IDR 4.9 billion) (53 per cent). This relates to salaries of WPF staff and WPF and partner NGOs' office costs, international and domestic travel. The second largest cost group was training at US\$139,000 (IDR 1.4 billion) (14 per cent), with 13 per cent related to advocacy activities at US\$130,000 (IDR 1.3 billion). A further 12 per cent was used for teaching salaries at US\$120,000 (IDR 1.3 billion). The low portion of teaching salaries is a result of the relatively small scale of the pilot programme.

In 2009, 180 teachers were teaching Daku!<sup>84</sup> Our school survey showed that the teachers on average spent 3.9 per cent of their annual working time teaching and preparing Daku! Lessons.<sup>85</sup> <sup>86</sup> The same portion of teachers' annual gross salary was then allocated as salary cost of SE. Teachers' average monthly gross salary was US\$276 (IDR 2.9 million).<sup>87</sup> Teaching material costs accounted for 8 per cent, which is US\$86,000 (IDR 0.9 billion).

Figure 6-6: Implementation costs 2006–2009 in US\$



### *Budget impact for the ministry of education*

Figure 6-7 illustrates how the cost of the Daku! programme has been divided between WPF Indonesia, WPF Netherlands and the Ministry of Education: 77 per cent of the costs were covered by WPF Indonesia; 12 per cent were support costs of WPF Netherlands; and 11 per cent were Ministry of Education costs at the school level. WPF Indonesia is the organizer of the programme and therefore bears the cost of adaptation, WPF personnel, training, advocacy, and operations. The role of WPF Netherlands relates to technical support, especially at the beginning of the programme. The Ministry of Education's costs include Daku! related portions of teachers' salaries and school computer costs, and teaching material costs. Due to the relatively small size of the programme, the portion of the Ministry of Education's costs is small. Of these costs, the ministry incurs costs of teacher salaries and school computers in the absence of the Daku! programme. Therefore, in the current programme setting, where WPF is the organizer, Daku! has only a minor budget impact for the Ministry of Education. If the programme is scaled up the portion of the ministry's costs will increase.

What would be the budget impact for the Ministry of Education if it covered all programme costs? To answer this question, we only consider the incremental costs, i.e. costs in addition to the teacher salary costs that are already a regular expense of the Ministry of Education. If the ministry covered costs of WPF Indonesia and WPF The Netherlands, the Daku! programme would involve a budgetary outlay of US\$127.89 (IDR 1.3 million) per learner completing the curriculum.

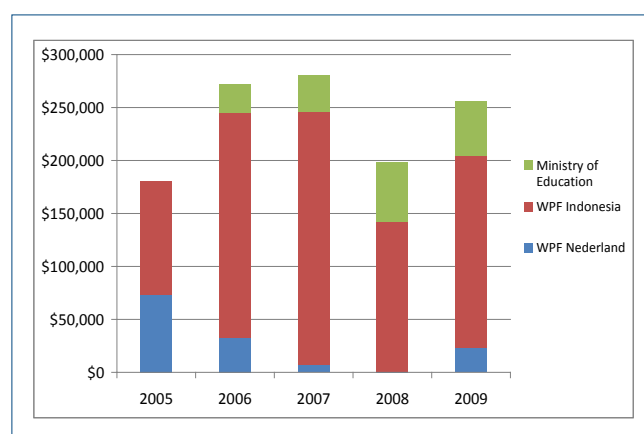
<sup>84</sup> Indonesia school survey 2010, adjusted for 17 schools that have stopped teaching Daku!.

<sup>85</sup> Indonesia school survey 2010.

<sup>86</sup> The share of working time that teachers spent on SE programme is an important input to the costing analysis, but not an indication on the relative efficiency of the programme. The reason for this is that this share depends on the number of teachers that happen to be involved in SE programmes at school level, and this can vary considerably between schools for many reasons.

<sup>87</sup> Indonesia school survey 2010.

Figure 6-7: Breakdown of Daku! programme costs 2005–2009 in US\$



### Cost per school, learner reached, learning hour and teacher trained

Table 6-1 shows the cost per school, learner reached, learning hour and teacher trained. Annualized costs of 2009 were used for calculating costs: per school, learner reached and learning hour. Annualized costs amounted to US\$289,000 (IDR 3 billion) in 2009. Cost per school was US\$3,750 (IDR 38.9 million). Cost per learner reached and completed one-year Daku! programme was US\$159,93 (IDR 1.7 million). Costs per SE learning hour were US\$5.37 (56,000 IDR). In the period 2005–2009, total training costs were US\$143,000 (IDR 1.5 billion) and costs per trained teacher were US\$509 (IDR 5.3 million).

Table 6-1: Cost per school, learner reached, learning hour and teacher trained in Indonesia in 2009

Unit	Annualized cost	Number of units	Cost per unit
School	US\$289,000	77 <sup>88</sup>	US\$3,750
Learner reached			
– per year	US\$289,000	1,805 <sup>89</sup>	US\$159,90
– completed curriculum <sup>†</sup>		1 year	US\$159,90
Learning hour	US\$289,000	53,800 <sup>90</sup>	US\$5.37
Teacher trained	US\$143,000 <sup>††</sup>	281 <sup>91</sup>	US\$509

† Since the curriculum lasts one year, the costs per learner reached is equal to cost per learner who completed the programme

†† Refers to total training costs in the period 2005–2009

### Scale-up scenarios

How would scaling up the programme influence total costs and cost per reached student? What would be the cost impacts of different ways of scaling up Daku! in the Indonesian context? Figure 6-8 and Figure 6-9 show cumulative learners reached and cumulative total costs for each of the scenarios, as an extension of the situation at the end of 2009.

<sup>88</sup> WPF Indonesia 2010, adjusted for schools that have stopped teaching Daku!.

<sup>89</sup> WPF Indonesia 2010.

<sup>90</sup> Calculations based on: i) number of Daku! lessons taught (Indonesia school survey 2010), and ii) number of learners reached in 2009.

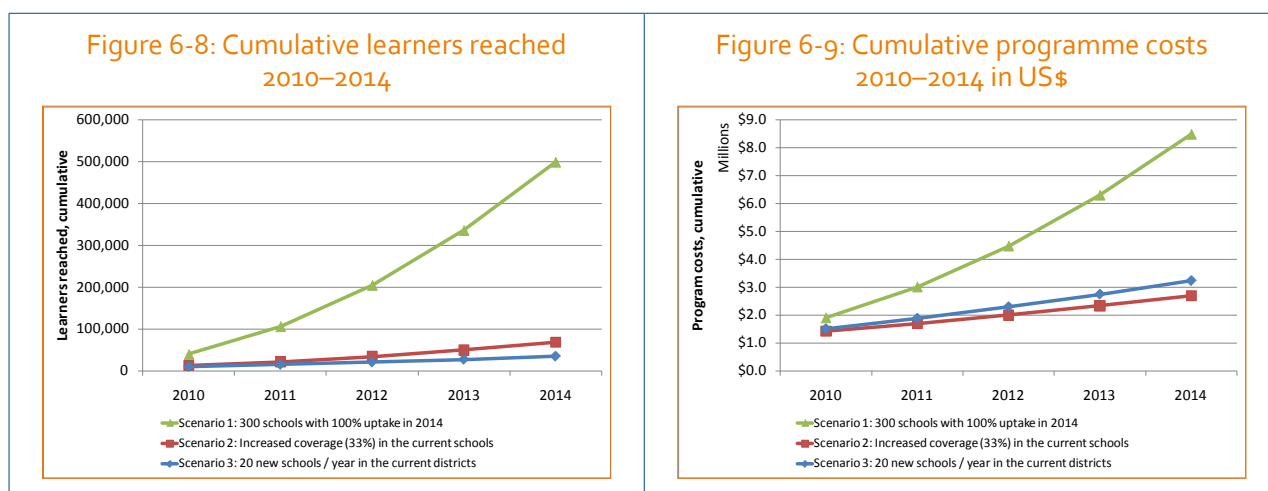
<sup>91</sup> WPF Indonesia 2010, training records.



In the first scenario we assumed that the Ministry of Education in a province would introduce Daku! as a part of their curriculum. This hypothetical province was assumed to have 223 eligible schools, which would have 56,000 students in grade one. The programme would be introduced in 45 new schools per year. This would cumulate to 300 schools in 2014.<sup>92</sup> Daku! would be a mandatory topic and 500,000 students would have been reached by the end of 2014. The total costs of this alternative would be US\$8.5 million (IDR 88 billion) and the cost per learner reached would be US\$13.40 (IDR 139,000) in 2014.

In the second scenario, voluntary uptake in the current 77 schools was assumed to increase from 5.8 per cent of all students in 2009 to 33 per cent in 2014. In this scenario, 68,000 students would have been reached in 2014 and the total costs would have cumulated to US\$2.7 million (IDR 28 billion) and the cost per learner reached in 2014 would be US\$19.80 (IDR 205,000).

In the third scenario we assumed Daku! would be introduced in 20 new schools per year in the current four provinces. Voluntary uptake would remain at the current 5.8 per cent of all students in grades one, two and three. In total there would be 177 Daku! schools at the end of 2014.<sup>93</sup> Daku! would have been taught to 35,000 students and the total costs would be US\$3.2 million (IDR 34 billion)<sup>94</sup> and the cost per learner reached in 2014 would be US\$65.60 (IDR 681,000).



## Limitations of costing analysis

This programme costing has some limitations. Firstly, the schools survey was carried out in schools that are implementing the Daku! programme well. Consequently, the results represent a situation where all Daku! schools would be implementing the programme equally well. This means that the school-level costs are likely to overestimate the real costs of the SE programme in the country. However, as discussed in Methods, Chapter 3, we deliberately do so, as our estimated costs best reflect the resources needed to run an effective programme. Second, costing was based on WPF’s financial records on a budget line level, and therefore detailed unit-level cost assessments were not always possible. Third, the scale-up scenarios are subject to uncertainty and are based on how the Daku! programme was being implemented in 2009. Practical challenges with the expansion of the programme or unseen operational changes cannot be taken into account. Therefore the results of scale-up scenarios should be used as trend indicators, not as precise numbers. Finally, the costing results and scale-up scenarios are subject to uncertainty and are sensitive to changes of the main cost drivers.

<sup>92</sup> The number of new schools (223) was selected to cumulate in total 300 schools at the end of 2014 (77 current schools + 223 new schools) and to ensure better comparability with WSWM programme where 300 schools were also used in scenario 1.

<sup>93</sup> 100 new schools and 77 current schools.

<sup>94</sup> Financial costs, including adaptation and implementation.

## Sensitivity analysis

We performed one-way sensitivity analysis with minimum and maximum values of respectively -20 per cent and +20 per cent around the point estimate for a number of selected parameters (see Chapter 3). Results show that our costing analysis is sensitive to a number of parameters. Whereas our point estimate shows a cost of US\$159,90 per learner reached (completed curriculum), this value differs when we use alternative values for the percentage of teachers' Daku!-related working time (range from US\$155.60 to US\$164.30), teachers' salaries (US\$155.60 to US\$164.30) and number of Daku! teachers per school (US\$155.60 to US\$164.30).

In the first scenario, cost of per learner reached was US\$13.40. This value varied with alternative values of the percentage of Daku! uptake (US\$14.80<sup>95</sup>), teachers' salaries (US\$12.70 to US\$14), for the percentage of teachers' Daku!-related working time (US\$12.70 to US\$14) and the number of new schools (US\$13 to US\$13.90). In the second scenario the cost per learner reached was US\$19.80 and varied with the percentage of Daku! uptake (US\$18.40 to US\$21.80), teachers' salaries (US\$19 to US\$20.50) and the percentage of teachers' Daku!-related working time (US\$19 to US\$20.50). And finally, in the third scenario, the cost per learner reached was US\$65.60, varying with school size and percentage of Daku! uptake (US\$55.90 to US\$80), teachers' salaries (US\$63.30 to US\$67.90), percentage of teachers' Daku!-related working time (US\$63.30 to US\$67.90) and number of new schools (US\$63.80 to US\$67.80).

## Discussion

The Daku! programme has been implemented in Indonesia, where sexuality, and therefore SE, is a sensitive issue. The sensitivity of the issue is one of the reasons why the programme is NGO-initiated and extracurricular – it does not require explicit acceptance of government. The advantage is that major concessions to a comprehensive curriculum content can to some extent be prevented (unlike in some other study countries). The disadvantage is that the programme in its current form, also beyond its pilot phase, may only be able to achieve relatively small coverage, and is therefore relatively expensive. Yet, an important asset of the Daku! programme is that it stimulates the discussion on SE in Indonesia, and as such may be an important first step towards the development of national SE programmes across the country.

The total costs of the SE programme, including adaptation and implementation, were US\$1.2 million (IDR 12.3 billion) from 2005–2009. Of this, 85 per cent were implementation costs and the remainder were adaptation costs (15 per cent). The cost per learner reached equals some US\$160 (IDR 1.7 million) and is relatively high in comparison to that of SE programmes in other study countries. This is largely explained by the combination of low coverage of Daku! and its high operational costs. On the former, Daku! is a pilot programme and has a limited coverage – in 2009 some 1,800 students were reached. On the latter, Daku! is implemented by a non-governmental organization (WPF Indonesia), and supported by an international organization (WPF Netherlands), and hence involves relatively high salary and international travel (operation) costs in the pilot phase. Moreover, the programme is implemented through local NGOs in each province. This arrangement facilitates access to new areas, but also increases operation costs. In addition, because the programme is geographically spread out, coordination activities by WPF Indonesia require relatively high travel costs. Operation costs constitute more than half of the implementation cost per learner reached (53 per cent), whereas this is less than one-sixth in other countries in this study (except Kenya). As a consequence, the cost per student reached would diminish considerably if the programme grew beyond the pilot phase and were scaled up, as shown in scenario one. However, it is not clear to what extent Daku!, in its current form as a stand-alone programme, can operate at a large scale – it may need to be integrated in the national curriculum to achieve that.

Third, Daku! is a computer-based SE programme and this has several implications for the cost of the SE programme. Most importantly, schools have a limited number of computers available (25.5 computers per school) and uptake in schools (42 students per school) is therefore constrained. The constrained uptake leads to relatively high teachers' salary costs per student reached, and efficiency gains are difficult to realize (the costs of the present computers were included in the costing analysis to the extent they were used

<sup>95</sup> One side only, because 120% is not possible.

by the programme. If additional computers are purchased for the SE programme, their cost will be fully levied on the programme). In terms of learning materials, computers do not appear to be more expensive than printed materials in programmes in other studies. Furthermore, the implementation of computer-based programmes in a low-tech environment may create challenges at the operational level (e.g. electricity ruptures and maintenance) as well as challenges to the scaling up of the programme (implementation depends on the availability of computers in schools).

Fourth, Daku! is based on voluntary enrolment of students and this may also explain the low uptake in schools. Fifth, social, cultural and language differences within the country require additional adaptation of the programme and therefore increase costs of expanding the programme. Sixth, WPF is one of the pioneers of SE programmes in Indonesia, and this is reflected in the relatively high advocacy costs (13 per cent of total costs).

The cost per student reached in the Daku! programme is high in comparison to the similar WSWM programme in Kenya (also evaluated in this report), and there are a number of explanations. Firstly, coverage in the Daku! programme is lower than in Kenya (in 2009: 1,800 versus 7,300 students) which results in relatively high costs per student reached of national-level activities. Second, in Indonesia, the class size is smaller (Daku! 30 versus WSWM 44 students), and third, in Indonesia, fewer students share a computer (Daku! 1.4 versus WSWM 3.9 students per computer). This offers some scope for efficiency gains at school level in Indonesia.

In our scale-up scenarios, the cost per learner reached fell considerably. If the Ministry of Education implements Daku! in 300 schools and achieves (mandatory) full coverage (scenario one), costs per learner reached falls to US\$13.40 (IDR 139,000). Large-scale expansion seems to be the most efficient way of scaling up the programme in the Indonesian context. Increasing the uptake of Daku! from 8 per cent to 33 per cent of students in the current schools (scenario two) seems also to be an efficient way of scaling up the programme. Cost per learner reached would then fall to US\$19.80 (IDR 205,000). Introduction of Daku! in new schools, while maintaining the current 5.8 per cent voluntary uptake, (scenario three) would also reduce cost per student reached, but not to the same extent. The scenario analyses clearly show that if the Daku! programme were implemented on large scale as a compulsory topic, it would be much cheaper per student reached. The scenario analyses also show that increasing the programme uptake in schools is economically more attractive than introducing the programme to new schools with the current low, voluntary uptake.

In our scale-up scenarios, the cost per learner reached fell considerably.

Since salary costs are already a regular expense of the Ministry of Education, the budget impact for the ministry – if it ran the Daku! programme – would only be the incremental costs. These equal US\$160 (IDR 1.7 million) per learner completing the curriculum. In comparison to programmes in other countries, these costs are relatively high because the programme is only its pilot phase (and therefore has a relatively low coverage, and high operation and training costs). Indonesia spent US\$531 (IDR 5.5 million) per learner on secondary education (2009 prices).<sup>96</sup> Budgetary outlays would thus constitute some 30 per cent of current expenditure per student in secondary education.

<sup>96</sup> UNESCO. 2011. *EFA Global Monitoring Report 2011*. Paris, UNESCO.

## School-based sexuality education programme in Orissa State, India

### Selected country characteristics

Population size (millions)	1,190
% population <15 years	30%
Gross GDP per capita (US\$)	1,031
Net secondary school enrolment Male/female	M: 59% F: 49%
Overall HIV prevalence (%)	0.3
Teenage birth rate (per 1,000 15–19 years)	68

Map 7-1: Map of India and Orissa state



### Programme description

Contributions by: Sanghamitra Pati, Minakshi Panda and Debi Prasad Nayak

### Cost analysis

Contributions by: Debi Prasad Nayak, Sanghamitra Pati and Minakshi Panda

## 7.1 Programme description

### Country background information

India is the second most populous country in the world, with an estimated 1.19 billion people,<sup>97</sup> 30 per cent of whom are under 15 years old. Gross domestic product (GDP) per capita in India was US\$1,031 (47,881 Indian rupees – INR) in 2009<sup>98</sup> and the country is ranked 119 in the UNDP's Human Development Index.<sup>99</sup> It has a multi-ethnic and multicultural population and is made up of 28 states and seven Union Territories. Orissa State is on the east coast of India, on the Bay of Bengal. It is the fourth poorest state in India, with GDP per capita of US\$471 (INR 21,783)<sup>100</sup> and the 11<sup>th</sup> largest state by population, with 40.7 million in habitants.<sup>101</sup> Adolescents comprise one-fifth of the total population, making them a priority target group for health promotion.

<sup>97</sup> *Indian Population Clock*, retrieved 27 January 2010. [http://www.medindia.net/patients/calculators/pop\\_clock.asp](http://www.medindia.net/patients/calculators/pop_clock.asp) (Accessed 2 May 2011).

<sup>98</sup> International Monetary Fund. April 2010. *World Economic Outlook Database*.

<sup>99</sup> United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

<sup>100</sup> Government of India. 2008. *States of India by gross domestic product for the year 2006-2007*.

<sup>101</sup> Government of India. 2001. *List of States and Union territories by population: 1991 and 2001*. <http://www.scribd.com/doc/24453044/List-of-States-and-Union-Territories-of-India-by-Population> (Accessed 2 May 2011).

After the International Conference on Population and Development (ICPD) recommendations in Cairo (1994), which changed the perception of population issues throughout the world, 'adolescent education' emerged as a separate priority in its own right, particularly in response to the need to impart education on adolescent reproductive and sexual health (ARSH) to school students. In India, the National Curriculum Framework (1988) of the National Council for Education, Research and Training (NCERT) New Delhi, had included 'responsible sexual behaviour' and 'respect for the opposite sex' as general objectives for school education. However, no substantial steps were taken to realize these objectives till the 1990s.

## Development of sexuality education curriculum

### *National level development, 1998–2001*

With the growing problem of HIV/AIDS, the importance of school-based SE was felt as an acute need and a National Population Policy was developed along the lines of the ICPD Programme of Action. The first step was the formation of a National Population Education Project (NPEP) to undertake the development, implementation, monitoring and evaluation of this programme through state-level implementing institutions. This population project resulted from the policy decisions of UNFPA, the Ministry of Human Resource Development, Government of India and NCERT, New Delhi. They identified states and districts as the Integrated Population & Development Project (IPD) districts for a pilot intervention. NCERT took up an initiative to formally and systematically develop a School-based Adolescent Education programme during 1998–2001. The programme was initiated on a pilot basis in six IPD states: Orissa, Gujarat, Madhya Pradesh, Maharashtra, Rajasthan and Kerala.

### *Piloting in Orissa state, 2001–2002*

In Orissa, the pilot project on Skills Building in Adolescent Education under the NPEP was launched in 2001–2002. The project was implemented in four IPD districts: Koraput, Malkangiri, Nawarangpur and Rayagada. The pilot project was entrusted to the State Council of Training, Research and Education (SCERT), the state level body of NCERT. A State Population Education Cell (SPEC) was established under the aegis of SCERT, comprising resource persons from various disciplines. SPEC, in collaboration with Teacher's Education Colleges, IPD officials, district educational administrators and officers, and community representatives took up the responsibility of implementing the pilot project in the four above-mentioned IPD districts.

The project was formally launched on 6 May 2002 by identifying blocks and schools on a purposive data-sampling basis for the effective implementation of the pilot project. Two blocks from each IPD district and three schools per block were included.

The students in classes 8 to 10 (13 to 16 years) in the pilot schools were the target population. Student participation was compulsory. For the programme, school-based, co-curricular activities were employed. The classes were held during school hours, with a special schedule devoted to them (4 hours per week). It was included as part of the curriculum over a period of 4 years. The scheme of content was developed under three major components: growing up and sexuality, HIV/AIDS and drug abuse. One of the teachers in each pilot school was female. The Project Directorate and Project Officer visited the project schools from time to time for monitoring and appraisal. At the end of the project, an evaluation study was conducted, incorporating both pre-intervention and post-intervention tests. The study results were compiled for each district and the state report was prepared by a team of researchers appointed by the Population Education Cell of the Directorate of Teacher Education and SCERT.

### *Interim period, 2003–2006*

As a result of socio-cultural conflicts and political opposition, the project was not implemented at a wider scale after piloting. In 2005, the Reproductive and Child Health programme (RCH) with a broader objective of improving maternal and child health was initiated by the Government of India. Adolescence education was



merged with the RCH programme, while the sexual and HIV/AIDS and drug abuse modules were taken up by National AIDS Control Organization (NACO) and Orissa State AIDS Control Society (OSACS).

### *Present status, 2007–2014*

With the creation of the National Rural Health Mission (NRHM), the RCH programme became a part of the NRHM in 2007. NRHM Orissa took up an initiative in 2008 to reintroduce Adolescent Reproductive and Sexual Health education (ARSH) through a combined participation of health sector, educational institutes and community leaders.

### *Development of ARSH curriculum*

Needs assessment studies were carried out by NRHM during 2007–2008 in various schools. Discussions with teachers and parents were held to get an understanding of adolescents' existing knowledge, including their unique needs and concerns, and knowledge of changes they undergo during adolescence. It served as a prerequisite for programme planning and provided a comprehensive situational analysis. The results provided useful in designing the mode of training and preparation of resource materials for adolescent education by the NRHM. A general framework of ARSH education was subsequently developed for adaptation by the selected states.

Three major components were emphasized:

- 1) Conceptualisation of ARSH as adolescent education and defining it in the specific Indian social and cultural context.
- 2) Preparing curriculum content suitable for addressing the critical concerns of adolescents and to ensure it corresponded with the content of existing school curricula at different stages.
- 3) Identifying curriculum strategies (educational methods) suited to the specific needs of this new curricular area.

Discussions with teachers and parents were held to get an understanding of adolescents' existing knowledge, including their unique needs and concerns, and knowledge of changes they undergo during adolescence.

### *Objectives of ARSH*

The general objectives of the programme at the national level are as follows:

- To find out the level of awareness of adolescents and teachers of the process of growing up, HIV/AIDS and drug abuse.
- To understand the level of skills of adolescents in relation to thinking and communication, and teachers in relation to communication, being non-judgmental and empathetic.
- To provide a training programme to upgrade the awareness and skills of teachers and adolescents through co-curricular activities at school level.
- To provide knowledge to students about ARSH, including HIV/AIDS and drug abuse through the curriculum.
- To inculcate healthy attitudes towards ARSH issues among adolescents, promoting respect for the opposite sex and responsible sexual behaviour.
- To develop necessary skills to cope with and manage ARSH issues and problems, and to understand the implications and consequences of HIV infection and drug abuse.
- To build the capacity of teachers and health workers in ARSH through educational interventions.



## Major Curricular Content Areas

The NCERT curriculum framework is being used as the guiding tool for preparing students' learning materials. Taking into account the previous needs assessment studies and socio-cultural context of India, a content scheme for adolescence education was developed based on the following considerations.

The selection of content should focus on critical concerns of adolescent reproductive health not covered by existing syllabi at different stages of school education. The contents to be identified and selected should meet the specific needs of adolescents of various cultural settings and be in harmony with positive Indian socio-cultural values, and with existing school syllabi.

A broad scheme of content was prepared that could be tailored for the different states. It set out specific staged objectives, content outlines and subjects or courses, into which course content could be integrated. Since all the contents of adolescent education may not be adequately covered by the existing subject syllabi, the scheme of content also suggested certain student activities.

The scheme of content has been developed under the three major components, as follows:

- **Process of growing up and sexuality:** growth and development of adolescents such as physical, emotional and social aspects of growth (including development of secondary sex characteristics, e.g. male facial hair), relationships between adolescents and parents, peer groups and the opposite sex, socio-cultural implications of being an adolescent, gender issues during adolescence.
- **HIV & AIDS:** the concept of AIDS, causes and consequences of HIV & AIDS, preventive measures, individual and social responsibilities, responsibility towards people living with HIV & AIDS, prevention of the spread of HIV.
- **Drug abuse:** what are drugs, drug abuse, preventive measures, treatment, rehabilitation of drug addicts, and individual and social responsibilities.

The contents to be identified and selected should meet the specific needs of adolescents of various cultural settings and be in harmony with positive Indian socio-cultural values, and with existing school syllabi.

## Approaches

To implement this programme, two broad approaches were adopted: i) integration of the adolescent education concepts in school subjects in a systematic and phased manner; ii) dissemination of adolescent education contents in a catchy and suitable manner through a set of co-curricular activities.

Three major supplementary strategies are to be adopted to reinforce the approaches: i) interaction through co-curricular activities; ii) teacher counselling; iii) health worker counselling.

## School-Based Activities

The students in classes 7 to 10 [13 to 16 years] in the state high schools are the target population. Student participation is compulsory.

## Curricular Components

The contents are introduced from class 8 to 10 through incorporation into the students' text books. The chapters are made a part of the biology section of the science book. The contents are translated by the State Board of Secondary Education in consultation with NRHM and SCERT. In class 8, one chapter is on the process of growing up, gender, sexuality and importance of adolescent sex education. In class 9, two chapters are on the reproductive system (female and male). In class 10, two chapters are devoted to HIV/AIDS and STIs, safe sexual behaviour and healthy sexuality.

For each topic, 10 to 12 classes (each of 45 minutes) are allotted. The science teacher is entrusted with the teaching activity in the school. Simultaneously, school-based co-curricular activities are to be carried out by the teachers. Schools are at liberty to take up a number of activities on their own by incorporating the concepts of adolescent education. The teacher on social studies will remain in charge of the co-curricular activities. The following teaching methods are mentioned: question box, group discussion, debate, value clarification, role play, quiz competition, essay competition, case studies and painting/poster competitions.

Orientation and skill building of teachers will be done by the master trainers who are trained by state NRHM. The science teacher of every high school is the nodal person for implementing ARSH in their particular school.

### *Implementation plan in Orissa state*

Workshops were held in 2009 at state NRHM to adapt the materials for use in training and various activities in schools in Orissa. In these workshops a team of experts from various fields (public health, psychology, sociology, education) made a detailed inventory of resource materials developed by NRHM-Delhi. The team translated and developed a training package for the trainers in ARSH, keeping in view the socio-cultural context of Orissa. This guide was intended to serve as a resource book in the training programme of teachers. The programme involves both the school health division and the ARSH section of the state rural health mission. Two coordinators, one from school health and one for ARSH, are the state contact people in the implementation of the programme.

### *Training in ARSH and the implementation process*

The programme is being implemented in phases. Orissa is made up of 30 districts, and five districts are being taken up each year, starting from 2009 (training and capacity building of trainers and teachers) followed by school-level implementation (started in 2010). The districts are taken up according to RCH indicators. Primary care physicians and district coordinators for NRHM (master trainers) are being trained in stages, as per the programme implementation plan. In 2009–2010 and 2010–2011, resource people (including teachers and health workers) from ten districts were identified to become master trainers, undergoing capacity building training in relation to ARSH by an expert team comprising representatives from NRHM-Delhi and state-level experts. All government high school science teachers in each district will be trained at district headquarters by physicians, and every school in the district will have a one-day orientation programme to sensitize all teachers (advocacy). The health workers will undergo an orientation programme at their respective health centre to facilitate community participation and mobilization in ARSH.

## 7.2 Cost analysis

### Introduction

This section reports on the costs of the SE programme in Orissa State, India. We answer the following questions: i) What are the costs of the development of the programme? ii) What are the costs of updating the programme? iii) What are the annual costs of implementing the programme? iv) What are the costs per school, reaching a student or training a teacher?

## Methods

Chapter 3 provides a detailed description of the costing methodology as applied in all study countries. This section describes the methods that are unique to India, including the sources of costing data. We report on how we calculated i) programme coverage; ii) costs of development phase; iii) costs of update phase; iv) costs of implementation phase; v) annual costs by school, teacher trained and learner reached; and vi) scale-up scenarios. All costs are grouped in five standardized costs categories: teaching salaries, teaching materials, advocacy, training, and operations. Historical cost data were adjusted for inflation (annual inflation rates can be found in Appendix 12.2). All costs are presented in 2009 US dollars (US\$) and 2009 Indian rupees (INR). Costs in INR were translated to US\$ at a rate of 48.42.<sup>102</sup>

### *Timeline and coverage*

We summarized key milestones of the SE programme in a timeline, which was used to support programme costing. The programme coverage information was based on NRHM's programme implementation plan 2010–2014. Students reached during piloting of the programme were excluded from the analysis.

### *School survey*

Implementation of the ARSH programme started in autumn 2010, after data collection for this study. Therefore it was not possible to carry out a school survey in Orissa. Calculation of school-level implementation costs were based on interviews with NRHM staff working at central and local level, NRHM's programme implementation plan in the state, interviews with master trainers and teachers during training, and on the cost of development and production of training guides.

### *Development and update phases*

The programme development phase included: i) programme development at the national level and, ii) state-level piloting in Orissa. On the national level, a school-based adolescent education programme was developed by NCERT in New Delhi during 1998–2001. Financial records of NCERT were used for calculating the national-level development costs. The programme was initiated as a pilot in six IPD states, one of them Orissa. Therefore we allocated 17 per cent of the development costs for Orissa State.

At state level the programme was piloted in four IPD districts of Orissa during 2001–2002. Financial records of SCERT were used for calculating the piloting costs in Orissa. Due to socio-cultural conflicts and political opposition, the SE programme stopped after the pilot. During the following interim period 2003–2006, SE was hardly taught, and we excluded these costs for the analysis.

The NRHM took up an initiative to reintroduce ARSH in Orissa State. The SE programme was updated and adapted for the socio-cultural context in Orissa during the period 2007–2009. Financial records of NRHM were used for costing of the update phase.

### *Implementation plan*

Implementation of the ARSH programme started in autumn 2010. NRHM has a concrete plan and funds available for scaling up the programme. As a result of the short implementation history of the programme, costing was based on a hypothetical situation where the programme would be scaled up according to the NRHM plan 2010–2014. The plan is to: i) introduce the programme in five new districts per year, ii) cover all the high schools in the new districts in the year of introduction, and iii) reach all students in grades eight, nine and ten.

<sup>102</sup> The World Bank, 2010, average annual exchange rate USD–INR in 2009. <http://go.worldbank.org/S1B1CLCQU0> (Accessed 2 May 2011).

We used NRHM's annual budgets of 2010 and interviews of NRHM staff, master trainers and teachers for projecting the implementation costs. Staff costs included the SE programme-related portion of gross salaries of teachers<sup>103</sup> and NRHM's programme personnel (including applicable tax, social and pension contributions). The SE programme-related portion of teachers' salaries was calculated by dividing their annual working hours by their annual SE-related working time. Materials costs included cost of teachers' guides, programme handouts and student text books. The portion of SE-related topics in the student text books (17 per cent) was used as proxy for students' SE material costs. Advocacy costs relate to meetings, workshops and outreach activities. Training costs relate to training of master trainers and teachers. Operation costs include transport, office costs, communication and routine monitoring of the programme. Programme evaluations have not been planned yet.

### *Annual costs per district, school, learner reached and trained teacher*

The cost calculations per district, school, learner reached and learning hours were based on projected annualized costs in 2014. The annualized programme costs include: the costs of implementation, plus a certain share of the programme development and update costs – the latter reflecting that its use is not limited to the year it is paid for, but also beyond that. We assumed a useful life of programme development costs to be 10 years, and update costs five years. We annualized these costs accordingly. We defined a learner reached as a student who is in the programme in 2014. A SE leaning hour was defined as 50 minutes of students' time in a classroom. For calculation of cost per teacher trained we used: i) the projected number of required teachers, and ii) projected total training costs over the period 2010–2014. We did not consider a single year only as the number of trained teachers is likely to fluctuate over time.

We assumed a useful life of programme development costs to be 10 years, and update costs five years. We annualized these costs accordingly. We defined a learner reached as a student who is in the programme in 2014.

### *Scale-up scenarios*

Three alternative programme scale-up scenarios were made for the period 2010–2014. The objective of the scenarios was to demonstrate how different levels of programme coverage would influence total costs and cost per learner reached in the Orissa context. The purpose was not to address practical challenges of expansion of the programme.

We used the following approach for the projections: i) annual costs of 2010 were divided into fixed and variable costs. These were then used as cost inputs of the scenarios; ii) the 2010 cost inputs were adjusted for inflation to their value in 2009; iii) NRHM's programme implementation plan was used as a starting point for three different scenarios; iv) the cost inputs were then combined with the coverage scenarios and financial cost forecasts for the period 2010–2014 were made. The future costs were calculated as 2009 US dollars and Indian rupees, and were therefore not discounted. In addition we calculated costs per learner reached in 2014 by dividing *annualized* costs in 2014 with the projected numbers of students in the programme in the same year.

In the first scenario the ARHS programme was assumed to be scaled up according to the NRHM plan. The curriculum would be implemented in five new districts each year and cover all high schools in the districts. In 2010 the first five districts were: Anugul, Cuttack, Nayagarh, Ganjam and Koraput. Together these districts have 1,455 high schools and 280,000 students in grades 8, 9 and 10. In 2011 the next five districts are: Gajapati, Rayagada, Malkangiri, Nawarangpur and Sonepur. These districts are smaller and have in total 345 schools and 70,000 students in grades 8, 9 and 10. The order in which the remaining districts will be introduced during 2012–2014 has not been decided yet. Therefore we used five times the average number of schools in the remaining districts for years 2012–2014. This equals 1,253 new high schools with 214,000

<sup>103</sup> NRHM. 2009. *The Programme Implementation Plan of NRHM 2010–2011*. NRHM Orissa India.

students in grades 8, 9 and 10 each year. In the second scenario we assumed the programme to be introduced in five new districts per year (as in the first scenario), but to cover 75 per cent of the high schools. In the third scenario we assumed the curriculum would also be introduced in five new districts, but reach only half the high schools.

**Results**

*Timeline and programme coverage*

We summarize the Orissa SE programme description in a timeline (Figure 7-1). The programme timeline provides an overview of key milestones of the SE programme. Firstly, we distinguish three programme phases: development, 1998–2003; update, 2007–2009; and implementation, 2010–2014. Second, key decisions are shown under the programme phases. Third, timing of key developments, materials, teacher trainings and coverage changes can be found below the year line.

Figure 7-1: Timeline of sexuality education programme in Orissa state, India 1998–2014

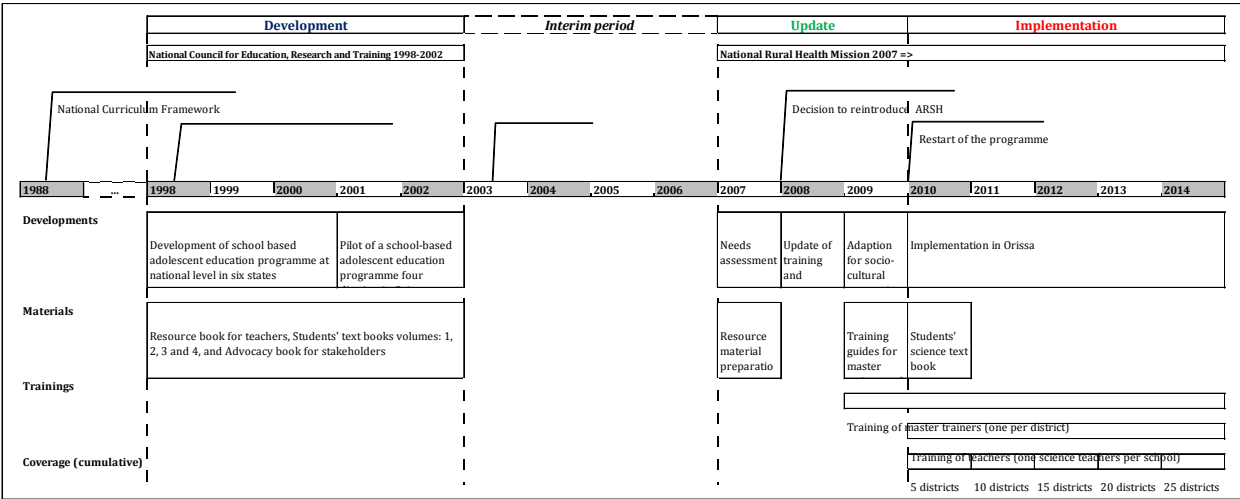
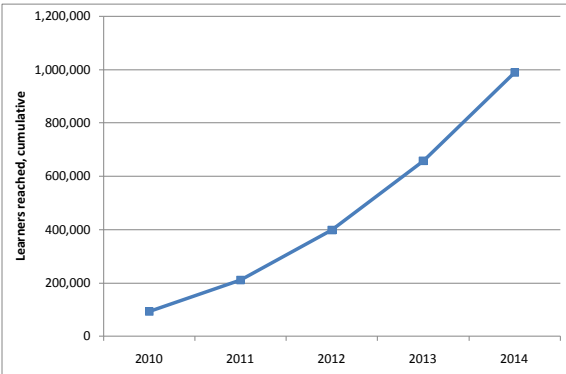


Figure 7-2 illustrates the projected cumulative number of learners reached during the period 2010–2014. The projection is based on NRHM’s plan to implement the programme in five new districts each year and cover all the high schools in the districts. At the end of 2014 the SE programme would have reached 990,000 high school students in classes 8, 9 and 10.

Figure 7-2: Projected cumulative learners reached in Orissa state, India 2010–2014

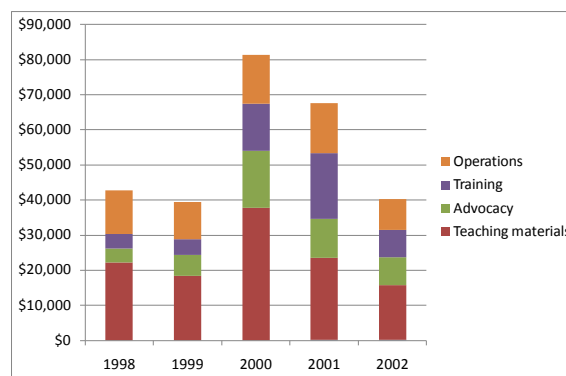


## Economic costs

### Programme development

How much did it cost to develop the SE programme? Orissa State's portion of the total national-level development costs was US\$164,000 (INR 7.9 million) in 1998–2000, and the state-level piloting costs were US\$108,000 (INR 5.2 million) in 2001–2002. In total, programme development costs were US\$271,000 (INR 13.1 million). Annual costs for 1998–2002 are shown in Figure 7-3. The largest cost was for teaching materials (43 per cent). The second largest cost component was for operations (22 per cent) while 18 per cent of costs were related to training. A further 17 per cent went towards advocacy activities.

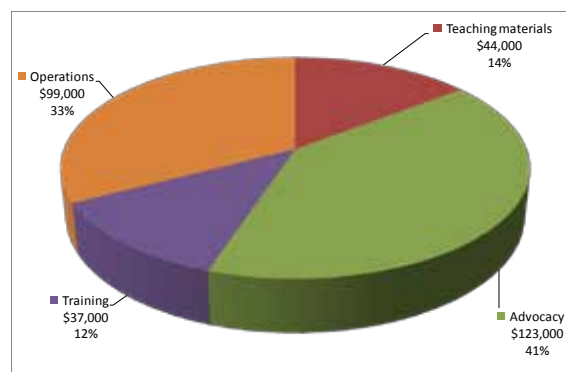
Figure 7-3: Annual development costs of the sexuality education programme (1998 to 2002) in US\$



### Programme update

How much did it cost to update the SE programme in Orissa? The update took place in 2007–2009. The total update costs were US\$303,000 (INR 14.7 million). A breakdown of the total update costs is shown Figure 7-4. The largest cost group were advocacy activities (41 per cent). These costs were composed of series of advocacy meetings at state, district and community levels, which prepared for the reintroduction of the SE programme. The second largest cost component was for operations (33 per cent) while 14 per cent of costs related to teaching materials. A further 12 per cent were used for training.

Figure 7-4: Update costs of the SE programme (2007–2009) in US\$

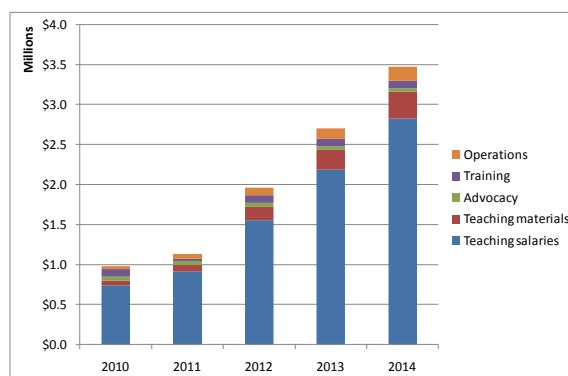




## Programme implementation plan

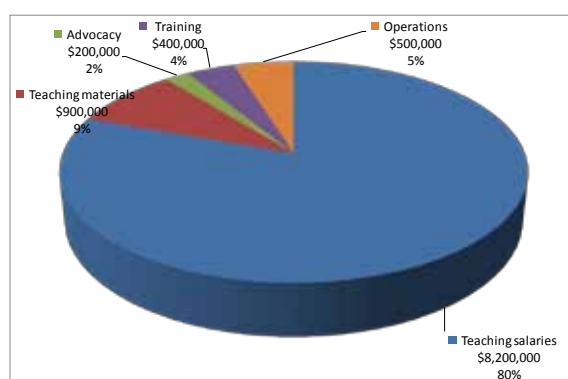
How much would it cost to implement the ARSH programme in Orissa State? The total implementation costs of NRHM's scale-up plan were projected to be US\$10.2 million (INR 496 million) in the period 2010–2014. Annual implementation costs are shown in Figure 7-5. When the programme is being scaled up, the annual costs would increase from US\$980,000 (INR 47 million) in 2010 to US\$3.47 million (INR 168 million) in 2014.

Figure 7-5: Annual implementation costs (2010–2014) in US\$



A breakdown of the total implementation costs 2010–2014 is shown in Figure 7-6. Salary costs are the most important cost component. It was projected that 5,560 science teachers would be required for the full-scale implementation in 2014. High school teachers' average monthly gross salary was US\$298 (INR 173,000).<sup>104</sup> It was estimated that science teachers would, on average, spend 12.7 per cent of annual working time on teaching and preparing SE lessons. The same portion of their annual gross salary was then allocated as a teaching salary cost of the ARSH programme. Total salary costs of the SE teachers were projected to be US\$8.2 million (INR 398 million), which is 80 per cent of the total implementation costs. Teaching materials accounted for US\$900,000 (INR 43 million) (9 per cent). Operation costs totalled US\$500,000 (INR 24 million) (5 per cent). Training costs were US\$400,000 (INR 20 million) (4 per cent), and finally US\$200,000 (INR 12 million) (2 per cent) was spent on advocacy.

Figure 7-6: Projected implementation costs (2010-2014) in US\$



<sup>104</sup> NRHM. 2009.

## Cost per school, learner reached, learning hour and teacher trained

Table 7-1 shows the cost per school and learner reached, learning hour taught, and teacher trained. Annualized costs for 2014 were used to calculate costs per school, learner reached and learning hour. These costs were projected to amount to US\$3.5 million (INR 174 million). Cost per district and school would respectively be US\$175,000 (INR 8.5 million) and US\$630 (INR 31,000). Cost per learner reached and completed 3-year ARSH curriculum were projected to be US\$4.49 (INR 218) and US\$13.47 (INR 654) respectively. Costs per SE learning hour were US\$0.40 (INR 19). In the period 2010–2014, total training costs were projected to be US\$407,000 (INR 19 million) and costs per trained teacher were US\$73 (INR 3,500).

Table 7-1: Cost per school, learner reached, learning hour and teacher trained in India

Unit	Annualized cost	Number of units	Cost per unit
District	US\$3,502,000	201 <sup>105</sup>	US\$175,000
School	US\$3,502,000	5,560 <sup>106</sup>	US\$630
Learner reached			
– per year	US\$3,502,000	780,000 <sup>107</sup>	US\$4.50
– completed curriculum		3 years	US\$13.50
Learning hour	US\$3,502,000	8,765,000 <sup>108</sup>	US\$0.40
Teacher trained	US\$407,000†	5,560 <sup>109</sup>	US\$73

† Refers to total training costs in the period 2010–2014

The budgetary outlay required for the SE programme, i.e. costs in addition to the teacher salary costs that are already a regular expense of the Ministry of Education, equal US\$2.52 (INR 122) per learner completing the curriculum in India.

### Scale-up scenarios

How would scaling up the programme influence total costs and cost of reaching a student? Figure 7-7 and Figure 7-8 show cumulative number of learners reached, and cumulative total costs for each of the three scenarios during the period 2010–2014.

Scenario one is the same as the baseline scenario. In scenario two we assumed the programme would be introduced in five new districts each year, but cover 75 per cent of the districts' high schools. In this scenario, 742,000 students would be reached and the total costs would have cumulated to US\$8.4 million (INR 406 million) at the end of 2014. The cost of reaching one student (completed curriculum) would be US\$13.67 (INR 662) in 2014. In scenario three we assumed the curriculum would also be introduced in five new districts each year, but reach only 50 per cent of the high schools in those districts. As a result the programme would have reached 495,000 students and the total costs would cumulate to US\$5.9 million (INR 287 million) by the end of 2014. The cost of reaching one student would be US\$14.05 (INR 680) in 2014.

The most important finding here is that the cost per learner reached would not increase considerably, even if only half of the high schools were reached. The programme would still be implemented on such a large scale that the cost per learner reached would remain low.

<sup>105</sup> NRHM. 2009. *The Programme Implementation Plan of NRHM 2010–2014*. NRHM, Orissa, India.

<sup>106</sup> Government of Orissa, Department of School and Mass Education, 2010. Number of high schools in the 20 districts.

<sup>107</sup> Calculations based on: i) NRHM ARSH programme scale-up plan 2010–2014 and ii) Government of Orissa, Department of School and Mass Education, projected number of high school students.

<sup>108</sup> Calculations based on: i) number of SE lessons in the ARSH curriculum and ii) projected number of students in 2014.

<sup>109</sup> NRHM ARSH programme scale-up plan 2010–2014, training one ARSH teacher per high school.

Figure 7-7: Cumulative learners reached (2010–2014)

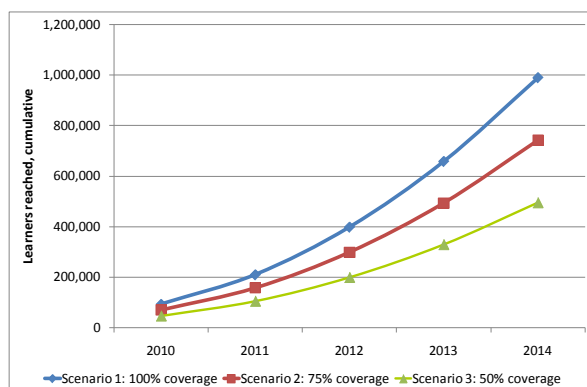
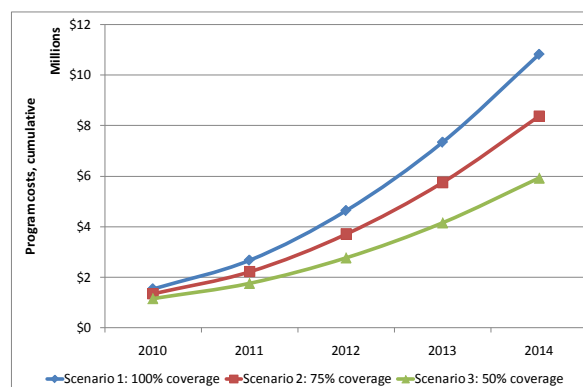


Figure 7-8: Cumulative programme costs (2010–2014) in US\$



### Limitations of costing analysis

This programme costing has some limitations. Firstly, costing was based on NCERT and NRHM's complex national and state-level budgets and financial records. Therefore detailed unit level cost assessments were most of the time not possible. Secondly, the costing of the implementation phase was based on a hypothetical situation where the programme would be scaled up according to the NRHM plan 2010–2014. The scale-up scenarios are based on assumptions on how an ARSH programme would be implemented, and are subject to uncertainty. Therefore the results of scale-up scenarios should be used as trend indicators, not as precise numbers. Finally, the costing results and scale-up scenarios are subject to uncertainty and are sensitive to changes in the main cost drivers, e.g. programme coverage, the share of working time that teachers spend on the SE programme, their gross salaries and class size. Sensitivity analysis will be done to assess these uncertainties.

### Sensitivity analyses

We performed a one-way sensitivity analysis with minimum and maximum values of respectively -20 per cent and +20 per cent around the point estimate for a number of selected parameters (see Chapter 3). Results show that our costing analysis is sensitive to a number of parameters. Whereas our point estimate shows a cost of US\$13.50 per learner reached (completed curriculum), this value differs when we use alternative values for teachers' salary (US\$11.31 to US\$15.66), their SE-related working time (US\$11.31 to US\$15.66) and class size (US\$11.67 to US\$16.21).

In the second scenario the cost per learner reached was US\$13.67 and varied with teachers' salary (US\$11.49 to US\$15.84), their SE-related working time (US\$11.49 to US\$15.84) and class size (US\$11.86 to US\$16.39). And finally, in the third scenario, the cost per learner reached was US\$14.05 and varied with teachers' salary (US\$11.87 to US\$16.22), their SE-related working time (US\$11.87 to US\$16.22) and class size (US\$11.86 to US\$16.39).

### Discussion

The SE programme in Orissa State is in its early implementation phase, and our analysis reflects the planned implementation strategy in the years to come. The programme is being implemented in a country where sexuality, and therefore SE, is a sensitive issue. The SE programme initially failed because of moral opposition, thereby causing some ten years of delay and related loss of investments. The restart of the programme required careful planning and a wide variety of costly advocacy and public education activities. The SE programme is now up and running without major concessions to a comprehensive curriculum content, and plans to become a fully scaled up, integrated intra-curricular programme at relatively low cost – this may hold important lessons for other countries that wish to develop such a programme.

The cost of developing and updating the SE programme was US\$575,000 (INR 27.8 million). As programme implementation only started in autumn 2010, our costing analysis reflects the projected 5-year implementation costs. We estimated that, if the programme is rolled out according to NRHM's plan, the implementation costs would be US\$10.2 million (INR 496 million) in the period 2010–2014. Implementation costs thus constitute the largest proportion (95 per cent) of total costs, and development and update costs are only a fraction (5 per cent). The SE programme would reach a cumulative number of 990,000 students in the period considered. Of the implementation costs, teachers' salaries were the most important component and accounted for 80 per cent. Interestingly, 41 per cent of the update costs were related to advocacy activities. This is because gaining the acceptance of parents, school staff and the community was a prerequisite for the reintroduction of the SE programme, which was stopped earlier because of considerable opposition. The projected cost per learner reached equals US\$13.50 (INR 645), and is relatively low in comparison to that of SE programmes in other study countries. The main reason is that the ARSH programme is an integrated component of the high school curriculum in Orissa State, which has several advantages. Firstly, it is implemented on a large scale, planning to reach 780,000 students in 2014. This obviously reduces costs per student of national and state-level activities, such as programme development and updates. Second, because of its integrated and therefore mandatory nature, the programme covers a high proportion of students per school, and as such reduces school-level costs per student, such as teachers' salaries. The programme is implemented in class sizes of around 45 students, which seems acceptable in terms of quality of implementation (although no standards are available on this). Our scenario analyses show that, even if the programme scale-up were not to be as successful as NRHM expects, the cost per learner reached (completed curriculum) is likely to remain relatively low; US\$13.67 (INR 662) and US\$14.05 (INR 680) if the programme eventually reaches 75 per cent and 50 per cent of high school students respectively.

Since salary costs are already a regular expense of the Ministry of Education, the budgetary outlay for the ministry for running this programme equals US\$2.52 (INR 122) per learner completing the curriculum. As a comparison, India spent US\$473 (INR 22,900) per pupil on secondary education (2009 prices).<sup>110</sup> Budgetary outlays would thus constitute some 0.5 per cent of current expenditure per student in secondary education.

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<sup>110</sup> UNESCO. 2011. *EFA Global Monitoring Report 2011*. Paris, UNESCO.

## School-based sexuality education programme in Estonia

### Selected country characteristics

Population size (millions)	1.3
% population <15 years	15%
Gross GDP per capita (US\$)	14,267
Net secondary school enrolment Male/female	M: 90% F: 92%
Overall HIV prevalence (%)	1.3
Teenage birth rate (per 1,000 15–19 years)	21

Map 8-1: Map of Estonia



### Programme description

Contributions by: Kai Part, Kai Haldre, Eva Palm and Raul Kiivet

### Cost analysis

Contributions by: Eva Palm, Kai Haldre, Kai Part and Raul Kiivet

### Impact evaluation

Contributions by: Kai Haldre and Kai Part

### Cost-effectiveness analysis

Contributions by: Kai Haldre

## 8.1 Programme description

### Country Background Information

Estonia, the northernmost of the three Baltic countries, was an independent republic from 1918 up to the occupation by the USSR in 1940. In 1991, Estonia regained its independence. Estonia has a population of 1.34 million, of which 15 per cent are under 15 years old.<sup>111</sup> There is a large ethnic minority – 69 per cent of the population are Estonian and 31 per cent non-Estonian (mainly ethnic Russians). Gross domestic product

<sup>111</sup> Statistics Estonia stat.ee, 2010.

per capita was US\$14,267 (160,267 Estonian crowns – EEK) in 2009,<sup>112</sup> and the country is ranked 34 in the UNDP's Human Development Index.<sup>113</sup>

Estonia has mandatory school attendance from seven to 16 years. There were approximately 141,800 pupils engaged in 554 general education schools in 2009 (schools for special needs children included). In 2009, 19 per cent of the pupils in Estonia were of non-Estonian nationality, and 11 per cent of the schools had Russian as the language of instruction. The provision of general education is carried out on the basis of common national curricula, irrespective of the language of instruction. Basic school refers to the first nine years of school, starting at age seven.

The Ministry of Education and Research is responsible for the provision of school-based SE. The Ministry of Social Affairs has developed public health programmes (National Programme of Reproductive Health 2001–2009; Estonian National HIV and AIDS Strategy 2006–2015), which also support school-based SE.

## Sexuality education before 1990

During the Soviet period there was no SE in school programmes. Some enthusiastic teachers, however, talked about family planning, puberty and birth-related topics in various lessons. In addition, local gynaecologists and psychologists were invited to schools to give lectures on these themes.

In 1963, a lesson called 'personal hygiene' was introduced, where sexuality related topics (mainly pubertal changes) were addressed in the context of maintaining personal hygiene.<sup>114</sup> Since 1980, a lesson called 'family studies' has been given to students at the gymnasium level (15–16 year-olds): pupils were advised to avoid sexual intercourse, and premarital sexual relationships were looked upon negatively; STDs and unintended pregnancies were warningly discussed. However, most of the final grade pupils in 1988 (91 per cent of boys and 87 per cent of girls) said that family studies lessons did not give them new information, and that they should have been offered at an earlier age.<sup>115, 116</sup>

## Pre-curriculum activities

After independence in 1991, the first national general education curriculum for basic and secondary school containing elements of SE was developed, and implemented by 1996. Before this, health promotion and medical staff from NGOs had been taking the initiative to start promoting school-based SE. Teaching materials and teacher training organized by NGOs remained for years the only source of SE knowledge for teachers. Active teachers who noticed the importance of SE grasped the opportunity and actively participated in the training courses offered.

The leading NGOs in the field were the Estonian Sexual Health Association, (ESHA – until 2005 the Estonian Family Planning Association and member of IPPF, founded in 1994),<sup>117</sup> the Estonian Association Anti-AIDS, AIDS Prevention Centre, and Living for Tomorrow. Among the first funding agencies were the World Bank (Health project 1995) and United Nations Development Programme (1993–2001), which finished its mission after Estonia joined the EU in 2004. Other funding agencies were the Ministry of Social Affairs (which includes health; its Estonian Health Insurance Fund allocated 1 per cent for health promotion projects in 1996–2004), local governments, local funds and foreign funds (Open Estonia Foundation, SIDA).

<sup>112</sup> International Monetary Fund. April 2010. *World Economic Outlook Database*. (<http://www.imf.org/external/pubs/ft/weo/2010/01/weodata/index.aspx>) (Accessed 2 May 2011).

<sup>113</sup> United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

<sup>114</sup> Personal communication with Helga Kurm (educational scientist).

<sup>115</sup> Kurm, H. Perekonnaõpetus koolis I. [Family Studies in school I]. *Haridus*, 1990, 1, 25–27. [internal publication]

<sup>116</sup> Kurm, H. Perekonnaõpetus koolis II. [Family Studies in school II]. *Haridus*, 1990, 23–24. [internal publication]

<sup>117</sup> Estonian Sexual Health Association. <http://www.amor.ee> (Accessed 31 August 2010).



## Curriculum

### *Development of the national curriculum*

The development of Estonia's SE curriculum began in the early 1990s at the grass-roots level, initiated by enthusiastic educational scientists and medical specialists in universities who were worried about family life problems in Estonia – sexuality was not publicly and comprehensively discussed. About five to ten people were engaged in a 'subject commission' working on the curriculum – work that was partly voluntary, and partly financed by the Ministry of Education.<sup>118</sup>

The new 1996 curriculum<sup>119</sup> set out general educational goals and programmes of compulsory and optional subjects. For the first time a programme on the compulsory subject 'human and civil studies', which included SE, was developed. Per grade, there were courses that generally consisted of 35 lessons. The following grade levels were used: Level I: grades 1 to 3; Level II: grades 4 to 6; Level III: grades 7 to 9; Level IV: grades 10 to 12 (gymnasium).

During 2000–2002, an updated general education curriculum was developed. The reasons for updating the curriculum were i) serious changes in society (e.g. HIV epidemic from year 2000); ii) academic education specialists expressing the need for a more integrated curriculum; iii) there was an opinion that the burden of pupils' work hours should be reduced.<sup>120</sup>

A 'human studies subject description book'<sup>121</sup> was produced alongside the curriculum in 1996 and 2002, containing wider explanations of the human and civil studies subject. The idea of SE being positioned in the wider curriculum remained. The Ministry of Education ordered the updated programme for the renamed 'human studies' subject (including SE) from Tartu University Human Studies development work group. Organizations involved in the development were Estonian Health Promotion Association (ESHA) Parents' Association and others, but not many public debates took place on SE.

In 2010, a new curriculum was introduced after a long preparation period. Already in 2001, before the updated 2002 curriculum, the Ministry of Education made an agreement with Tartu University<sup>122</sup> to develop a new curriculum for the basic school and gymnasium. Tartu University led this work until 2006, when a new minister of education unexpectedly decided that a sub-department, the National Examinations and Qualifications Centre (NEQC), should take on this initiative, but the initiative failed. In 2008, a new start was given by the ministry, and Tartu University once again became the leader of the curriculum development process. The curriculum was finally accepted in 2010 and will be gradually implemented from 2011.

One of the reasons for updating the human studies programme was the need to increase schools' input into prevention of risky behaviour (a goal in several national political documents, e.g. HIV and AIDS preventive strategy) and define more clearly the topics of health and SE. Human studies will remain in the curriculum, the number of SE lessons will increase, and the topics of SE will be more precisely defined.

One of the reasons for updating the human studies programme was the need to increase schools' input into prevention of risky behaviour and define more clearly the topics of health and SE.

<sup>118</sup> Personal communication with Inger Kraav, leader of human studies programme.

<sup>119</sup> Riigi Teataja: Põhikooli ja gümnaasiumi riiklik õppekava [National Curriculum for primary and secondary school]. <http://www.riigiteataja.ee/ert/act.jsp?id=174787> (Accessed 31 August 2010).

<sup>120</sup> Personal communication with Kristi Kõiv, head of the human studies development work group at Tartu University.

<sup>121</sup> Inimeseõpetuse aineramat. AS Pakett. [Book on human studies, AS package]. Tallinn, 1997.

<sup>122</sup> Tartu University educational studies and curriculum development centre. <http://www.ut.ee/curriculum/> (Accessed 2 May 2011).

## Position of sexuality education in the 'Human Studies' subject

SE was integrated in the compulsory subject human and civil studies (1996), and later in the human Studies (2002) curriculum. Sexuality related topics are additionally addressed in biology (only human reproductive organs). Examination on the subject is not required.

The approach to SE is comprehensive (according to the definition by IPPF<sup>123</sup>) and the selection of topics is wide. It is not possible to define exactly how extensive the proportion of SE is in the human studies programme, because elements of SE are integrated in all courses in the human studies syllabus. In Appendix 12.1, the topics of human studies are listed, and topics more or less related to SE are outlined.

In practice, the curriculum gave, and still gives, teachers the opportunity to freely decide how many lessons they dedicate to SE. The list of compulsory topics in each course (see Appendix 12.1) still ensures that SE has to be discussed in school, at least in minimal quantity. As the curriculum does not specify the amount of SE, teacher training courses and availability of educational materials have played a bigger role in implementing SE than the curriculum itself.

In 2003, a qualitative study among teachers and pupils showed that the number of SE lessons in schools varies; both pupils and teachers thought that three lessons (out of 35 lessons in a course) in each grade 5, 6 and 7 are explicitly dedicated to SE.<sup>124</sup>

In 2010, it seemed that out of all topics in the human studies programme, four main content areas have evolved: i) personal and social education; ii) health education; iii) sexuality education; iv) drug education. These content areas are integrated horizontally, with no sharp borders and no exact number of lessons allocated to each content area.<sup>125</sup>

For the purpose of this costing study, however, we have estimated the approximate proportion of SE-related topics in the human studies programme in the currently used curriculum (updated 2002). We presume that personal and social education stands as basis for all three other content areas (health education, sexuality education and drug education), because it enables pupils to develop the social skills necessary to avoid risk taking in all these areas.



SE is here interpreted as a comprehensive subject, which includes both specific SE topics (such as contraception and puberty) and more general topics (such as negotiation skills and conflict solving). Accordingly, we have divided sexuality related topics in the curriculum as specific or general. We have estimated the approximate proportion of SE-related topics in the human studies programme, taking 100 per

<sup>123</sup> IPPF. IPPF framework for comprehensive sexuality education (CSE). From choice, a world of possibilities. London, IPPF. <http://www.ippf.org/NR/rdonlyres/CE7711F7-C0F0-4AF5-A2D5-E1876C24928/0/Sexuality.pdf> (Accessed 31 August 2010).

<sup>124</sup> Kull, M. 2003. Seksuaalkasvatuse ja HIV/AIDSi teematika käsitlemine koolides: probleemid ja võimalikud lahendused. [Sexuality education and HIV/AIDS related topics in schools: problems and possible solutions]. Tallinn, Eesti tervisekasvatuse Keskus.

<sup>125</sup> Koostajad ja toimetajad (Eds.) Jüri Jaani ja Liisa Aru. 2010. Lõimingu võimalusi põhikooli õppekavas [Integration in basic school curriculum]. Tartu Ülikooli haridusuuringute ja õppekavaarenduse keskus [Tartu University Centre for Educational Research and Curriculum Development].

cent of specific and one third of general topics into consideration (and presuming that all topics in the programme are of equal importance). We concluded that approximately 33 per cent of the human studies lessons in grades 5 to 7 are dedicated to SE. All together, it is estimated that approximately 18 per cent of the human studies programme of the basic school curriculum is dedicated to SE.

### *Aims and target groups*

The programme of the renamed subject human studies (2002) states that the aim is to develop holistic personality, general human values and social competence. The goal is to achieve the integration of knowledge, skills and values moving through educational levels.

After updating the curriculum in 2002, the subject remained compulsory in basic schools (although the number of lessons was halved, compared to 1996), but one course of human studies (either psychology or family studies) had to be chosen by schools as a compulsory subject in the gymnasium and vocational schools.

In 2002, the human studies curriculum started at level I (instead of II in the 1996 curriculum), but the number of lessons was reduced both at level II (2 x 35 lessons, in grades 5 and 6) and at level III (1 x 35 lessons in grade 7). This means that, paradoxically in the situation of an emerging HIV epidemic, no SE is available in the grades 8 and 9 (for 14- to 16-year-old pupils).

### *Characteristics of the curriculum*

The human studies subject has a concentric approach: the same topics are handled at each new level with ever-widening scope and complexity, in an age-appropriate manner. The main target is integration of topics in order to prevent risky behaviour in complex ways.

### *Lesson topics*

In 1996, SE-related topics at the basic school level can be identified in various parts of the human studies programme (teaching content, aims and pupils' competences) and can be summarized as follows: self-esteem and self-efficacy, communication in different types of relationships (family, friends, romantic), decision-making and goal-setting, negotiation and conflict-solving, aggression, accepting and tolerating sexual diversities, sexuality and sexual behaviour, puberty and adolescence, differences in pubertal timing, body image, masturbation, sexual desire, early sexual initiation and associated risks, human reproduction, gender roles and stereotypes, starting and breaking off a romantic relationship, STDs and HIV/AIDS, contraception, finding advice and help, general human values.

In 2002, after the number of courses was reduced, the list of SE-related topics was shortened (e.g. masturbation and risks of early sexual initiation were left out), but the general content remained the same.

### *Teaching methods used*

According to the curriculum, the pupils are expected to be active in the learning process. Using various teaching methods is encouraged: discussion, role play, group work, case analysis, brain storming, etc. The teachers are expected to support the pupils to integrate their knowledge in real life situations and in the wider social context. To enable this, pupils are expected to use their knowledge and skills in practical learning situations, and describe how to use their knowledge and skills in their everyday life.

## *Pupils' books and other teaching materials*

Before 1996, NGOs produced materials and videos for teaching about contraception. Initially, the only SE textbook available was a 1997 translation from German language, reviewed by ESHA. Gradually textbooks for teaching human studies, containing SE topics, were developed between 1998 and 2008: all together, there were eight textbooks and eight exercise books in Estonian, and four textbooks and four exercise books in Russian.

## *Teachers*

Human studies can be taught by teachers with various professional backgrounds: human studies, biology, class teacher (the mentor of the class), and any other teacher who has an appropriate qualification. Schools can decide the selection of the teacher. An evaluation study in 2003 showed that roughly half of the teachers had a human studies speciality, and all the other teachers and professionals (school nurses and doctors, psychologists) had received post-graduate training in SE.<sup>126</sup>

## *Teacher training in the universities*

In 1996 the University of Tartu started to train human studies teachers. At first, from 1996–2001, the Faculty of Philosophy (Institute of Education) developed a human studies module (30 ECTS<sup>127</sup>), and from 2002 onwards the Faculty of Social Sciences and Education (Institute of Education) developed the human studies module (45 ECTS) in the Educational Science bachelor and master programme. Approximately 100 students (bachelors and masters) had graduated in this module from Tartu University by 2010.<sup>128</sup> The human studies module contains SE-related courses which amount to six ECTS. To start working as a qualified human studies teacher, teachers must graduate from the masters programme.

Since 2002, the University of Tallinn has developed a human studies module (45 ECTS) in its Educational Science Institute, as part of its Psychology bachelor and masters programme. SE is covered in 5 ECTS. In 2007–2010, the qualification of human studies teacher has been given to 36 graduates (data about graduates between 2002 and 2007 is not available).

Human studies can be taught by teachers with various professional backgrounds: human studies, biology, class teacher (the mentor of the class), and any other teacher who has an appropriate qualification.

## *Post-graduate Teacher training and manuals*

Before 1996, NGOs offered SE seminars for teachers, often in cooperation with local governments and Youth Counselling Centres (YCCs). In 2005, the Estonian Ministry of Social Affairs (National Institute for Health Development) initiated a cooperation with ESHA and the Society of Human Studies (as a part of an HIV strategy covering the period 2006–2015); a SE teacher manual was developed, which was the first methodological material specifically tailored for SE (and not just for the broader human studies subject). In addition, an eight-hour, standardized SE teacher-training seminar was introduced. In 2009, under the same collaboration, a SE teacher manual in Russian was developed. All together, 545 basic education teachers have been trained during 2005–2010 through 27 one-day seminars.

<sup>126</sup> Karu, H. 2003. *Koolitasandi seksuaalharidusliku tervisedendustöö ülevaade ning arendamise strateegilised põhimõtted*. [Overview of school-based sexuality education and strategic development principles]. Tallinn, Tallinna Pedagoogikaülikool (unpublished report).

<sup>127</sup> ECTS is the Estonian standard unit for the amount of time that a certain part of the curriculum takes. One ECTS is equal to 26 hours of work for the student.

<sup>128</sup> Personal communication with Kristi Kõiv from Tartu University, Faculty of Education.

Most textbooks provided since 1998 were also accompanied by teacher manuals. In 2005, a SE Teacher Manual for basic school level II and III<sup>129</sup> was developed in cooperation with the Ministry of Social Affairs (National Institute for Health Development), ESHA and Society of Human Studies. The material was tested by 20 teachers, and based on piloting results, the manuscript was rewritten and reviewed by experts. The manual was printed in 2005 (1,200 copies) and introduced in seminars organized for teachers responsible for teaching Human Studies in basic schools. In 2009, the manual was translated into Russian, and 300 copies have been used in Russian-language versions of these seminars.

### *Implementation of the curriculum*

Implementation of the curriculum is the responsibility of the Ministry of Education and Science, local governments and schools. The NEQC is a governmental body under the Ministry of Education and Research (founded in 1997); its main objective is to implement the national education and language policy in the field of basic and secondary education, as well as in vocational and adult education. NEQC has called experts in the field who form 'subject councils' (e.g. the human studies council engages 13 experts) to advise NEQC on specific subject-related questions.<sup>130</sup> Up to 2009, subject councils had to accept all new textbooks and exercise books, but since 2009 this is not mandatory – a publisher can publish a textbook without the subject council's acceptance. This can reduce the quality of educational materials.<sup>131</sup>

## Evaluations

### *Process evaluation studies*

There are several studies evaluating the proportion of pupils reached with the school-based SE (through population-based surveys), but no studies evaluate the proportion of schools implementing SE. The proportion of grade 9 pupils who said that SE topics had been discussed in school increased from 53 per cent in 1994 to 75 per cent in 1999 (KISS study, n=1187).<sup>132</sup> Topics reported to be addressed in respective study years were: pubertal changes (24 per cent and 62 per cent); family planning (19 per cent and 55 per cent); STDs (23 per cent and 62 per cent) and pregnancy (25 per cent and 66 per cent). Less thoroughly handled topics were: intimate relationships (6 per cent and 14 per cent); masturbation (1 per cent and 6 per cent); and homosexuality (3 per cent and 5 per cent). SE had been discussed several times among 41 per cent of the respondents in 1994 and among 67 per cent of the respondents in 1999. In conclusion, there was a marked increase in SE topics discussed and lessons delivered, but some topics were still taboo in 1999.

According to the HIV-related Knowledge Attitudes and Behaviour studies carried out in 2003, 2005 and 2007 among 14- to 18-year-olds, an increase in thoroughly handled HIV-related topics was evident in relation to puberty (62 per cent and 78 per cent in 2003 and 2007 respectively), intimate relationships (38 per cent and 51 per cent respectively), HIV (44 per cent and 50 per cent), but not condom use (53 per cent and 49 per cent).<sup>133</sup>

A teachers' survey in 2003 indicated that 'difficult' and hence less-handled topics in SE were: sexual (and intimate partner) violence, homosexuality, STDs, contraception; and most frequently discussed topics were: puberty, abortion and giving birth.

<sup>129</sup> Kagadze, M. et al. 2005. Seksuaalkasvatuse õpetajaraamat: II ja III kooliaste. Tallinn, Tervise Arengu Instituut.

<sup>130</sup> <http://www.ekk.edu.ee/vvfiles/0/ainenoukogud.pdf>

<sup>131</sup> Personal communication with Merike Kull (head of human studies study council).

<sup>132</sup> Papp, K. et al. 2001. *KISS noorsoouuring 1999*. Tartu, Eesti Pereplaneerimise Liit.

<sup>133</sup> Lõhmus, L. and Trummal, A. 2007. *HIVi teematikaga seotud teadmised, hoiakud ja käitumine Eesti noorte hulgas*. Tallinn, Tervise Arengu Instituut. [http://www2.tai.ee/teated/GF/HIV\\_noorteuurimus\\_2007.pdf](http://www2.tai.ee/teated/GF/HIV_noorteuurimus_2007.pdf) (Accessed in August 2010).



A master's degree study<sup>134</sup> in 2007 showed that 84 per cent of mainly 16- to 18-year old pupils had received SE lessons at school, 5 per cent had not received such lessons and 11 per cent did not remember.

According to the Estonian Women's Health study (2004–2005), SE is nearly universally implemented in basic schools in Estonia – research among a representative sample of women aged 16 to 44 years indicates that 94 per cent of the youngest group (aged 16 to 17 years) and only 56 per cent of the oldest group (aged 35 to 44) had discussions on sexuality-related topics at school. However, this concerns only Estonian respondents in this study. Among non-Estonian respondents there were two times more 16- to 44 year-old women (36 per cent) who said they had not received SE than among Estonian respondents of the same age (18 per cent). Respondents could indicate whether SE at school was sufficient in their opinion: 68 per cent of the youngest group and as little as 7 per cent of the older group said they had received 'sufficient' SE at school.<sup>135</sup>

In a study by Helna Karu (2003)<sup>136</sup> SE was most often delivered by a human studies teacher (41 per cent). More than half of the teachers had no special training. Among those who had received training, the amount of training varied markedly (from four to 160 hours). Surprisingly, there were no remarkable differences in self-rated competence between the teachers with human studies qualifications and those without. In addition, teachers with qualifications regarded teacher training in SE more important compared to teachers without qualifications. Ninety per cent of the teachers mentioned that out-of-school lecturers (from ESHA and AIDS Prevention centre, and others) had visited schools in order to give an SE lecture. Forty-three per cent of the teachers mentioned that pupils had visited local YCCs in order to receive an SE lecture. Teachers expressed the need for more systematic and long-lasting training in SE that would offer practical methodology, and a teacher manual in SE.

In 2003, a qualitative study among teachers and pupils by Merike Kull<sup>137</sup> revealed that the quality of school-based SE varies greatly and depends on the skills and attitudes of the individual teacher. Provision of SE was thought to be deficient in some schools because of teachers not receiving appropriate training, not enough teachers being trained, a lack of comprehensive teaching and study materials, and not enough time being allocated to SE in the curriculum. Pupils reported that the main teaching method is a lecture, but some teachers also used group discussions, independent work during the lesson and at home, and videos.

Fomotskin (2009)<sup>138</sup> made a quantitative content and gender discourse analysis in four human studies textbooks (two for grade 5, one for grade 6 and one for grade 7) and concluded in her additional analyses<sup>139</sup> that 36 per cent of the content of the selected textbooks is dedicated to (comprehensive) SE topics. Social and personal skills were the most often discussed SE topics, followed by development and relationships, society and culture. Sexual health and sexual behaviour were the least often discussed SE topics in the textbooks. The author pointed out that some SE topics were missing in the textbooks, for example sexual orientation, sexual fantasies, abortion, sexuality and the society, sexuality and law, sexuality and religion, sexuality and mass media, sexuality and the arts. Gender discourse analysis showed that all the textbooks were mainly gender neutral.

<sup>134</sup> Rätsep, H. 2007. *Teismeliste reproduktiiv – ja seksuaalervis – teadmised ja käitumine*. [Adolescents' reproductive and sexual health: knowledge and behaviour]. Tartu, Tartu Ülikool (unpublished study).

<sup>135</sup> Part, K. et al. 2007. *Eesti naiste tervis: seksuaal – ja reproduktiivervis, tervisekäitumine, hoiakud ja tervishoiuteenuste kasutamine. Uurimisaruanne*. Tartu, Tartu Ülikooli naistekliinik. [Estonian women's health: sexual and reproductive health, health behaviour, attitudes, and health care utilization. Research Report. Tartu, Tartu University Women's Clinic].

<sup>136</sup> Karu, H. 2003. *Koolitasandi seksuaalharidusliku tervisedendustöö ülevaade ning arendamise strateegilised põhimõtted* [Overview of school-based sexuality education and strategic development principles]. Tallinn, Tallinna Pedagoogikaülikool (unpublished report, in Estonian).

<sup>137</sup> Kull, M. 2003. *Seksuaalkasvatuse ja HIV/AIDSi teematika käsitlemine koolides: probleemid ja võimalikud lahendused* [Sexuality education and HIV/AIDS related topics in schools: problems and possible solutions]. Tallinn, Eesti tervisekasvatuse Keskus.

<sup>138</sup> Fomotskin, K. 2009. *Seksuaalhariduse teemad ja sooline diskursus põhikooli II ja III kooliastme inimeseõpetuse õpikutes 2008/2009 õppeaastal. Bakalaureusetöö*. [Sexuality education topics and gender discourse in basic schools – II and III level human studies textbooks]. Tartu, Tartu Ülikool (unpublished data).

<sup>139</sup> Additional analysis made by Fomotskin for this overview.



## Impact evaluation studies\*

There are two studies related to this topic. Part et al<sup>140</sup> studied factors associated with Estonian grade 9 students' sexual health knowledge in 1994 and 1999 and found that: i) sexual health knowledge improved, but considerable gaps in knowledge were still evident in 1999 (many respondents were not aware of the meaning of several broader sexuality-related concepts; the knowledge of the age of consent and the most fertile period during the menstrual cycle was poor); ii) whereas in 1994, good sexual health knowledge was positively associated solely with personal experience of sexual intercourse (adjusted POR 2.14, 95% CI 1.37–3.35), in 1999, good sexual health knowledge was also positively associated with school-based SE (adjusted POR 4.63, 95% CI 1.91–11.24), as well as with personal experience of sexual intercourse (adjusted POR 1.69, 95% CI 1.15–2.49). The authors concluded that the route of acquiring sexuality-related information from school is far less risky for adolescents than through personal experience; that the aforementioned trend may be the result of the introduction of mandatory school-based SE, and that there is a need for continued provision of school-based SE.

Haldre et al<sup>141</sup> found that risk factors associated with teenage pregnancy in Estonia in a study in 2001–2003 included low score of sexual health knowledge (adjusted OR 3.07, 95% CI 1.73–5.46) and dislike of school (adjusted OR 1.96; 95% CI 1.08–3.54).

## Other issues

### Linkages with school health service

Teachers deliver most SE in schools, but there are some school nurses and doctors who are also active in the field. In some schools, a school doctor talks about contraception and STDs to pupils in lessons. ESHA developed a guide for school medics in 2007,<sup>142</sup> which gives an overview of sexual and pubertal development, contraception, STDs, HIV/AIDS and counselling techniques. The guide is mainly useful for individual sexual health counselling of pupils.

### Linkages with sexual health services (YCC)

Since their establishment in the 1990s, YCCs<sup>143</sup> have provided young people with free STI counselling, diagnostics, treatment, and also counselling on safe sex and family planning issues. YCCs also offer SE lectures to local schools. At first it was thought that YCCs help to fill in the gap in school-based SE. Now, even though SE takes place in almost all schools, the demand for YCC lectures is surprisingly still there. YCCs acknowledge the school's primary role in delivering SE, but want to offer teachers help in handling 'difficult' topics and using interactive methods. The lectures take place in the YCC, for which the teacher makes the appointment. Through lectures pupils become acquainted with the clinic, their methods and staff. Once a youth has visited a clinic and is assured of its friendliness, they are more likely to return for advice and help in the future. The lectures are free for schools and are financed (non-sustainably) from different sources (local governments, funds). Each year between 1990 and 2009, at least 500 lectures, reaching annually up to 11,000 pupils of around 10-19 years of age, were given in YCCs.<sup>144, 145</sup>

<sup>140</sup> Part, K. et al. 2008. Factors associated with Estonian adolescents' sexuality-related knowledge: Findings from the 1994 and 1999 KISS studies. *The European Journal of Contraception & Reproductive Health Care*, Vol. 13, No. 2, pp. 173–181.

\* A more extensive discussion of impact-related studies is presented in Chapter 8.3.

<sup>141</sup> Haldre, K. et al. 2009. Individual and familial factors associated with teenage pregnancy: an interview study. *Eur J Publ Health*; (1)1–5.

<sup>142</sup> Haldre, K. et al. Õpilase seksuaalervis. 2007. *Tegevusjuhend kooli tervishoiutöötajale. [Pupil's sexual health. A Guide to School Medic]*. Tallinn, Eesti Seksuaalervis Liit, Eesti Haigekassa, Eesti Õdede Liit. [http://www.haigekassa.ee/files/est\\_raviuasutusele\\_tervisedendus\\_kool\\_juhend1/Seksuaalervis\\_a4.pdf](http://www.haigekassa.ee/files/est_raviuasutusele_tervisedendus_kool_juhend1/Seksuaalervis_a4.pdf) (Accessed in August 2010).

<sup>143</sup> Perte, T. et al. 2009. Amor Youth Clinic Network in Estonia. Geneva, World Health Organization. <https://www.etis.ee/ShowFile.aspx?FileVID=29206> (Accessed August 2010).

<sup>144</sup> Data from ESHA's assistant, Kerli Hannus.

<sup>145</sup> Silma, J. 2000. *Youth clinics in Estonia – work and results*. A thesis for the degree of Bachelor of Arts in the School of Business, Concordia International University Estonia.

This close inter-linkage between school-based SE and youth-friendly service delivery is an important feature of the approach in Estonia. This approach is also recommended by specialized international agencies. The ICPD Programme of Action (paragraphs 7.41-7.48 on adolescents)<sup>146</sup> discusses reproductive health education and youth-friendly service delivery for adolescents as one integrated set of actions. Similarly, WHO, in its publication on adolescent friendly health services, stresses the need for both health education and youth-friendly service delivery.<sup>147</sup>

According to Statistics Estonia<sup>148</sup> there were, all together, 152,135 adolescents aged ten to 19 living in Estonia in 2009. Relying on data given, and presuming that the majority of ten- to 19-year-olds attend school in grades 4 to 12, it is likely that approximately 4 per cent of the target population per year visited YCCs in order to participate in an SE lecture.

### Global Fund in Estonia

The Global Fund to Fight AIDS, Tuberculosis and Malaria financed HIV prevention activities in Estonia in 2003–2007. The activities were directed at six target groups: youth, intravenous drug users, prostitutes, prisoners, men who have sex with men, and HIV-positive people. US\$1.4 million (EEK 16 million) was spent on the 'youth' target group for the following activities: i) 1.5-hour HIV-prevention lectures in schools; ii) three-hour lectures in vocational schools; three-hour SE for army recruits, young people with disabilities, youth living in correctional institutions and orphanages; iii) peer education day seminars; and iv) a media campaign targeted at 15- to 24-year-olds. The aim, to decrease 15- to 24-year-olds' risky behaviour and increase their knowledge, was achieved, but increase in condom use in casual sexual relationships was not.<sup>149,150</sup>

### Conclusions

The following conclusions can be made about the SE programme in Estonia. First, implementing school-based SE has been a gradual process and there is no concrete historical starting point for the SE curriculum. However, implementing a mandatory subject called human and civil studies in 1996 was an important starting point. Second, SE is positioned in the wider human studies curriculum, integrated with other topics and subjects in school, and taught throughout school. Although the proportion of topics dedicated to SE in the human studies programme cannot be precisely defined, we estimate the amount is approximately 18 per cent. Third, starting human studies teacher training in the universities and organizing post-graduate courses, and developing educational materials have played an even bigger role in implementing school-based SE than the curriculum itself. Fourth, there may be a discrepancy between the curriculum on paper and actual implementation. This situation is expected to improve in the future, because the new curriculum (being implemented in 2011) defines more precisely the amount and topics of SE in each grade. Fifth, external specialists (most importantly, from youth counselling centres) still play an important role in SE implementation in schools. Sixth, evaluation (in different ways) has been quite extensive. The results of evaluation studies have shown that there has been a marked increase in SE topics discussed and lessons delivered since the 1990s. Despite the nearly universal implementation of school-based SE there seem

SE is positioned in the wider human studies curriculum, integrated with other topics and subjects in school, and taught throughout school.

<sup>146</sup> United Nations, Department of Economic and Social Affairs. 1995. *Population and Development*. Programme of Action adopted at the International Conference on Population and Development, Cairo, 5–13 September 1994. United Nations, New York.

<sup>147</sup> World Health Organization. 2002. *Adolescent Friendly Health Services. An agenda for change*. WHO, Geneva.

<sup>148</sup> Eesti Statistika [Statistics Estonia]. [www.stat.ee](http://www.stat.ee) (Accessed in August 2010).

<sup>149</sup> Lõhmus, L. and Trummal, A. 2007. *HIVI teemaatikaga seotud teadmised, hoiakud ja käitumine Eesti noorte hulgas*. Tallinn: Tervise Arengu Instituut. [http://www2.tai.ee/teated/GF/HIV\\_noorteuurimus\\_2007.pdf](http://www2.tai.ee/teated/GF/HIV_noorteuurimus_2007.pdf) (Accessed in August 2010). [The topic of HIV-related knowledge, attitudes and behaviour among young people in Estonia. Tallinn: Institute for Health Development].

<sup>150</sup> Trummal, A. 2007. *Ülevaade ülemaailmse AIDSi, tuberkuloosi ja malaariaga võitlemise fondi Eesti programmest. 10.2003-09.2007*. [Overview of the Estonian Programme of Global Fund to Fight AIDS, Tuberculosis and Malaria. 10.2003-09.2007]. Tervise Arengu Instituut, Tallinn: Tervise Arengu Instituut [Institute for Health Development]. [http://www2.tai.ee/teated/GF/GFATM\\_programmem\\_Eestis\\_10\\_2003\\_09\\_2007.pdf](http://www2.tai.ee/teated/GF/GFATM_programmem_Eestis_10_2003_09_2007.pdf) (Accessed in August 2010).

to be 'difficult' and hence less-handled topics in SE, such as sexual violence and homosexuality, and the amount and quality of SE lessons may vary between schools. In addition, SE is likely to be less established in Russian language schools. Finally, great progress has been made in SE in Estonia. The process of post-graduate teacher training, teaching material development and evaluation is ongoing.

## 8.2 Cost analysis

### Introduction

This section reports on the costs of the SE programme in Estonia. We answer the following questions: i) What are the costs of the development of the programme? ii) What are the annual costs of implementing the programme in a school, reaching a student or training a teacher?

### Methods

Chapter 3 provides a detailed description of the costing methodology as applied in all study countries. This section describes the methods that are unique to Estonia, including the sources of costing data. We report on how we estimated i) programme coverage; ii) costs of development and update phase; iii) costs of implementation phase; iv) annual costs by school, teacher trained and learner reached. All costs are grouped in five standardized costs categories: teaching salaries, teaching materials, advocacy, training, and operations. Historical cost data were adjusted for inflation (annual inflation rates can be found in Appendix 12.2). All costs are presented in 2009 US dollars and Estonian kroons (EEK). Costs in EEK were translated to US dollars at a rate of 11.26.<sup>151</sup>

### *Timeline and coverage*

We summarized key milestones of the Estonian SE programme in a timeline, which was used to support programme costing. The costing was done on SE curriculum in grades 5, 6 and 7, where the majority of the SE lessons are taught. There are some SE introductory lessons in grades 2 and 3, but these were excluded from the study. In the absence of records on the actual number of students reached by the programme, we calculated programme coverage by multiplying the actual number of students in basic schools<sup>152</sup> by the portion of schools implementing the programme.<sup>153</sup>

### *School survey*

A school survey was carried out to find out how the SE programme was implemented and what the school-level costs were in school year 2009/2010. There are 481 regular basic schools in Estonia. We grouped the schools into four clusters: schools teaching in Estonian and Russian, and schools in rural and urban locations. Then 161 schools were selected randomly in representative portions from each of the clusters. Web-based questionnaires were emailed to human studies teachers of the selected schools, and 84 schools responded – a sufficient sample size for country-representative results. Results of the survey were used as inputs for the programme costing. School survey summary can be found in Appendix 12.3.

<sup>151</sup> The World Bank, average annual exchange rate EEK–USD 2009

<sup>152</sup> Ministry of Education and Research, actual numbers of students per grade and per year 1997–2009.

<sup>153</sup> KISS survey 1994; KISS survey 1999; CSHIR survey 2000.

## Development and updates phases

No financial records were available for the initial programme development (1991–1996) or the first programme update (1999–2002), because these phases were carried out on an ad hoc and largely voluntary basis. Therefore costing of these phases was based on interviews with the developers. Development of the second update of human studies curriculum (2003–2009) was commissioned by the Ministry of Education and completed by the University of Tartu Curriculum Development Centre and the NEQC. Financial records of these organizations were used for costing of this phase. We allocated a share of the development and update costs of the human studies curriculum to the SE programme – proportionate to the number of SE programme lessons of the total number of human studies curriculum lessons.

## Implementation phase

The first students started the SE curriculum in 1997, and this year was used as a cut-off point between the development and implementation phases. Teaching salary costs included the SE programme-related portion of gross salaries of teachers. The SE programme-related portion was calculated by dividing the annual number of working hours by annual number of SE-related working hours. Salary levels were retrieved from the Ministry of Finance, 2009.<sup>154</sup> Teaching materials costs included development, testing and production. We calculated annual material costs by combining programme coverage information, with the following components. First we prepared a comprehensive list of available SE materials, including teachers' guides and students' text and exercise books, videos and educational kits in Estonian and Russian. Second, we retrieved information on usage and type of materials used in the schools from the school survey. Third, we collected price information of the most commonly used materials from publishing companies. Fourth, a study showed that 18 per cent of the content of human studies books was related to SE.<sup>155</sup> Costs of student text books were annualized over three years, because the text books are recycled from class to class over three years. Material usage during the earlier stage of the programme was based on interviews with teacher trainers.

Advocacy costs relate to the work of YCCs to bridge the SE programme and the youth-friendly (sexual and reproductive health) counselling centres. Since 1995, student groups have visited the centres or YCC personnel have given SE lessons in the schools. We categorized the costs of this partnership as advocacy expenditure. Training costs relate to training of master trainers and teachers. Since 1996, 136 new teachers have completed the human studies module in Universities of Tartu and Tallinn, and 693 teachers have received post-graduate SE training. The six-ECTS human studies SE module cost US\$178 (EEK 20,000) per teacher in 2009<sup>156</sup> and the post-graduate SE trainings on average cost US\$52 (EEK 590) per participant.<sup>157</sup> Costs of evaluations mentioned in the programme description Section 8.1.7 were excluded from the costing analyses, because none of them was an integrated component of the SE programme. Operation costs include salaries of programme staff, fees of individual consultants, transport, office and computer costs, and were based on results of the school survey and interviews with key people.

## Annual costs per school, trained teacher and learner reached

The annual costs of programme implementation include the costs of implementation, plus a certain share of the programme development costs and programme update costs – the latter reflecting that its use is not limited to the year in which it is paid for, but also beyond that. We assumed a useful life of development costs of ten years, and of update costs of five years, and annualized these costs accordingly. We defined a learner reached as a student who had started the programme. An SE learning hour was defined as 45 minutes of students' time in a classroom. To estimate cost per teacher trained, we considered the total number of trained

<sup>154</sup> Ministry of Finance of the Republic of Estonia, 2009.

<sup>155</sup> Fomotskin, K. 2009. *Seksuaalhariduse teemad ja sooline diskursus põhikooli II ja III kooliastme inimeseõpetuse õpikutes 2008/2009 õppeaastal. Bakalaureusetöö. [Sexuality education topics and gender discourse in basic schools II and III level human studies textbooks]*. Tartu, Tartu Ülikool (unpublished data).

<sup>156</sup> Universities of Tartu and Tallinn.

<sup>157</sup> Estonian Sexual Health Association and National Institute for Health Development (unpublished data).

teachers and total training costs over the whole programme period to calculate the cost per teacher trained. We did not consider a single year only, as the number of trained teachers fluctuates considerably over time.

## Results

### Timeline and programme coverage

We summarized the Estonia SE programme description in a timeline (Figure 8-1), to support programme costing. The programme timeline provides an overview of key milestones of the SE programme. Firstly, we distinguish four programme phases: development 1991–1996, implementation 1997–2009, update one 1999–2001 and update two 2003–2009. Second, key decisions are shown under the programme phases. Third, timing of development of key materials, teacher trainings, coverage changes and evaluations can be found below the year line.

Figure 8-1: Timeline of sexuality education programme in Estonia 1991-2009

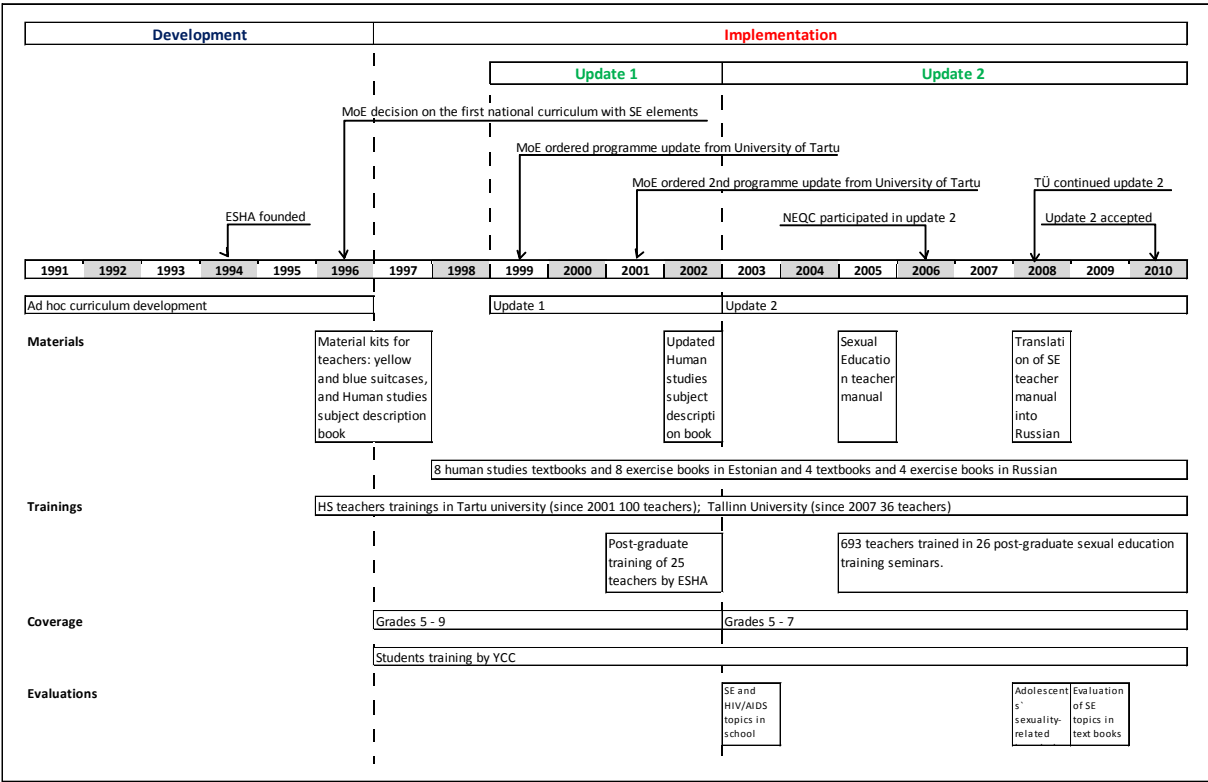
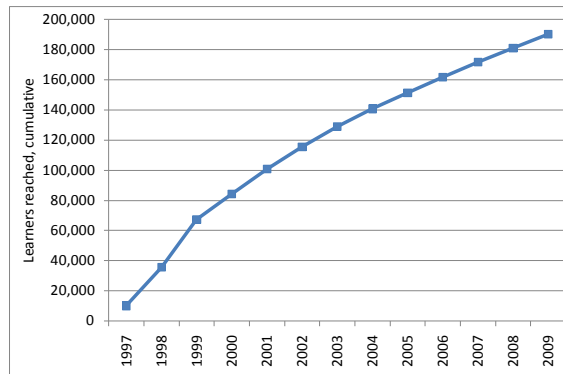


Figure 8-2 illustrates the cumulative number of learners reached during the period 1997–2009. Implementation of the SE programme started in 1997 for grade 7 students. During the first three years the programme was simultaneously expanded to cover grades 5 to 9 and this explains the steep increase in the beginning. After 2002 the number of students reached has grown at a slower pace because of demographic changes in Estonia. At the end of 2009 the SE curriculum had been taught to 190,000 students.

Figure 8-2: Cumulative learners reached in Estonia 1997–2009

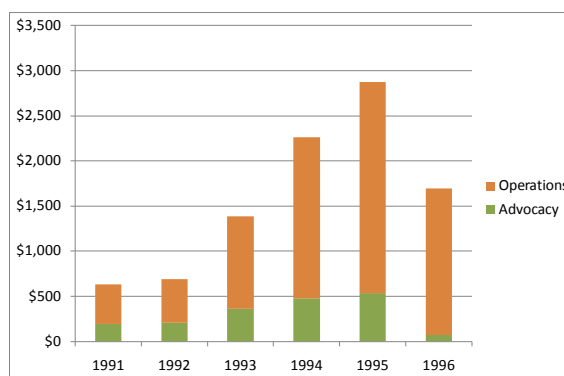


## Economic costs

### Programme development

How much did it cost to develop the Estonia SE programme? The initial development of the Estonian human studies curriculum was done in the period 1991–1996. This work was carried out ad hoc and on a voluntary basis. According to the analysis of programme topics (see Appendix 12.1) 18 per cent of human studies subjects were SE lessons. Therefore 18 per cent of the costs were allocated to the SE programme. This translates to a workload of 2,080 working days and the total societal cost of US\$9,500 (EEK 108,000). Annual development cost and cost categories are shown in Figure 8-3. The majority (81 per cent) of the costs were related to operations, which includes salaries and the unpaid working time of human studies specialists, teachers, doctors and other operational costs. The second cost component was advocacy and meetings (19 per cent). At this stage of the process there were no teacher trainings, teaching material productions or teaching.

Figure 8-3: Development cost of sexuality education parts of the human studies curriculum (1991–1996) in US\$



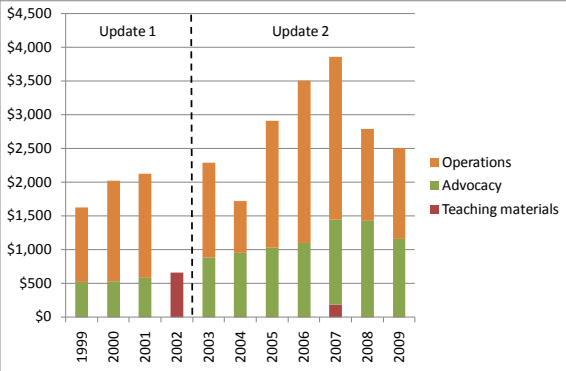
### Programme updates

The SE programme has been updated twice since 1997. The first SE programme update took place in 1999–2002, three years after the initial version was introduced. The workload was estimated to be 1,170 working days and the total cost to be US\$6,400 (EEK 72,000). An overview of the update costs is shown in Figure 9-3. The largest component was operations (64 per cent), which included paid and unpaid working time of coordinators from the Ministry of Education, human studies specialists, teachers, doctors and costs of other operations. Advocacy meetings and events accounted for 25 per cent of the costs, with a further 10 per cent of costs spent on updating two text books and four exercise books in 2002.



The second programme update was started a year later, in 2003. This time the update took longer and the project was completed in 2009. The total costs of the second update were US\$19,600 (EEK 221,000). As with the first update, the largest expenses were operations (59 per cent) and advocacy meetings (40 per cent), with 1 per cent spent on teaching materials. We included regular production of teaching materials in the implementation cost. The portion of advocacy costs may seem high, but this is mainly because the overall update costs were low. The actual amounts spent on advocacy meetings were low.

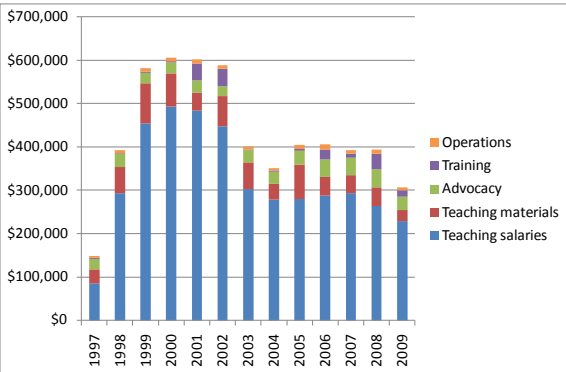
Figure 8-4: Cost of first (1999–2002) and second (2003–2009) curriculum updates in US\$



Programme implementation

How much did it cost to implement the SE programme? The total implementation costs of the 13-year implementation period were US\$5.6 million (EEK 62.8 million). Annual implementation costs are shown in Figure 9-4. The programme was gradually scaled up and annual implementation costs rose to US\$581,000 (EEK 6.5 million) in 1999. The costs remained approximately on the same level until 2003, when the programme coverage was reduced to grades 5 to 7. Consequently, implementation costs dropped to US\$401,000 (EEK 4.5 million) in 2003. In 2009 annual implementation costs were US\$306,000 (EEK 3.5 million). The downward trend during the last five years is caused by declining population in the target age group.

Figure 8-5: Annual implementation costs (1997–2009) in US\$

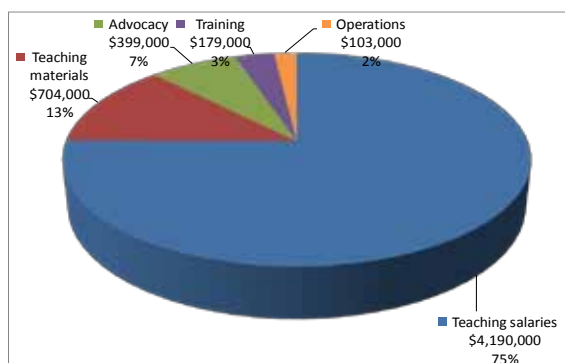


A breakdown of the total implementation costs 1997–2009 is shown in Figure 9-5. Teaching salary costs are an important component: our school survey showed that basic school SE teachers on average spend 3.76 per cent of their annual working time on teaching and preparing SE lessons.<sup>158 159</sup> The same portion of teachers’ annual gross salary was then allocated as salary cost of SE. Basic school teachers’ average

<sup>158</sup> Estonia school survey 2010.  
<sup>159</sup> The share of working time that teachers spent on the SE programme is an important input to the costing analysis, but not an indication on the relative efficiency of the programme. The reason for this is that this share depends on the number of teachers that happen to be involved in the SE programmes at school level, and this can vary considerably between schools for many reasons.

monthly gross salary was US\$1,500 (EEK 16,900) in 2009,<sup>160</sup> and there were 650 teachers teaching the human studies curriculum.<sup>161</sup> Total teaching salaries were US\$4.19 million (EEK 47.2 million) (75 per cent). Teaching materials accounted for US\$704,000 (EEK 7.9 million) (13 per cent). YCCs' advocacy activities totalled US\$399,000 (EEK 4.5 million) (7 per cent). Teacher trainings cost US\$179,000 (EEK 2 million) (3 per cent) and finally US\$103,000 (EEK 1.2 million) (2 per cent) was used for operations.

Figure 8-6: Implementation costs (1997–2009) in US\$



### Cost per school, learner reached, learning hour and teacher trained

Table 8-1 shows the cost per school and learner reached, learning hour taught, and teacher trained. Annualized costs of 2009 were used for calculating costs: per school, learner reached and learning hour. These costs amounted to US\$311,000 (EEK 3.5 million). Cost per school was US\$814 (EEK 9,160). Cost per learner reached and completed three-year SE curriculum (grades 5, 6 and 7) were US\$11 (EEK 123) and US\$32.9 (EEK 370) respectively. Costs per SE learning hour were US\$1.03 (EEK 11.6). In the period 1996–2009, total training costs were US\$137,000 (EEK 1.5 million) and costs per trained teacher were US\$197 (EEK 2,220).

Table 8-1: Cost per school, learner reached, learning hour and teacher trained in Estonia in 2009

Unit	Annualized cost	Number of units	Cost per unit
School	US\$311000	382 <sup>162</sup>	US\$814
Learner reached			
– per year	US\$311,000	28,000 <sup>163</sup>	US\$11
– completed curriculum		3 years	US\$32.90
Learning hour	US\$311,000	298,000 <sup>164</sup>	US\$1.03
Teacher trained	US\$137,000†	693 <sup>165</sup>	US\$197

† Refers to total training costs in the period 1996–2009

The budgetary outlay of the SE programme, i.e. costs in addition to the teacher salary costs that are already a regular expense of the Ministry of Education, equal US\$8.39 (EEK 94) per learner completing the curriculum in Estonia.

<sup>160</sup> Ministry of Finance of the Republic of Estonia, 2009.

<sup>161</sup> Estonia school survey 2010.

<sup>162</sup> CSHIR survey 2000.

<sup>163</sup> Calculations based on: i) Ministry of Education and Research, actual numbers of students per grade and per year 1997–2009 and ii) CSHIR survey 2000.

<sup>164</sup> Calculations based on: i) number of SE lessons taught (Estonia school survey 2010), and ii) number of learners reached in 2009.

<sup>165</sup> Estonian Sexual Health Association and National Institute for Health Development, 2009, number of teachers who have undergone post-graduate SE training.

## Limitations of costing analysis

This programme costing has some limitations. Firstly, no financial records were available for the initial programme development and first programme update, because these phases were carried out on an ad hoc and largely voluntary basis. Therefore costing of these phases was based on interviews with developers. Second, the SE programme is an integrated component of the Estonian primary school curriculum and is solely implemented by the Ministry of Education. Consequently there are no separate records on costs of the programme. Therefore it was not always possible to make a sufficiently detailed assessment of the costs and in a number of instances we needed to make assumptions. Third, the definition of which topics of the human studies curriculum are specific to SE is somewhat arbitrary, and influences our estimates of the share of working time that teachers spend on the SE programme – and therefore total programme costs.

## Sensitivity analysis

We performed a one-way sensitivity analysis with minimum and maximum values of respectively -20 per cent and +20 per cent around the point estimate for a number of selected parameters (see Methods, Chapter 3, for more detail). Results show that our costing analysis is sensitive to a number of parameters. Whereas our point estimate shows a cost of US\$32.90 per learner reached (completed curriculum), this value differs when we use alternative values for the percentage of teachers' monthly salary (range between US\$28 and US\$37.70), class size (US\$28.80 to US\$39); SE teaching time per class (US\$30.10 to US\$35.60) and programme coverage (percentage of school implementing the programme) (US\$31.70 to US\$34.70).

## Discussion

The development of the SE programme in Estonia has been a gradual process, starting after the country became independent in the early 1990s. The development benefited from a redesign of the entire educational curriculum at that time, and the experience of SE programmes in western European countries. Still, because of the absence of a tradition of SE, extensive political lobbying and advocacy was needed. The SE programme was achieved without major concessions to comprehensive curriculum content, and has been in place since 1997 (with regular updates). It is an excellent example of a fully scaled up, integrated, intra-curricular programme at relatively low cost – and this may hold important lessons for other countries that wish to develop such a programme.

The total costs of the SE programme over the period 1991–2009 amounted to US\$5.6 million (EEK 63.2 million). The initial development and first update costs were very low, because of low salary levels<sup>166</sup> during the first years of independence. Nearly all of the total costs were implementation costs, and only a small fraction of these were initial development costs or update costs. Average annual implementation costs were around US\$590,000 (EEK 6.7 million) in the period 1999–2002, and this is 1.5 times higher than in the period 2003–2009. The reasons for this are: i) the programme was taught to grades 5 to 9 until 2002 and to grades 5 to 7 afterwards; ii) demographic changes meant that the number of new students entering the programme declined from 20,000 at the end of the 1990s to 11,000 in 2009. The cost per completed curriculum of US\$32.90 (EEK 370) is relatively low in comparison to that of SE programmes in other study countries. The main reason is that it is an integrated, intra-curricular component of the Estonian basic school curriculum, which has several advantages. Firstly, it is implemented on a large scale, reaching 28,000 students in 2009. This obviously reduces costs per student of national-level activities, such as programme development and updates, or coordination. Second, because of its integrated and therefore mandatory nature, the programme covers a high proportion of students per school, and as such reduces costs per student of school-level activities, such as teachers' salaries. Class sizes are still relatively small (on average 18 students), so this may not be the most important factor. Third, cost per student may also be relatively low because of the relatively small number of

<sup>166</sup> Cost of development and update work done by volunteers was included through shadow pricing.

lessons (some 24 hours over the course of three years) that we attributed to SE. We somewhat arbitrarily defined these lessons, and sensitivity analysis reveals the importance of this variable.<sup>167</sup>

Some cost items are also relatively high in comparison to SE programmes in other study countries. Firstly, the cost of teaching material appeared relatively high. The programme makes intensive use of teacher instruction books, and student text and exercise books (text books are recycled for on average three years, and this reduces the costs). Second, the SE programme also faces relatively high advocacy costs, both in the development and the implementation phase. This indicated the need for ongoing advocacy activities, even when a programme is fully scaled up and integrated in the national school curriculum.

Since salary costs are already a regular expense of the Ministry of Education, the budgetary outlay for the ministry for running this programme equals US\$8.39 (EEK 94) per learner completing the curriculum. As a comparison, Estonia spent US\$4,680 (EEK 52,700) per learner on secondary education (2009 prices).<sup>168</sup> Budgetary outlays would thus constitute some 0.2 per cent of current expenditure per student in secondary education.

## 8.3 Impact evaluation of sexuality education in Estonia<sup>169</sup>

### Introduction

This section evaluates the impact of the SE programme in Estonia, and serves as input in the cost-effectiveness analysis presented in a later section of this report. The impact uses the results of 12 surveys directly or indirectly related to SE, as well as various national databases of sexual health indicators. As the SE programme has (almost) national coverage, it is not possible to carry out case-control studies, and because the programme covers the entire age group seven to 16 (after 2002: seven to 14), it is also not possible to use pre- and post-intervention study designs.

Evaluation indicators used here include: coverage and appreciation of SE by pupils, adolescent sexual behaviour, preventive behaviour (condom and [other] contraceptive use), abortion and unplanned pregnancy, STI and HIV infection.

It should be stressed that improvements in sexual health indicators because of the introduction of SE in Estonian schools can only be expected to have occurred *gradually*, because, as has been shown in the previous paragraphs, the quality of implementation of SE and its national coverage developed gradually after the introduction in 1996. Similarly, it could only start to have an effect on sexual health indicators among 15- to 19- and 20- to 24-year-olds after a few, or several years respectively, because pupils are not yet sexually active at the time they are subjected to the SE programme, i.e. when they are still quite young. The impact of the SE programme cannot realistically be separated from another important innovation during the past two decades – the introduction and growth of youth-friendly, sexual health service delivery. This innovation has been closely linked with the development of SE. This combined development is not considered a problem – on the contrary, the potential impact of SE is largely conditioned by simultaneous innovations in service delivery.

Evaluation indicators used here include: coverage and appreciation of SE by pupils, adolescent sexual behaviour, preventive behaviour, abortion and unplanned pregnancy, STI and HIV infection.

<sup>167</sup> More specifically, the costs per student of the Estonian SE programme are somewhat higher than that of other integrated and scaled-up SE programmes, as in Nigeria and India. Reasons include differences in salary levels (these are, in Estonia, relatively high compared to the other two countries), class size (in Estonia this is relatively low compared to Nigeria), teacher preparation time (relatively high in Estonia), costs of teaching materials (again, relatively high in Estonia) and number of SE lessons (these are relatively low).

<sup>168</sup> UNESCO. 2011. *EFA Global Monitoring Report 2011*. Paris, UNESCO.

<sup>169</sup> This chapter is a summary of the more detailed impact study submitted to the journal *International Perspectives on Sexual and Reproductive Health* for publication.

Youth<sup>170</sup> sexual health indicators have shown dramatic improvements over the past two decades. The abortion and fertility rates among 15– to 19-year-olds declined by 61 per cent and 59 per cent respectively between 1992 and 2009. The decline in the abortion rate was 62 per cent among 20- to 24-year-olds from 1996–2009. Further, the annual number of registered new HIV cases among 15- to 19-year-olds declined from 560 in 2001 to just 25 in 2009 (a more than 95 per cent decrease).

## Materials and methods

The analyses summarized<sup>171</sup> below are based on 12 population-based studies/surveys carried out during the past 16 years, and some related relevant publications. Seven surveys include data on school-based SE; all 12 surveys provide information on the timing of first sexual intercourse; eight surveys include data on condom use; knowledge of sexuality linked with SE, and some behavioural outcomes, are included in five surveys. Sexual and reproductive health outcome indicators have been taken from the national health registries that are based on mandatory reporting by all health institutions.

Data on HIV and STIs come from the Estonian Health Board (a government agency within the Ministry of Social Affairs). HIV data are based on information sent to the Health Board by the reference laboratory which is obliged to report this when HIV is diagnosed. STI data is based on reports sent by the doctors who make the diagnosis.

## Results

### *Coverage and appreciation of school-based sexuality education*

During the past two decades several surveys have investigated the gradually increasing coverage of school-based SE. The 'youth maturation surveys' KISS<sup>172</sup> in 1994 and 1999 indicated that the proportion of pupils who had discussed SE topics in school increased from 53 per cent in 1994 to 75 per cent in 1999. More frequently and thoroughly handled topics in the respective study years were: pubertal changes (24 per cent and 62 per cent); family planning (19 per cent and 55 per cent); STIs (23 per cent and 62 per cent) and pregnancy (25 per cent and 66 per cent).

School SE coverage and learning needs were also addressed in the Estonian Women's Health Survey (EWHS) 2004–2005 among 16- to 44-year-old women.<sup>173</sup> The proportion of women who admitted having had sufficient discussions on sexuality-related topics at school increased from 6.5 per cent among 35- to 44-year-olds (i.e. those who became 16 between 1976 and 1985) to 51.1 per cent among 18- to 24-year-olds (16 between 1996 and 2002) and 64.4 per cent among 16- to 17-year-olds (in 2004–2005). Other studies<sup>174, 175, 176</sup> showed largely similar results. They all indicate that by 2004–2005, SE was quite well established, and was implemented in the majority of schools. In Russian-speaking schools SE was fully established later.

<sup>170</sup> According to WHO, 'adolescents' is a term used for young people aged 10–19 years; 'youth' covers the ages 15–24, and the term 'young people' covers the combined age range 10–24 years. 'Teenagers' is often used in western societies in describing 13–19 year olds.

<sup>171</sup> The complete analysis will be submitted for publication in a specialized international journal.

<sup>172</sup> Papp, K. et al. 2001. *Noorsoouuring KISS. [The Youth Sexual Maturation Survey KISS]*, Tartu, Estonian Family Planning Association (written in Estonian with an English summary).

<sup>173</sup> Part, K. et al. 2007. *Estonian women's health: sexual and reproductive health, health behaviour, attitudes and use of health care services. Survey report*. Tartu, Department of Obstetrics and Gynaecology, University of Tartu.

<sup>174</sup> Lõhmus, L., Trummal, A. and Harro, M. 2003. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>175</sup> Lõhmus, L. and Trummal, A. 2005. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>176</sup> Lõhmus, L. and Trummal, A. 2007. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).



## Youth sexual behavior – experience with sexual intercourse and age at first sex

It must be stressed that, as in most European countries, abstinence as such is *not* an objective of the Estonian SE programme. Instead, safe and responsible sexual behaviour and mutual consent are the core objectives. According to the CSHIR 2000 survey, 85 per cent of men and 78 per cent of women accepted premarital sex.<sup>177</sup>

As in most European countries, the age of sexual debut has declined during the past two decades. The EFFS 1994 and 2004–2005 surveys indicate that in 1994, 19.9 per cent of women aged 25 to 29 had started sexual life by the age of 18<sup>178</sup> and ten years later this percentage had increased to 43.7 per cent.<sup>30</sup> Another survey has shown similar results.<sup>179</sup> The Youth HIV Studies<sup>180, 181, 182</sup> carried out in 2003, 2005 and 2007 indicate that by the middle of the first decade of the twenty-first century the median age at first intercourse had declined to just above 17 years, from slightly above 18 in 1985–1990, and 20 in the 1970s. This means that the proportion of sexually experienced youths has increased during the past decades, and thus the proportion of young people at risk of unintended pregnancy or STIs has increased.

## Improvement in knowledge and attitudes

Between 1994 and 1999, the proportion of pupils who had poor sexual health knowledge decreased by half.<sup>183,184</sup> In 1999, good sexual health knowledge was strongly positively associated with school-based SE (adjusted POR: 4.63; 95% CI: 1.91–11.24), as well as with personal experience of sexual intercourse (adjusted POR 1.69; 95% CI: 1.15–2.49). The authors concluded that the route of acquiring sexuality-related information from school is far less risky for adolescents than through personal experience.<sup>185</sup>

According to the Youth HIV Study in 2005 and 2007<sup>186, 187</sup> the level of knowledge about HIV transmission, STIs, and ways of protecting oneself against STIs (condom use) was clearly better among 14- to 18-year-olds who reported that these topics had been thoroughly handled in SE classes, in comparison with other students. By 2005, when SE was firmly established, the vast majority of youths had good knowledge related to HIV/AIDS, STIs and the ways of protecting themselves.<sup>188</sup> Another survey among 18-year-old women demonstrated that poor sexual health knowledge increased the risk of unplanned pregnancy threefold (adjusted POR: 3.07; 95% CI: 1.73–5.46). The authors concluded that 'comprehensive SE affects young people's behaviour and should be provided to all young people to enable them to understand the consequences of sexual intercourse

<sup>177</sup> Haavio-Mannila, E. and Kontula, O. 2001. *Seksin trendit meillä ja naapureissa*. [Trends in sexual life in Finland and among neighbours]. Helsinki, Werner Söderström OY (in Finnish).

<sup>178</sup> Katus, K. Puur, A. and Sakkeus, L. 1995. *Estonian Family and Fertility Survey. Standard tabulations*, Tallinn, Estonian Interuniversity Population Research Center.

<sup>179</sup> Leinsalu, M., Grintšak, M. and Noorkõiv, R. 1999. *Estonian Health Interview Survey. Tables*. Tallinn, Institute of Experimental and Clinical Medicine.

<sup>180</sup> Lõhmus, L., Trummal, A. and Harro, M. 2003. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>181</sup> Lõhmus, L. and Trummal, A. 2005. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>182</sup> Lõhmus, L. and Trummal, A. 2007. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>183</sup> Papp, K. 1997. *Knowledge of sexual issues, moral beliefs and sexual experiences among adolescents in Estonia and Finland. Academic dissertation*. Jyväskylä, STAKES.

<sup>184</sup> Papp, K. et al. 2001. *Noorsoouuring KISS. [The Youth Sexual Maturation Survey KISS]*, Tartu, Estonian Family Planning Association (in Estonian with English summary).

<sup>185</sup> Part, K. et al. 2008. Factors associated with Estonian adolescents' sexuality-related knowledge: Findings from the 1994 and 1999 KISS studies. *European Journal of Contraception and Reproductive Health Care*. Vol. 13, No. 2, pp. 173–181.

<sup>186</sup> Lõhmus, L. and Trummal, A. 2005. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*, Tallinn, National Institute for Health Development (in Estonian).

<sup>187</sup> Lõhmus, L. and Trummal, A. 2007. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>188</sup> Tellmann, A. et al. 2003. *Estonian Medical Birth Registry 1992–2002. Estonian Abortion Registry 1996–2002*. Tallinn, National Institute for Health Development.



and conception' (p. 269).<sup>189</sup> In conclusion, the available data indicate that school-based SE is associated with knowledge of sexuality-related matters such as HIV/AIDS, STIs, and how to protect oneself against unintended pregnancy and STIs. At the same time there is evidence that good knowledge reduces the risk of unplanned pregnancy.

## *Improvement of preventive behaviour*

### *Contraceptive and condom use*

Available data show that in the first decade of the twenty-first century in Estonia, substantially more young people than in preceding decades use a condom during their first sexual intercourse. According to the CSHIR carried out in Estonia in 2000, 22 per cent of 18- to 34-year-old women and 27 per cent of men had used a condom at first intercourse.<sup>190</sup> Seven years later, the Youth HIV Study 2007<sup>191</sup> showed that 75.2 per cent (male and female) of 16- to 18-year-old respondents had used a condom. Other studies have shown similar results.<sup>192, 193, 194</sup>

According to the EFFS carried out in 2004–2005,<sup>195</sup> 65.7 per cent of women and 61.3 per cent of men in the 1979–1983 birth cohort had used a modern contraceptive method at first intercourse, while in the 1969–1973 birth cohort, i.e. ten years earlier, these proportions were 30.3 per cent and 32 per cent respectively. The HBSC studies<sup>196, 197</sup> also indicate considerable increases in contraceptive use. By 2005 contraceptive and condom use at first intercourse had reached levels comparable to or even above western European levels.

## *Changes in sexual health outcome indicators*

### *HIV and STIs*

Estonia experienced an explosion in HIV infections in 2001,<sup>198</sup> mainly among young Russian injecting drug users (IDUs). According to the anonymous AIDS counselling centres, IDUs accounted for 90 per cent of new HIV cases in 2001, 66 per cent in 2003 and 54 per cent in 2007.<sup>199</sup> Since 2002 the number of new cases has declined rapidly among both sexes and in all age groups (see Table 8-2).

The highest risk group used to be 15- to 24-year-olds, who comprised 59 per cent of all diagnosed cases of HIV in Estonia up to the end of 2009. However, over the past eight years, the most prominent decline in registered cases has also been in this age group: only 25 new cases in 2009 compared to 560 in 2001.<sup>200</sup>

<sup>189</sup> Haldre, K. et al. 2009. Individual and familial factors associated with teenage pregnancy: an interview study. *European Journal of Public Health*. Vol. 19, No. 3, pp. 266–270.

<sup>190</sup> Haavio-Mannila, E. and Kontula, O. 2001. *Seksin trendit meillä ja naapureissa. [Trends in sexual life in Finland and among neighbours]*. Helsinki, Werner Söderström OY (in Finnish).

<sup>191</sup> Lõhmus, L. and Trummal, A. 2007. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>192</sup> Lõhmus, L. et al. 2003. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>193</sup> Katus, K. et al. 2008. *Estonian Family and Fertility Survey. Second round. Standard tabulations*. Tallinn, Estonian Interuniversity Population Research Center.

<sup>194</sup> Lõhmus, L. and Trummal, A. 2005. *Knowledge, attitudes and behaviour related to HIV/AIDS among Estonian youth. Survey report*. Tallinn, National Institute for Health Development (in Estonian).

<sup>195</sup> Katus, K. et al. 2008. *Estonian Family and Fertility Survey. Second round. Standard tabulations*. Tallinn, Estonian Interuniversity Population Research Center.

<sup>196</sup> Currie, C. et al. (eds). 2004. *Young People's Health in Context: international report from the HBSC 2001/02 survey*. Health Policy for Children and Adolescents, Copenhagen: WHO Regional Office for Europe, No. 4.

<sup>197</sup> Currie, C. et al. (eds). 2008. *Inequalities in young people's health: international report from the HBSC 2005/06 survey*. Health Policy for Children and Adolescents, Copenhagen: WHO Regional Office for Europe, No. 5.

<sup>198</sup> Lai, T. et al. 2009. *Modelling Estonia's concentrated HIV epidemic. A case study*. Copenhagen: Geneva, World Health Organization.

<sup>199</sup> Rüütel, K. 2009. *HIV-epidemic in Estonia: injecting drug use and quality of life of people living with HIV. Dissertationes medicinae universitatis Tartuensis*. Tartu, Tartu University Press.

<sup>200</sup> Rüütel, K. 2009. *HIV-epidemic in Estonia: injecting drug use and quality of life of people living with HIV. Dissertationes medicinae universitatis Tartuensis*. Tartu, Tartu University Press.

Table 8-2: New HIV infections, by year and by age group, Estonia, 2000–2009

Number of new HIV infections				
Year	15–19y	20–24y	15–24 <sup>y</sup>	All ages
1988–1999	8	14	22	96
2000	170	98	268	390
2001	560	574	1,134	1,474
2002	306	329	635	899
2003	210	350	560	840
2004	164	285	449	743
2005	130	222	352	621
2006	78	213	291	668
2007	53	190	243	633
2008	25	143	168	545
2009	25	82	107	411

The numbers of two registered STI cases among 15- to 24-year-olds are shown in Table 8-3. There was a dramatic increase in registered cases of syphilis and gonorrhoea in the middle of the 1990s in all age groups. The decreasing trend started at the end of the decade: 3,535 cases of gonorrhoea were registered in 1993 compared to only 127 cases in 2009. The number of syphilis cases declined from 1,099 in 1997 to only 59 in 2009.<sup>201</sup> Among young people the decreases were even more dramatic: syphilis infections almost disappeared, and gonorrhoea incidence decreased more than tenfold. It must be noted that these trends occurred in parallel with both an increase in sexual activity and in testing.<sup>202</sup>

Table 8-3: Registered STI infections, by year and by age group, Estonia, 2000–2009

Year	Syphilis			Gonorrhoea		
	15–19y	20–24y	15–24 <sup>y</sup>	15–19y	20–24y	15–24y
1998	116	238	354	263	487	750
1999	101	180	281	168	339	507
2000	70	110	180	102	267	369
2001	39	97	136	78	224	302
2002	24	66	90	66	175	241
2003	22	51	73	65	136	201
2004	9	33	42	69	144	213
2005	8	22	30	41	65	106
2006	6	19	25	51	71	122
2007	1	12	13	25	38	63
2008	2	6	8	13	29	42
2009	2	4	6	20	42	62

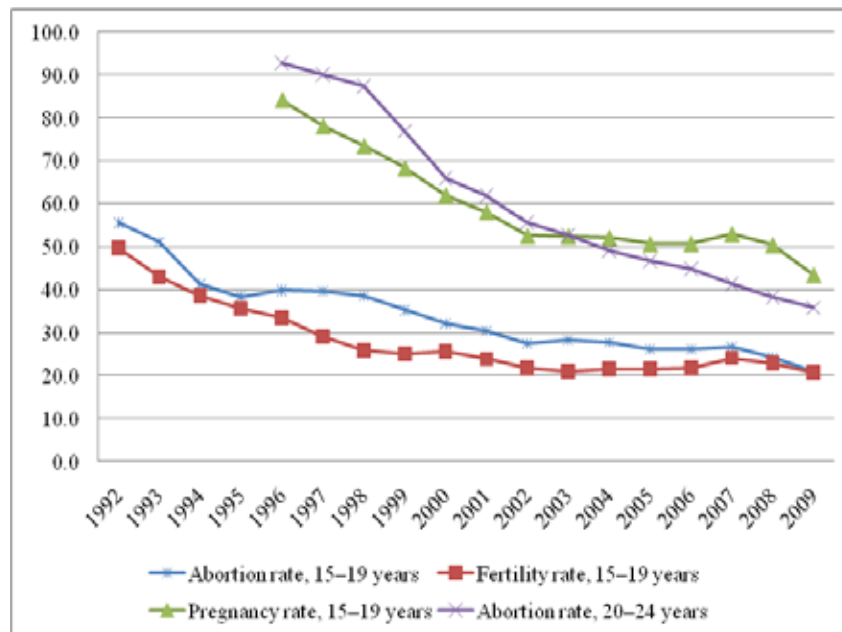
<sup>201</sup> See note 30.

<sup>202</sup> Part, K. and Pertel, T. (eds). 2009. *Amor youth clinic network in Estonia. Analytic case studies: initiatives to increase the use of health services by adolescents*. Geneva, World Health Organization.

## Pregnancies

Figure 8-7 shows trends in abortion, birth and pregnancy rates (per 1,000 women) in the 15 to 19 age group and abortion rate in the 20 to 24 age group.

Figure 8-7: Legally induced abortion, live birth and pregnancy rates in Estonia



The pregnancy rate, i.e. the sum of the abortion and birth rate, declined from 105.2 (per 1,000 females aged 15 to 19) in 1992 to 41.6 in 2009 – a 60.5 per cent decline. The birth rate declined by 58.6 per cent, and the abortion rate by 62.1 per cent during this period. Most of these declines occurred between 1992 and 2001, but between 2001 and 2009 the birth rate continued to decline by another 13.3 per cent, and the abortion rate by another 30.1 per cent. Among women aged 20 to 24, the abortion rate declined by 58 per cent between 2001 and 2009.

## Discussion

This study explores the relationship between the development and spread of school-based SE (and YCCs) and concurrent changes in sexual health knowledge, attitudes, behaviour and relevant sexual health indicators. Both the development of school-based SE and the creation of YCCs have been gradual processes, and both were closely linked.

The SE curriculum was gradually implemented from 1996 onwards. Research results indicate that around 2005, SE was in place in most Estonian schools. SE could be expected to start having an impact after the year 2000. This impact could be expected to gradually increase as a result of growing coverage and increased quality.

For impact assessment it is essential to take the trend towards earlier initiation of sexual contacts into account, because this increases the size of the group at risk. Data indicates that the median age of first intercourse among young women declined from about 18 in 1990 to about 17 in 2005.<sup>203</sup>

<sup>203</sup> Currie, C. et al. (eds). 2008. *Inequalities in young people's health: international report from the HBSC 2005/06 survey*. Health Policy for Children and Adolescents, Copenhagen: WHO Regional Office for Europe, No. 5.

Several research results show that there is a direct relationship between SE and sexual health knowledge, and between sexual health knowledge and sexual health outcomes. Furthermore, there is a strong correlation over time between the development of SE and the improvement in sexual health indicators among young people. The latter provide additional support to the assumption that SE and YCCs have had a sexual health impact, although the magnitude of that impact cannot be assessed precisely.

Although improvements in adolescent sexual health indicators started before the year 2000, which cannot be attributed to SE, these improvements continued from 2001 onwards. These latter improvements are likely to be largely due to the developing SE programme, in combination with the evolution of youth-friendly sexual health service delivery.

The improvement in youth sexual health indicators since 2000 has been impressive. They include not only unprecedented reductions in STI and HIV infection rates, but also sizeable downward trends in abortion and teenage birth rates, because of sharp increases in condom and contraceptive use among young people, even at their very first sexual contact.

## 8.4 Cost-effectiveness analysis

### Introduction

This chapter reports on an explorative cost-effectiveness analysis of the SE programme in Estonia. It relates the SE programme cost estimates from Chapter 8.2 to the impact of the SE programme in Estonia on a range of health outcomes. Whereas this chapter presents a quantitative interpretation of the impact of the SE programme, Section 8.3 provides a more qualitative assessment on the potential impact, and hence provides useful background reading.

### Methods

This section explains the methodological approach to estimating the impact of the SE programme, and reports on the choice of health outcomes indicators, and the interpretation of these indicators to arrive at impact scenarios. Details of the costing methods are reported in Section 8.2.

### *Health outcome indicators*

The Estonian SE programme may have a potential impact on a number of health outcomes. We used three indicators to assess programme impact. First, unintended pregnancies defined as: i) all abortions and 50 per cent of births<sup>204</sup> in the 15- to 19-year-old age group, and ii) all abortions and 10 per cent of births in the 20- to 24-year-old age group. Second, sexually transmitted infections including syphilis, gonorrhoea and chlamydia – these were grouped together as STI cases, by the Estonian Health Board, 2009.<sup>205</sup> Third, HIV infections, defined as numbers of diagnosed new HIV infections in the 15- to 19-year-old age group and the 20- to 24-year-old age group, as included in the HIV register system of the Ministry of Health of Estonia.<sup>206</sup> We excluded injecting drug user (IDU)-related HIV infections, as IDUs are not a target group of the SE programme (although they are in the larger human studies programme, into which SE is integrated) and the vast majority of infections among IDU were initially caused by unsafe injecting behaviour and not sexual transmission. According to AIDS counselling centres in Estonia, 90 per cent of new HIV infections in 2001 were IDU-related, and this declined to 48 per cent in 2009.<sup>207</sup> Data on the trends in unintended pregnancies, STIs and new HIV infections were available during the whole duration of the SE programme.

<sup>204</sup> Estonian Medical Birth Registry, Estonian Abortion Registry, live births and legally induced abortions, 1998–2009.

<sup>205</sup> Estonian Health Board, 2009, registered STI cases per age group, 1998–2009.

<sup>206</sup> HIV register system of the Ministry of Health of Estonia, 2009.

<sup>207</sup> National Institute for Health Development. Annual reports of the Anonymous AIDS. Tallinn, Estonia.

## *Impact evaluation*

Trends in health outcome indicators over time may be explained by a number of events, including the SE programme. We carefully: i) considered as a starting point that any impact could take place; ii) adjusted the time trend to account for demographic changes; and iii) adjusted the time trend to account for increasing sexual activity with increasing age over time. We then defined various scenarios on what the impact of the SE programme could be. These steps are discussed in turn.

## *Starting point of analysis*

We assumed that the Estonian SE programme would only influence students' sexual behaviour *after* they had completed the SE curriculum, because, at the beginning of the programme, students are on average 12 years old and hardly any of them are sexually active at that young age. Later, at the end of the curriculum, approximately half the students are sexually active and so the SE programme can be expected to have had an impact on their behaviour. The SE programme started in 1996 and was taught initially over five years. Impact of the programme was assumed to begin 5 years later, in 2001, when the first students were, on average, 17 years old. Therefore data for 2001 was used as a baseline for impact analyses for the 15- to 19-year-old age group. Furthermore, we accounted for increasing sexual behaviour with age – we used the year 2004 as the starting point that any impact could occur among the 20- to 24-year-old age group. The change of grades to which the curriculum was taught in 2003 was assumed not to influence the impact or timing of it.

## *Demographic changes*

Estonia has undergone serious demographic changes in recent years, and the population in the 15- to 19-year-old age group declined rapidly by 17.4 per cent between 2005 and 2009.<sup>208</sup> We filtered out the impact of this population decrease on the reduction of pregnancies, STIs and HIV infections, as these should not be attributed to the SE programme. The population size of the 20- to 24-year-old age group has remained constant during the study period, but a decline is expected after 2010, when the younger age group reaches this age.

## *Increasing proportion of sexually active population*

The proportion of sexually active people in the 15- to 19-year-old age group increased from 37 per cent in 1990 to 50 per cent in 2005.<sup>209</sup> This development increases the size of the group at risk, and was taken into account when assessing the impact of the SE programme. Time-wise changes in the proportion of sexually active people in the 20- to 24-year-old age group were not observed, because the vast majority of the population at this age is sexually active already.

## *Other factors*

Modern contraceptives became widely available in Estonia during the first half of the 1990s. The availability and use of modern contraceptives have certainly influenced the trends in unintended pregnancies, STIs and HIV infections. However, these changes took place before 1995, before the SE programme began. The availability of modern contraceptives was a pre-condition for the SE programme to have an impact. Therefore, use of contraceptives was not factored in impact estimations of the SE programme. Secondly, the SE programme is closely linked with YCCs – the two interventions were developed and implemented simultaneously. The impact of each of them is conditional on the availability of the other. Therefore the impacts of these two interventions were and cannot be separated. Finally there are other factors, such as

<sup>208</sup> Population stat.ee.

<sup>209</sup> These percentages correspond to the average age of first intercourse of 18 years around 1990, and 17 years around 2005 (see Section 8.3.3.2).

socio-demographic changes, that influence the sexual behaviour of the students. However, these factors were assumed to have a minor impact on the indicators used, and were therefore excluded from the analysis.

## Results

### Trends in health outcome indicators

The number of registered abortions in Estonia in the 15- to 19 and 20- to 24-year-old age groups are shown in Figure 8-8. In the 15- to 19-year-old age group, the number of abortions has declined by 45 per cent, from 1,568 cases in 2001 (starting point of analysis) to 864 in 2009. In the 20- to 24-year-old age group, abortions declined by 24 per cent, from 2,457 cases in 2004 (starting point of analysis) to 1,867 cases in 2009. The combined cumulative reduction of unintended pregnancies in the two age groups is shown in Figure 8-9. In total there have been 4,280 fewer unintended pregnancies in the target group of the SE programme since 2001. This data was adjusted for demographic changes and earlier sexual debut.

Figure 8-8: Abortions per year in age groups 15–19 years and 20–24 years

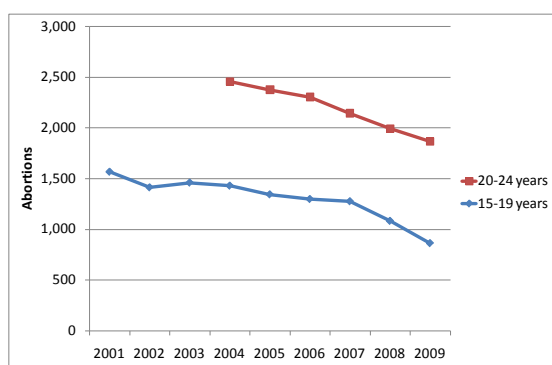
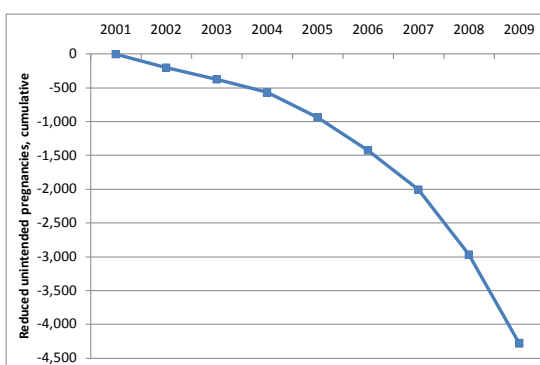


Figure 8-9: Cumulative reduced unintended pregnancies in age groups 15–19 years and 20–24 years



Diagnosed STIs among 15- to 19-year-olds and 20- to 24-year-olds are shown in Figure 8-10. In the younger age group the infections declined by 62 per cent, from 1,153 cases in 2001 to 435 in 2009. In the older age group STIs dropped from a high of 1,769 cases in 2004 to 890 infections in 2009, which represents a 50 per cent decline from 2004. The combined cumulative reduction of STIs in the two age groups is shown in Figure 8-11. In total there have been 7,240 fewer diagnosed STI cases among the target population of the SE programme since 2001. This data was adjusted for demographic changes and earlier sexual debut.

Figure 8-10: STI cases per year in age groups 15–19 years and 20–24 years

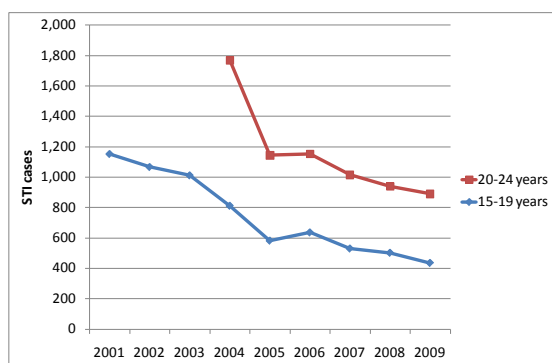
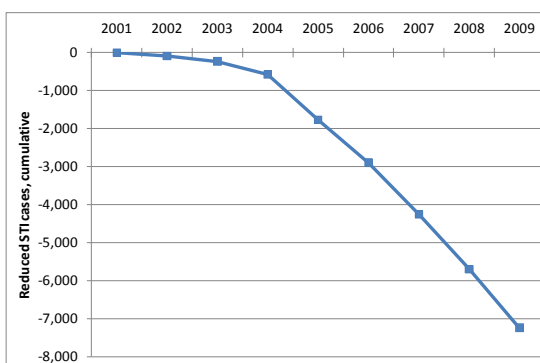


Figure 8-11: Cumulative reduced STI cases in age groups 15–19 and 20–24 years





The number of diagnosed new HIV infections has dramatically decreased in the 15- to 19-year-old and the 20- to 24-year-old age groups during the period 2001–2009<sup>210</sup> (Figure 8-12). In the younger group the number of new HIV infections dropped by 96 per cent, from 560 new HIV+ cases in 2001 to only 25 new diagnoses in 2009. In the older group the reduction was 71 per cent, from 285 new HIV+ cases in 2004 to 82 new diagnoses in 2009. Figure 8-13 shows the cumulative averted HIV infections in these same age groups, after our adjustments for demographic changes, increasing sexual behaviour with age, and the proportion of HIV infections that are not sexually transmitted. We estimated that there have been 1,970 fewer diagnosed HIV infections in the two age groups between 2001 and 2009.

Figure 8-12: Diagnosed new HIV infections per year in age groups 15–19 years and 20–24 years

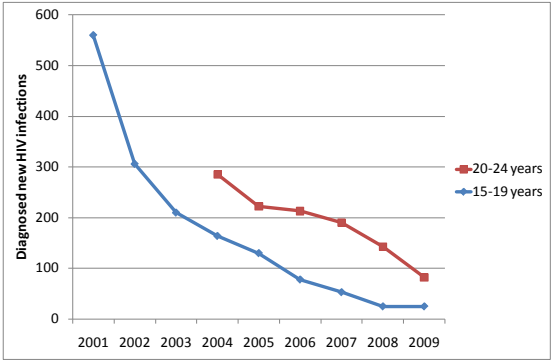
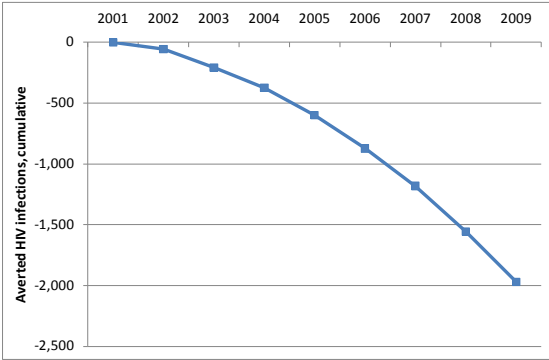


Figure 8-13: Cumulative averted HIV infections in age groups 15–19 years and 20–24 years



### Impact

The maximum possible impact of the SE programme on unintended pregnancies and STIs including HIV infections in the age groups 15- to 19-years and 20- to 24-years is summarized in Table 8-4. This table should be interpreted in the context of the above discussion of the attribution of impact to the SE programme. Since that discussion remains predominantly qualitative, it is difficult to be more precise on the quantitative impact of the SE programme.

Table 8-4: Maximum possible Impact of the SE programme during the period 2001–2009

Health effects	Unintended pregnancies	STIs	HIV infections
Number	4,280	7,2 <sup>40</sup>	1,970

### Exploratory cost-effectiveness analyses

Total programme costs were US\$5.6 million (EEK 63.2 million) for the period 1991–2009 (see section 8.2 for details). Table 8-5 shows the results of the explorative cost-effectiveness analysis for the SE programme considering only averted HIV infections.

Cost-effectiveness analysis should not only include SE programme costs but also net savings from averted treatment costs. Average annual costs of treatment of HIV/AIDS in Estonia equalled US\$8,416 per patient in 2009, and this included costs of antiretroviral drugs (US\$5,362), outpatient treatment (US\$427) and inpatient treatment (US\$2,627).<sup>211</sup> These costs exclude those of diagnosis. In the most conservative scenario,

<sup>210</sup> Estonian Health Board. 2009. Newly diagnosed HIV-cases 1997–2009.

<sup>211</sup> Estonian Ministry of Social Affairs. 2009. Summary Report of HIV.

anticipating an antiretroviral price reduction<sup>212</sup> from 2011 onwards to US\$176 per patient year<sup>213, 214</sup>, average annual treatment costs decrease to US\$3,230. With an average age of HIV and AIDS diagnosis around 27 and 30 years respectively,<sup>215</sup> and assuming a remaining life-expectancy of 32 years after becoming infected with HIV,<sup>216</sup> the total undiscounted life-time treatment costs would amount to around US\$103,360 in Estonia. If discounted for time-preference with a 3 per cent discount rate, these costs would amount to US\$67,825. Table 8-5 shows that cost savings from averted treatment costs equal SE programme costs where case the programme prevented only 83 HIV infections. This constitutes 4 per cent of the observed reduction of HIV-infections in Estonia in the period 2001–2009 (after controlling for other factors mentioned above). In other words, our analysis suggests that the SE programme is cost-saving if 4 per cent or more of the observed reduction in HIV infection can be attributed to it.

Table 8-5: Cost, savings and impact of the SE programme

Programme costs (US\$) <sup>217</sup> (a)	Lifetime treatment costs per HIV infection (US\$) <sup>218</sup> (b)	Number of averted HIV infections at break-even point <sup>†</sup> (c) = (a)/(b)	Observed reduced number of HIV-infections in Estonia 2001-2009 (d)	Required impact to make SE programme cost saving (e) = (c)/(d)
5.6 million	67,825	83	1970	4%

† At the break-even point, SE programme costs equal savings from averted HIV treatment costs

### Discussion on cost-effectiveness

The Estonia SE programme can be considered cost saving if 4 per cent or more of the observed reductions in HIV infections are attributed to the programme. Our qualitative and quantitative analysis in previous sections of this chapter demonstrate that the impact is likely to be much higher, and we therefore confidently conclude that the SE programme in Estonia has been a cost-saving intervention. It is important to consider that our quantitative estimates are conservative in the sense that they do not include the health care costs of abortions (in a proportion of all unintended pregnancies) and STI treatment, let alone the value of non-health outcomes. Also, it should be emphasized that the impact of the Estonian SE programme can only be achieved in the presence of youth-friendly sexual health service centres (YCCs), as they are interlinked. As we did not include the costs of YCCs in the present analysis, results are therefore conditional on the presence of these centres and should be interpreted with caution.

The analysis of impact and cost-effectiveness faced major challenges. Firstly, it was not possible to show or measure to what extent the remarkable improvements of sexual health indicators of Estonian youth are attributable to the SE education programme. Secondly, we based our impact analysis for HIV infections on a trend analysis, and this has two limitations: firstly, the trend only reflects reported cases and not non-diagnosed cases. Second, the trend reflects actual policy in Estonia, and the incidence may have been higher in the absence of any HIV/AIDS control programme. Our approach can hence be interpreted as conservative. In reality, the SE programme has most likely prevented more HIV infections, but this cannot be measured.

<sup>212</sup> Waning, B. et al. *Benchmarking antiretroviral prices in countries of the former Soviet Union*. Boston University, School of Public Health 2008.

<sup>213</sup> World Health Organization. 2010. *Antiretroviral therapy for HIV infection in adults and adolescents: recommendations for a public health approach*. Geneva, World Health Organization.

<sup>214</sup> Médecins Sans Frontières. 2010. *Untangling the Web of Antiretroviral Price Reductions: 13th edition*, (lowest generic price for FDC TDF/3TC/EFV).

<sup>215</sup> Prevalence of HIV and other infections and risk behaviour among injecting drug users in Latvia, Lithuania and Estonia in 2007 ([http://www2.tai.ee/TAI/PREVALENCE\\_OF\\_HIV\\_AND\\_OTHER\\_INFECTIONS\\_AND\\_RISK\\_BEHAVIOUR\\_eng\\_2009.pdf](http://www2.tai.ee/TAI/PREVALENCE_OF_HIV_AND_OTHER_INFECTIONS_AND_RISK_BEHAVIOUR_eng_2009.pdf)) (Accessed 12 March 2011).

<sup>216</sup> 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.

<sup>217</sup> Total programme costs 1991–2009.

<sup>218</sup> Discounted life-time HIV/AIDS treatment costs.

# 9 The Netherlands

## The Long Live Love programme in the Netherlands

### Selected country characteristics

Population size (millions)	16.5
% population <15 years	18%
Gross GDP per capita (US\$)	48,223
Net secondary school enrolment Male/female	M: 88% F: 89%
Overall HIV prevalence (%)	0.2
Teenage birth rate (per 1,000 15–19 years)	4

Map 9-1: Map of the Netherlands



### Programme description

Contributions by: Jos Poelman, Sanderijn van der Doef and Sanna Maris

### Cost analysis

Contributions by: Jos Poelman and Loic Abballéa

## 9.1 Programme description

### Country background information

The Netherlands is a highly developed country, and member of the European Union. In 2010 it had a population of 16.5 million, including some 3.4 million immigrants, of whom 55 per cent are from developing countries (mainly Suriname, Dutch Antilles, Turkey and Morocco). Eighteen per cent of the population is under 15 years old<sup>219</sup> and gross domestic product per capita was US\$48,223 (€34,623) in 2009.<sup>220</sup> The country is ranked seven in the UNDP's Human Development Index.<sup>221</sup> The Netherlands is well known for the high sexual and reproductive health status of its population, characterized by a high contraceptive prevalence rate, and very low abortion and teenage pregnancy rates.

The first initiatives to include SE in school curricula started in the early 1970s, and gradually spread across the country. Many of those initiatives were taken by individual schools or teachers. Initially, the Ministry of Education was not much involved, but during the 1980s, when STI and AIDS problems came to the fore, the Dutch Government decided to invest in explicit and open sexual health and STI/AIDS education in schools. A late 1980s survey suggested that some sex and STI education was provided by 85 per cent of Dutch

<sup>219</sup> Statistics Netherlands, 2010.

<sup>220</sup> International Monetary Fund. April 2010. *World Economic Outlook Database*.

<sup>221</sup> United Nations Development Programme. 2010. *Human Development Report*. New York, UNDP.

secondary schools, generally by hygiene or biology teachers. In 1985 targets were introduced for primary schools, which concerned healthy behaviour and self-regulation, including sex and sexuality issues. In 1993 similar targets were set for secondary schools.

Schools in the Netherlands have a high degree of independence in deciding on curricula, particularly non-examination ones. A school can be started by any group, as long as various conditions are met, and schools can decide on their own curriculum, although the Ministry of Education defines several examination criteria. In practice, most schools are municipal (i.e. secular), protestant or Roman Catholic, and nowadays there are also several Islamic schools. Schools themselves can decide whether they want to include some form of SE, for which there are several curricula available to schools 'in the market'. At the same time, however, the Ministry of Education requires schools to include in their curricula two subjects: biology and (personal) care; and it outlines several details for these two subjects. For example, biology must include 'sexuality and reproduction' and '(prevention of) pregnancy'; and (personal) care must include 'STI risk reduction', 'combination of individual wishes and (behavioural) boundaries', and 'starting and managing relationships'. This means that, although SE is not prescribed as such under that heading, in practice, to some extent, it is. But the Ministry of Education does not stipulate a specific curriculum.

The two most widely known and used curricula are 'Relaties en Seksualiteit' (Relationships and Sexuality – R&S) for primary schools, and 'Lang Leve de Liefde' (Long Live Love – LLL) for secondary schools. Both were initially developed around 1990. Only the LLL curriculum is presented in this chapter, but reference to R&S is also made.

The R&S curriculum for primary schools (eight grades, ages four to 12) was developed in 1990, and later extended and improved. There are various suggested lessons (49 in total), from which teachers can choose. In the lower grades the focus of attention is on: getting to know the human body, image of yourself and others, nudity, differences between boys and girls, friendship, and touching the body. With increasing age, interest, and level of understanding of the pupils, attention gradually shifts to topics such as: self-perception, how boys and girls think about the other sex, how to make and maintain friendship, being in love and what 'sex' means, including sexual abuse. In the highest grades (age ten to 12) important topics are: changes during puberty, friendship and love, (starting) relationships, sexuality and contraception and resisting unwanted peer pressure. The curriculum takes into account all stages of sexual, social, emotional and physical development of children. The lessons fit in three educational 'domains' prescribed by the Ministry of Education:

- Physical and emotional development
- Social development and relationships
- Sexuality and health

The methodology is playful and varied.

A 2010 study (forthcoming) indicates that about 10 per cent of primary schools (about 350 schools with 70,000 pupils) were using the programme, and that the number of schools doing so is increasing rapidly. The number of teaching hours per grade is on average 6 to 7. In schools that implement the programme every year in each grade (it is not known what proportion of schools do so), pupils are being subjected to it for about 50 hours before entering secondary education. This investment in 'relationships and sexuality education' in primary schools is important because it partly explains why the LLL curriculum for secondary schools discussed below can be brief.

Schools in the Netherlands have a high degree of independence in deciding on curricula, particularly non-examination ones.

## 'Lang Leve de Liefde' (Long Live Love; LLL)

### *Curriculum development*

The Long Live Love (LLL) curriculum was initially developed around 1990 by the Dutch STI Foundation (which merged later on with an HIV/AIDS agency to become STI AIDS Netherlands). The name of the curriculum highlights the approach which has been dominant in the Netherlands since the start of SE initiatives in the early 1970s: positive, appealing, pleasurable and humorous, with risk prevention as a pre-condition to keep it pleasurable. The first version of the programme (LLL1 – 1990–1992) still lacked a firm theoretical framework and empirical research basis. Input only came from students and intermediaries (teachers), and no evaluation research was done.

This fundamentally changed during the development of the second edition (LLL2 – 1993–1998). With assistance from Maastricht University and others, this edition was developed using a planned and step-wise approach – one that has strongly contributed to what has since become known as 'intervention mapping', a protocol for the systematic use of empirical, theoretical and practical knowledge in the development of health promotion programmes.<sup>222</sup> The theory-based and didactically sound LLL2 has been demonstrated to have the intended impact (see evaluation, section 9.1.2.6).

The 3<sup>rd</sup> edition of the programme (LLL3) was developed 1999–2001 and launched in 2001, and was used until 2010 (with some minor adaptations during that period). The main reasons for the 2001 revision, which was again based on intervention mapping, were:

- Need for information update on STI/HIV/AIDS;
- Extension with information on prevention of unintended pregnancy (hardly included before);
- Risk prevention needed to be more closely related to behavioural competencies;
- Need for stronger focus on gender equity and on various minority (immigrant) groups.

Rutgers Nisso Group (RNG, see R&S programme) and Maastricht University participated in the development of this new version. In 2003, the LLL3 video was nominated for the 'Global Awards' in New York, from a total number of 1,100 competitors from 33 countries.

In 2009–2010, LLL4 was developed, and is available in 2011. It turned out in practice that every five to ten years a new version is needed, because youth culture and youth images and idols change, new research results indicate the need for new adaptations, and new educational approaches and new challenges and risks emerge. For example, in the Netherlands, the risk for girls of being seduced into sex work by so called 'lover boys' (i.e. young men who present themselves as generous and attractive boyfriends to vulnerable girls, but who have a hidden agenda of gradually pushing these girls into prostitution) had become a serious issue, receiving extensive public attention. This issue has therefore been integrated in the curriculum as an extension option. Another important innovation has been that the curriculum has been made feasible for more target groups.

### *Objectives and target groups*

The main objective of the curriculum is development of interaction competency in intimate (including sexual) relationships between boys and girls, in order to enable them to have such contact in safe, equal and satisfactory (pleasurable) ways. The concept of 'interaction competency' refers to the combination of adequate knowledge, attitudes, communicative and social skills, and behavioural strategies that help people to manage

<sup>222</sup> Bartholomew, K. et al. 2001. *Intervention mapping: designing theory and evidence-based health promotion programmes*. Mountain View, CA, Mayfield.

and experience their sexual contacts in positive ways.<sup>223</sup> Adequate prevention of sexual hazards (STIs, HIV, unintended pregnancy and sexual intimidation) is a crucial part of sexual interaction competency.

Initially, as the curriculum was developed by an STI agency, issues such as unintended pregnancy, abortion, sexual abuse and gender differences were hardly included, but in collaboration with RNG, from 2000 onwards this shortcoming was corrected in LLL3. Also, the target group was gradually extended. Initially, this had only been 13- to 15-year-old pupils of grade 2 and 3 in VMBO schools, which are preparatory schools for second-level vocational training and attended by about 60 per cent of all 12- to 16-year-olds. Pupils of these schools constitute the 'most at risk' group, because they tend to start sexual relationships at a relatively young age. Pupils in the first phase (12- to 14-years-old) of higher level schools, preparing for high vocational and university training, were only included as target groups with the LLL4 edition (there was already a version for the second phase of these schools). At the same time an adapted version was made available for pupils with poor language capabilities, i.e. mostly (children of) new immigrants. As a result, the programme is now available for almost all 13- to 15-year-old pupils in the country.

It is not precisely known how widely the curriculum is being implemented, although it is known that it is the most widely used one.<sup>224</sup> A 2007 survey among Municipal Health Services (GGD) indicated that 90 per cent offered the curriculum to schools in their region.<sup>225</sup> By 2010 all GGDs did so, according to STI AIDS Netherlands, which trained 130 to 150 GGD officials in supporting the use of the curriculum in schools in their region since 2001. It is estimated that about 50 per cent of target schools currently implement the curriculum. A study in Amsterdam indicated that up to 70 per cent used it in 2005. It is not possible to determine how many target schools (i.e. VMBO schools) there are, for two reasons. First, VMBO is essentially a curriculum (with several different interpretations to choose from) that can be taught in different kinds of schools, which are often combinations of several secondary school types. In other words: a VMBO school is not necessarily a building or an administrative entity. Second, 'schools', defined as administrative entities, may have several 'satellite schools' in different places, which makes the word 'school' a vague term which becomes meaningless in the context of this study. In addition to this, if the SE curriculum is used in a 'school' it does not necessarily mean that all pupils will get it.

### *Position in wider curriculum*

As mentioned in the introduction, there is no mandatory SE in schools, but the Ministry of Education requires teaching of biology and (personal) care, and both these subjects have to include subjects that are usually referred to as SE. So, in this sense, SE is mandatory. Furthermore, schools should pay attention to issues that go beyond specific teaching subjects, such as 'learning how to learn', 'learning how to communicate' and 'reflecting on the process of learning', where SE can easily be included. The LLL curriculum for secondary schools is recommended to be included in these latter tasks or in the two main subjects that are close to SE. It should be stressed that it is not taught as an optional, after-hours subject. The subject as a whole is not an examination subject, but certain elements are.

### *Characteristics of curriculum*

Like its predecessors, LLL4 includes six lessons and an optional in-depth extension on the threat of 'lover boys' (see above), as well as one on homosexuality. The six lessons, each requiring a lesson hour (mostly 50 minutes) are entitled:

- 1) When you are in love
- 2) And then you have a relationship

<sup>223</sup> Schaalma, H. et al. 1996. Planned development and evaluation of AIDS/STD education for secondary school students in the Netherlands: Short-term effects. *Health Education Quarterly*, Vol. 23, pp. 469–487.

<sup>224</sup> Kocken, P.S. et al. 2007. *Een inventarisatie van seksuele gezondheids-bevorderingsinterventies voor de jeugd van 10 tot 21 jaar [An inventory of health promotion interventions for 10- to 21-year-old youths]*. TNO (National Scientific research Organisation of the Netherlands) report.

<sup>225</sup> De Hollander, E. and Bogers, R. 2009. *Leefstijlinterventies in GGD-regions: inventarisatie via GGD'en. [Lifestyle interventions in GGD regions: Inventory via GGDs]*. RIVM, Centrum Gezond Leven.



- 3) How far do you want to go?
- 4) I have safe sex or no sex
- 5) What do you need to know about condoms and pills?
- 6) How do I manage? (to have safe sex)
- 7) There is also an optional examination sheet. Experienced teachers need 14 minutes preparation time per school lesson.<sup>226</sup>

The LLL4 tuition package consists of five elements:

- 1) Pupils' illustrated magazine with recognizable situations, characters and images
- 2) Related video or DVD with a story in five short episodes, played by young actors
- 3) Teacher's manual with explanations, instructions, and worksheets for pupils
- 4) LLL Poster
- 5) Condoms (for demonstration and/or distribution)

A variety of teaching methods is supposed to be used. Because in the initial stages it turned out that teachers were not very much used to alternative teaching methods, several actions have been taken since then to train them (see section 9.1.2.5). The main methods used are group discussions (after watching DVD episodes), individual and small group tasks, questions and answers, and (creative) homework. Teachers are given various optional examples of methods they can use.

There is an adapted version of the package for pupils with (Dutch) language problems, with more visual aids and less text.

### Teachers

Usually the biology or the personal care teacher is responsible for the curriculum, but it may also be the teacher of subjects such as 'societal orientation'. There is a rather complex system of training of teacher-educators and teachers, in which the Municipal Health Services (GGDs) play a key role. All 28 GGDs are offered five days' training during the project phase (after that three days' training, and more recently, two days). Core elements are: how young people experience sexuality; multicultural and gender-specific approaches to sexuality; attitude and skills building; the contents of the package; and how to arrange teacher trainings. The GGDs also develop plans for recruiting teachers for training, for which various material aids are available. Subsequently, GGD staff organize trainings of two half-days for teachers, and after that they are available for initial participation in the lessons for pupils, to give feedback and advice. The theory of Planned Behaviour<sup>227</sup> has been the methodological starting point for the training, and at least 1,000 teachers had been trained in this by 2010.

Usually the biology or the personal care teacher is responsible for the curriculum, but it may also be the teacher of subjects such as 'societal orientation'.

### Evaluations

Except for LLL1, the curriculum has been quite extensively evaluated during the past two decades. Schaalma et al<sup>228</sup> evaluated the impact of LLL2 in terms of knowledge, attitudes and (intended) behaviour among 2,430 randomly selected pupils in experimental and control schools. Results showed that experimental pupils had

<sup>226</sup> LLL school survey 2010.

<sup>227</sup> Bandura, A. 1986. *Social foundations of thought and action: A social cognitive theory*. Englewood Cliffs, New Jersey, Prentice-Hall.

<sup>228</sup> Schaalma, H. et al. 1996. Planned development and evaluation of AIDS/STD education for secondary school students in the Netherlands: Short-term effects. *Health Education Quarterly*, Vol. 23, pp. 469-487.

significantly more knowledge of STIs, a higher risk perception, more positive attitudes and intentions toward condom use and toward subjective norms, and a higher self-efficacy. There was no difference in actual risk behaviour between the experimental and control group, which was probably caused by the fact that experience was very limited anyway (pupils still being quite young).

Van Fulpen et al<sup>229</sup> evaluated the impact of LLL3 in 2002. The main objectives of this study were to find out whether the new LLL3 would have a stronger impact than its predecessor, and whether the training of teachers had additional positive effects and a better appreciation of pupils. This study confirmed the results of the earlier one, but the increase in knowledge, the increase in acceptance of homosexuality, and their own assessments of improvement of their ability to formulate wishes and set boundaries related to sexuality were stronger than in the previous LLL2 evaluation. In addition to that, it also showed that the training of teachers did have an additional positive impact on several of the variables studied.

Wiefferink et al<sup>230</sup> studied the impact of teacher training for the LLL3 curriculum. This study indicated, among other things, that trained teachers felt more able to teach the different lessons, and that they implemented more lessons than their untrained colleagues.

In 2009, Schutte evaluated the use of LLL3 by means of 130 questionnaires among teachers in 110 VMBO schools<sup>231</sup> (see section 9.1.2.2). By that time this version of the curriculum had been in use for nine years, and consequently several teachers complained that it was rather outdated. The main results were that 61 per cent of the teachers who had ever obtained the package had used it several times and were still using it now; 20 per cent had used it more than once, but not anymore; 12 per cent had used it only once; and 7 per cent had never used it. The most usual reason for discontinuing use (29 per cent) was that it was felt to be outdated (indicating how necessary the 2010 version had become after nine years). In most cases it was implemented within the subjects 'personal care' (50 per cent) or 'biology' (36 per cent), and in grade two or three (13- to 15-year-olds). It was used more often in classes where the majority of students were immigrants. More than 90 per cent of the teachers used all the materials. The study also indicated that more than half of teachers (59 per cent) used the curriculum without support from their GGD.

### Other issues

Quite a large percentage of youngsters in the Netherlands nowadays have an immigrant background, and many of them are Muslim. For that reason, the package pays explicit attention to issues that are particularly relevant for those groups, including virginity and gender equity. Some of the characters in the video/DVD are immigrants.

The package is part of a larger programme, which also includes a website, annual 'Making love safely' multi-media campaigns, and some other interventions.

The LLL3 package has to be bought by schools. The costs are: pupil's magazine: €1.39 per item; teacher manual: €23.80 per item; video/DVD: €23.80 per item.

<sup>229</sup> Fulpen, M. et al. 2002. *VMBO-scholieren, seksualiteit en seksuele vorming. Een effectonderzoek naar de vernieuwde versie van het lespakket Lang leve de liefde*. [VMBO pupils, sexuality and sexual education. An impact study of the new version of the educational package Long Live Love]. Utrecht, Rutgers Nisso Groep.

<sup>230</sup> Wiefferink, C.H. et al. 2005. Outcomes of a systematically designed strategy for the implementation of sex education in Dutch secondary schools. *Health Education Research*, Vol. 20, No. 3, pp. 323–333.

<sup>231</sup> Schutte, L. *Lang Leve de Liefde; Hoever is de implementatie? [Long Live Love; How far is the implementation?]*. [http://www.soaaidsmagazine.nl/artikel\\_onderzoek\\_1292](http://www.soaaidsmagazine.nl/artikel_onderzoek_1292) (Accessed 18 October 2010).

## 9.2 Cost analysis

### Introduction

This chapter reports on the costs of the LLL programme in the Netherlands. We answer the following questions: i) What are the costs of update of the programme? ii) What are the annual costs of implementing the programme in a school, reaching a student or training a teacher?

### Methods

Chapter 3 provides a detailed description of the costing methodology as applied in all study countries. This section describes the methods that are unique to the Netherlands, including the sources of costing data. We report on how we estimated i) programme coverage; ii) costs of update phase; iii) costs of implementation phase; iv) annual costs by school, teacher trained and learner reached. All costs are grouped in five standardized costs categories: teaching salaries, teaching materials, advocacy, training, and operations. Historical cost data were adjusted for inflation (annual inflation rates can be found in Appendix 12.2). All costs are presented in 2009 US dollars (US\$) and Euros (EUR). Costs in guilders (NLG) prior to 2002 were translated to EUR at a rate of 0.45<sup>232</sup> and Euros were translated to US dollars at a rate of 1.59.<sup>233</sup>

### *Timeline and coverage*

We summarized the key milestones of the LLL programme in a timeline, which was used to support programme costing. In the absence of records on the actual number of students reached by the programme, we calculated programme coverage from the number of pupils' magazines purchased by the secondary schools,<sup>234</sup> and factoring in that 36.7 per cent of the schools recycle the pupils' magazines over two school years and in 63.3 per cent of the schools students were allowed to keep the magazines.<sup>235</sup>

### *School survey*

A school survey was carried out to find out how the SE programme was implemented and what the school-level costs were in school year 2009. We selected ten secondary schools that were implementing the programme well. We made screening calls and selected schools where at least four out of six LLL lessons were taught during the last school year. Furthermore, we chose schools from both rural and urban locations. Interview appointments were arranged with a teacher responsible for teaching the topic. Interviews were carried out in the schools and were based on a structured interviewer-administered questionnaire. Results of the survey were used as inputs for the programme costing. The school survey summary can be found in Appendix 12.3.

### *Development and update phases*

Unfortunately no financial records were available for the initial programme development for LLL1 (1990–1991) and the first programme update LLL2 (1993–1998), because the record trail was lost in several organizational mergers, changes of accounting software and currency change from Gulden to Euro. Therefore costing was done on the second update to LLL3 (1999–2001), on what financial records were available. The third update to LLL4 (2009–2011) was excluded from the analysis as it falls outside of the timeframe of this study.

<sup>232</sup> De Nederlandsche Bank, 2002.

<sup>233</sup> The World Bank, average annual exchange rate EUR-USD 2009. <http://go.worldbank.org/S1BICLCQU0> (Accessed 31 August 2010)

<sup>234</sup> Soa Aids Nederland, LLL material records.

<sup>235</sup> Schutte, L. 2009. Evaluation of the Implementation of Long Live Love 3. Maastricht, Maastricht University.

## Implementation phase

The first students started to use the LLL3 curriculum in 2002, and so that year was used as a cut-off point between the update and implementation phases. Teaching salary costs included the SE programme-related portion of gross salaries of teachers. The SE programme-related portion was calculated by dividing the annual number of working hours by annual number of LLL-related working hours. Teachers' salary scales were collected in the school survey and salary levels were retrieved from the Ministry of Education, Culture and Science.<sup>236</sup> The number of teachers was based on the number of teachers' LLL manuals ordered by schools<sup>237</sup> and an evaluation study on how the teachers use the materials in practice.<sup>238</sup> We calculated teaching material costs by multiplying the annual number of distributed pupils' magazines, teachers' manuals and videos/DVDs by their unsubsidized selling prices. Advocacy costs relate to conferences and reporting on LLL in the media. Training costs relate to training of master trainers and teachers. The training costs include actual training costs of Soa Aids and estimated training costs of GGDs. Thirty-eight per cent of teachers who ordered LLL materials had been trained by the GGDs.<sup>239</sup> Operation costs include salaries of programme staff (including applicable tax, social and pension contributions), fees of individual consultants, logistics and administration. Costs related to the LLL4 update were excluded from the implementation costs of 2009.

## Annual costs per school, trained teacher and learner reached

The annual costs of programme implementation include the costs of implementation, plus a certain share of the programme update costs – reflecting that its use is not limited to the year in which it is paid for, but also beyond that. We assumed a useful life of update costs of five years and annualized these costs accordingly. We defined a learner reached as a student who has started the programme. An SE learning hour was defined as 45 minutes of student's time in a classroom. To estimate cost per teacher trained, we considered the total number of trained teachers and total training costs over the whole programme period. We did not consider a single year only as the number of trained teachers fluctuates considerably over time.

## Results

### Timeline and programme coverage

We summarized the LLL programme description in a timeline (Figure 9-1) to support programme costing. The programme timeline provides an overview of key milestones of the SE programme. Firstly, we distinguished four programme phases: development – 1990–1991; implementation – 1991–2009; update LLL2 – 1993–1998; and update LLL3 – 1999–2001. Events prior to 1999 were excluded from costing analysis. Second, key decisions are shown under the programme phases. Third, timing of distribution of key materials, teacher training, coverage changes and evaluations can be found below the year line.

<sup>236</sup> Ministry of Education, Culture and Science, 2009, teachers employment conditions and salary scales.

<sup>237</sup> Soa Aids Nederland, LLL material records.

<sup>238</sup> Schutte, L. 2009. *Evaluation of the Implementation of Long Live Love 3*. Maastricht, Maastricht University.

<sup>239</sup> Schutte, L. 2009. *Evaluation of the Implementation of Long Live Love 3*. Maastricht, Maastricht University.

Figure 9-1: Timeline of Sexuality education programme in the Netherlands 1990–2009

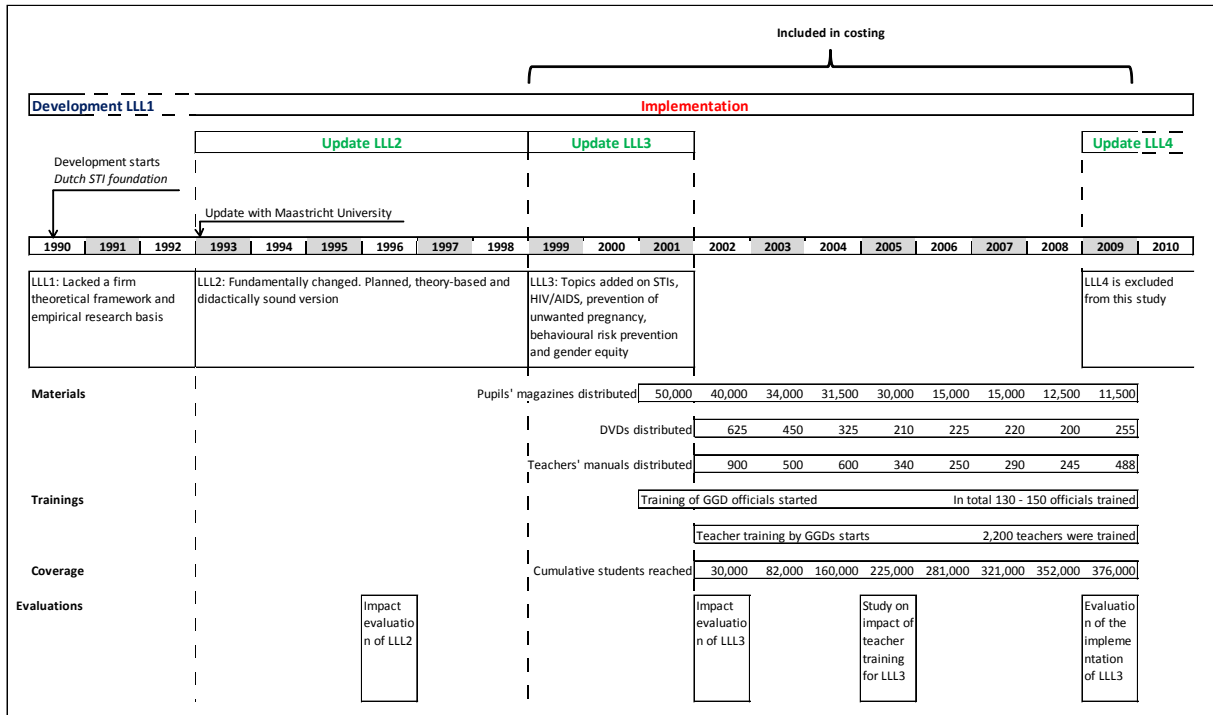
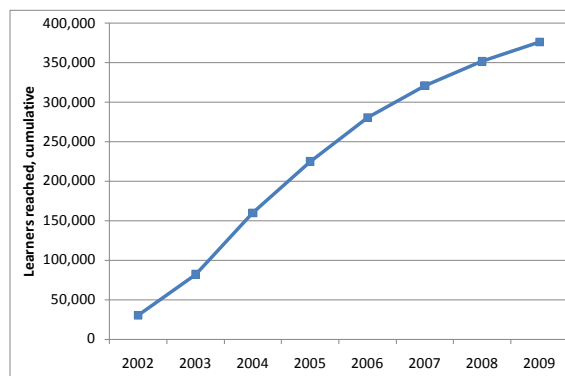


Figure 9-2 illustrates the cumulative number of learners reached during the period 2002–2009. Implementation of LLL3 started in 2002. During the first three years the number of learners reached continued to grow each year. After 2004 the number of students reached has grown at a slower pace, because many teachers choose not to use LLL3 materials anymore. The main reasons for this appear to be material price increase in 2004 and that programme materials were felt to be outdated.<sup>240</sup> At the end of 2009 the LLL3 programme had been taught to 376,000 students.

Figure 9-2: Cumulative learners reached by LLL3 programme in the Netherlands in 2002-2009



## Economic costs

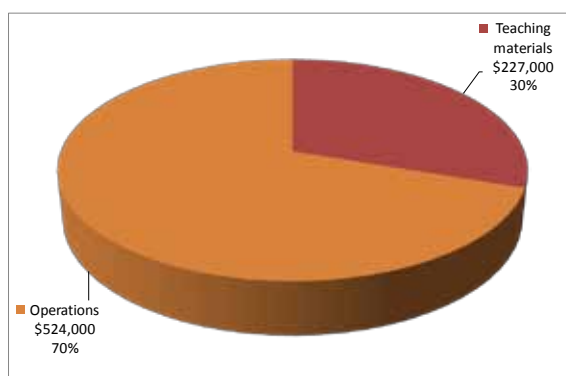
### Programme update

How much did it cost to update LLL programme? The second update to LLL3 was done in the period 1999–2001. Total update costs were US\$752,000 (€474,000). An overview of the update costs is shown in Figure 9-3. The largest component was for operations (70 per cent), which included staff salaries and other

<sup>240</sup> Schutte, L. 2009. *Evaluation of the Implementation of Long Live Love 3*. Maastricht, Maastricht University.

operations costs, and a further 30 per cent of costs were used on teaching materials, including updating materials.

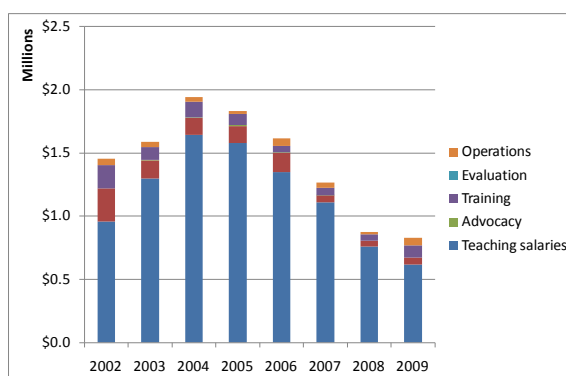
Figure 9-3: Cost of the second update (1999–2001) of the LLL3 programme in US\$



### Programme implementation

How much did it cost to implement the SE programme? The total implementation costs were US\$11.4 million (€7.2 million) during the period 2002–2009. Annual implementation costs are shown in Figure 9-4. Implementation of LLL3 started in 2002. Annual implementation costs rose to US\$1.9 million (€1.2 million) in 2004. After that, use of the materials gradually declined, and consequently, implementation costs dropped to US\$830,000 (€523,000) in 2009. The main reason for the decline is that fewer LLL3 packages were ordered, because of material price increase in 2004 and because the package was increasingly felt to be outdated, which in turn triggered the development of LLL4.

Figure 9-4: Annual implementation costs (2002–2009) in US\$



A breakdown of the total implementation costs 2002–2009 is shown in Figure 9-5. Teaching salary costs are an important component: our school survey showed that secondary school SE teachers on average spend 1.67 per cent annual working time on teaching and preparing LLL lessons.<sup>241, 242</sup> The same portion of teachers’ annual gross salary was then allocated as salary cost of SE. Secondary school teachers’ average monthly gross salary was US\$4,137 (€3,092) in 2009.<sup>243, 244</sup> We estimated that there were 470 teachers

<sup>241</sup> School survey 2010.

<sup>242</sup> The share of working time that teachers spent on SE programme is an important input to the costing analysis, but not an indication on the relative efficiency of the programme. The reason for this is that this share depends on the number of teachers that happen to be involved in the SE programmes at school level, and this can vary considerably for many reasons between schools.

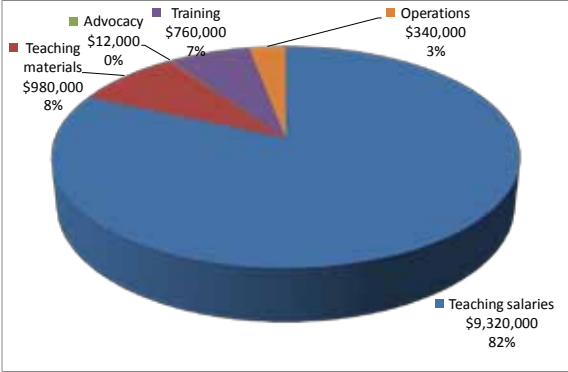
<sup>243</sup> School survey 2010, teachers’ salary scales.

<sup>244</sup> Ministry of Education, Culture and Science, 2009, teachers’ employment conditions and salary scales.



teaching the LLL programme in 2009.<sup>245, 246</sup> Total teaching salaries were US\$9.3 million (€5.9 million) (82 per cent). Teaching materials accounted for US\$980,000 (€620,000) (8 per cent). Teacher training costs were US\$760,000 (€477,000) (7 per cent). Operation costs were US\$340,000 (€211,000) (3 per cent) and finally advocacy activities totalled US\$12,000 (€7,800).

Figure 9-5: Implementation costs (2002–2009) in US\$

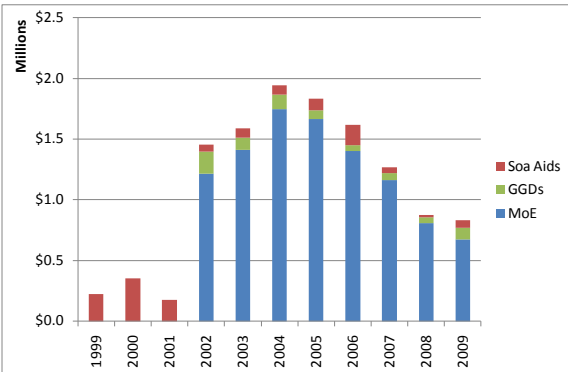


*Budget impact for the ministry of health*

Figure 9-6 illustrates how the costs of LLL3 programme have been divided between Soa Aids Nederland, Ministry of Education and GGDs. Eighty-three per cent of the costs were the Ministry of Education’s school-level costs. LLL2 was implemented prior to LLL3, so the ministry’s costs were high immediately after the introduction of LLL3. The majority of these costs were for LLL-related portions of teachers’ salaries. The Ministry of Education incurs costs of teachers’ salaries even if there were no LLL programme, so in the current programme setting, where LLL is the organizer and GGDs do the training, the SE programme has only a minor budget impact for the Ministry of Education. The portion of Soa Aids was 11 per cent of the total cost. Soa Aids is the organizer of the programme and therefore bears the cost of programme update, its own staff, advocacy and operations. A further 6 per cent of the total costs were the GGDs’ training costs.

What would be the budget impact for the Ministry of Education if it covered all programme costs? To answer this question, we only consider the incremental costs, i.e. costs in addition to the teacher salary costs that are already a regular expense of the ministry. If the ministry covered the costs of Soa Aids and GGDs in 2009, the programme would involve a budgetary outlay of US\$6.23 (€3.93) per learner completing the curriculum.

Figure 9-6: Breakdown of LLL3 programme costs (1999–2009) in US\$



<sup>245</sup> Soa Aids Nederland, distribution records of LLL materials.

<sup>246</sup> Schutte, L. 2009. *Evaluation of the Implementation of Long Live Love 3*. Maastricht, Maastricht University.

## Cost per school, learner reached, learning hour and teacher trained

Table 9-1 shows the cost per school and learner reached, learning hour taught, and teacher trained. Annualized costs of 2009 were used for calculating costs per school, learner reached and learning hour. These costs amounted to US\$830,000 (€523,000). Cost per school was US\$4,768 (€3,007). Cost per learner reached was US\$32.80 (€20.68), and costs per SE learning hour were US\$2.87 (€1.81). In the period 2002–2009, total training costs were estimated to be US\$760,000 (€477,000) and costs per trained teacher were US\$344 (€217).

Table 9-1: Cost per school, learner reached, learning hour and teacher trained in the Netherlands in 2009

Unit	Annualized cost	Number of units	Cost per unit
School	US\$830,000	174 <sup>247</sup>	US\$4,768
Learner reached			
– per year	US\$830,000	25,300 <sup>248</sup>	US\$32.80
– completed curriculum <sup>†</sup>		1 year	US\$32.80
Learning hour	US\$830,000	289,000 <sup>249</sup>	US\$2.87
Teacher trained	US\$760,000 <sup>††</sup>	2,200 <sup>250</sup>	US\$344

† Since the curriculum lasts one year, the costs per learner reached is equal to cost per learner who completed the programme

†† Refers to total training costs in the period 2002–2009

## Limitations of costing analysis

This programme costing has some limitations. Firstly, costs of initial programme development and the first programme update were excluded from the analysis, because no financial records were available. Second, the actual number of schools implementing the LLL programme is not known. This was estimated from the number of teachers' manuals ordered from Soa Aids Nederland and from an evaluation study on how the teachers use the materials.<sup>251</sup> Third, the actual number of learners reached is unknown and the programme coverage calculations were based on number of pupils' magazines ordered from Soa Aids Nederland, and on programme uptake in the surveyed schools. Fourth, the schools survey was carried out in schools implementing the programme well. The results represent a situation where all participating secondary schools would be implementing the programme equally well. Therefore the school-level costs are likely to overestimate the real costs of the LLL programme. Fifth, the LLL programme is an intra-curricular component of the Dutch secondary school curriculum and is solely implemented by teachers paid by the Ministry of Education. Consequently there are no separate records on school-level costs of the programme. Therefore it was not always possible to make a sufficiently detailed assessment of the costs and we needed to make reasonable assumptions in a number of instances.

<sup>247</sup> Calculations based on: i) number of SE lessons taught and ii) LLL uptake per school, school survey 2010.

<sup>248</sup> Calculations based on: i) number pupils' magazines ordered (Soa Aids Nederland, distribution records of LLL materials), and ii) assumption that 20% of the magazines were re-used over the next 2 years.

<sup>249</sup> Calculations based on: i) number of SE lessons taught, and ii) number of learners reached in 2009.

<sup>250</sup> Calculations based on: i) number of ordered teachers' LLL3 manuals (records of Soa Aids), and ii) assumption that 20% of these teachers were trained.

<sup>251</sup> Schutte, L. 2009. *Evaluation of the Implementation of Long Live Love 3*. Maastricht, Maastricht University.

## *Sensitivity analysis*

We performed a one-way sensitivity analysis with minimum and maximum values of respectively -20 per cent and +20 per cent around the point estimate for a number of selected parameters (see Methods, Chapter 3, for more detail). Results show that our costing analysis is sensitive to a number of parameters. Whereas our point estimate shows a cost of US\$32.80 per learner reached (completed curriculum), this value differs when we use alternative values for the percentage of teachers' monthly salary (range between US\$27.90 and US\$37.70), SE teaching time per class (US\$27.90 to US\$37.70) and programme coverage (US\$29.9 to US\$36.30).

## *Discussion*

The development of the SE programme in the Netherlands has been a gradual process, starting in the early 1970s, in a context where sexuality is freely debated. The LLL curriculum was initially developed around 1990, and updated three times since then. The programme is relatively short (only some 13 hours if fully implemented) because it is a follow-up to a much more elaborate SE programme taught at primary school, and because most knowledge-related components are taught in biology classes. This is also the reason why the costs of the SE programme in the Netherlands (US\$32.80 per student reached) are difficult to compare to SE programmes in other study countries. Yet, the LLL programme is a good example of a stand-alone, intra-curricular programme at relatively low cost – this may hold important lessons for other countries that wish to develop such a programme.

The total costs of LLL3 programme over the period 1999–2009 amounted to US\$12.2 million (€7.7 million) and 94 per cent of the costs were implementation costs, of which the majority (82 per cent) were related 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. The new version LLL4 is to be introduced in August 2011. Programme update in the period 1999–2001 accounted for 6 per cent of the total costs.

Even though the Netherlands is a high-income country, the cost per learner reached (US\$32.80, €20.68) 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 (and as such reduces teacher salary costs per student). Yet, the LLL programme is only one of the secondary school SE programmes on offer in the Netherlands, and competes with other SE programmes for implementation. While such competition may do good for the quality of the available SE programmes, it also increases costs. The LLL programme is not implemented on a national scale but only reached some 25,000 students in 2009, and this increases costs per students of national level activities, such as programme update or coordination.

Since salary costs are already a regular expense of the Ministry of Education, the budget impact for the ministry – if it ran the LLL programme – would only be incremental costs. These equal US\$6.23 (€3.93) per learner completing the curriculum. The Netherlands spent US\$10,922 (€7,567) per learner on secondary education (2010 prices).<sup>252</sup> Budgetary outlays would thus constitute some 0.1 per cent of current expenditure per student in secondary education.

<sup>252</sup> Available at <http://www.rijksoverheid.nl/documenten-en-publicaties/vragen-en-antwoorden/welk-bedrag-geeft-het-ministerie-van-ocw-per-leerling-uit.htm> . Accessed April 12, 2011.

This chapter provides a comparison of costs of SE programme in the six study countries. Table 10-1 summarizes the main findings.

**Table 10-1: Comparison of study findings on costing analysis (rounded figures, in US\$, 2009 prices)**

Country	Nigeria	Kenya	Indonesia	India <sup>†</sup>	Estonia	Netherlands <sup>‡‡</sup>
Intra- / extracurricular	Intra-curricular	Extracurricular	Extracurricular	Intra-curricular	Intra-curricular	Intra-curricular
Period considered	1999–2009	2005–2009	2005–2009	2010–2014	1991–2009	1999–2009
Programme duration (years) (a)	3	1	1	3	3 (7)	1
Total programme costs (b)	3,400,000	1,380,000	1,200,000	10,800,000	5,610,000	12,200,000
Annualized costs in 2009 (c)	562,000	364,000	289,000	3,502,000	311,000	830,000
Schools covered in 2009 (d)	319	112	77	5,560	382	174
Cost per school reached in 2009 (e) = (c)/(d)	1,762	3,250	3,750	630	814	4,768
Cumulative number of students reached (f)	694,000	13,000	6,240	990,000	190,000	376,000
Students covered in 2009 (g)	246,000	7,300	1,805	780,000	28,000	25,300
Cost per student reached in 2009 (h)=(c)/(g)	2.28	49.98	159.93	4.49	11	32.80
Cost per student reached (who completed the curriculum) in 2009 <sup>†</sup> (i)=(a)*(h)	6.90	50	159.90	13.50	32.90	32.80
Budgetary outlays per student reached (who completed the curriculum) in 2009	0.62	37.20	135.44	2.52	8.39	10.40
Uptake of students per school in 2009 (j)=(g)/(d)	771	65	23	140	73	114
Total learning hours (k)	1,774,000	337,000	53,800	8,765,000	298,000	289,000
Cost per learning hour (l)=(c)/(k)	0.32	1.08	5.37	0.40	1.03	2.87
Total training costs (m)	298,000	126,000	143,000	407,000	137,000	760,000
Total number of trained teachers (n)	1,500	323	281	5,560	693	2,200
Cost per trained teacher (o)=(m)/(n)	199	389	509	73	197	344

† This refers to students who have completed the curriculum. The costs are calculated as the duration of the curriculum multiplied by the costs per student covered in 2009.

‡ Costs refer to the implementation of the SE programme as planned in the period 2010–2014.

‡‡ Refers to programme version LLL3 during the period 2001–2009. Earlier versions LLL1 and LLL2 during the period 1991–1998 were excluded from the study.

This comparison reveals a wide variety in costs and coverage of SE programmes across the study countries. Total costs of SE programmes, including development or adaptation, update and implementation, range between US\$1.19 million in Indonesia and US\$12.1 million in the Netherlands, whereas the total number of students reached varies from some 6,000 in Indonesia up to 990,000 in India (as planned in the period 2010–2014). This is of course dependent on the number of years a programme is implemented in the country. 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.

Costs per student reached ranged from US\$7 in Nigeria and US\$13.50 in India, US\$33 in Estonia and the Netherlands, US\$50 in Kenya, to US\$160 in Indonesia. The budgetary outlay costs of running an SE programme, i.e. incremental to existing regular expenses on teacher salaries, are high in Kenya and Indonesia (above US\$37 per student reached). In other countries, these budgetary outlays are less than 25 per cent of economic costs as estimated in this study. For example, in India, these costs are only US\$2.50 per student reached and this constitutes some 0.5 per cent of what India is currently spending on secondary education per student (some US\$500). Budgetary outlays are US\$8 in Estonia and US\$10 in the Netherlands, and this constitutes respectively some 0.2 per cent and 0.1 per cent of current expenditure on secondary education per student (US\$4,700 in Estonia and US\$11,000 in the Netherlands).

To make meaningful comparisons of the costs of the SE programme, we converted our main indicator, the cost per student reached (i.e. one who has completed the programme), in international dollars (see Table 10-2).

Table 10-2: Costs per student reached (US\$ and I\$, 2009 prices)

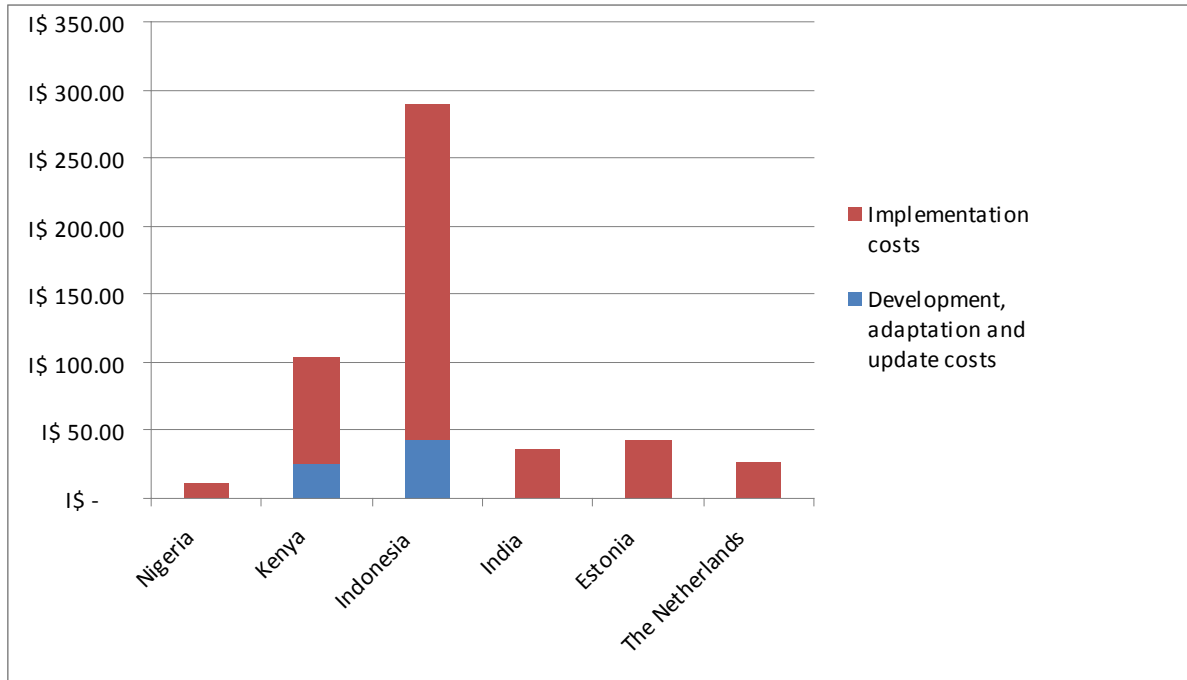
Country	Cost per student reached (US\$)	Purchasing power parity†	Cost per student reached (I\$)
Nigeria	6.84	1.74	11.90
Kenya	49.98	2.07	103.46
Indonesia	159.93	1.81	289.47
India‡	13.47	2.75	37.04
Estonia	32.90	1.34	44.09
Netherlands	32.80	0.85	27.88

† The purchasing power parity as listed here is the quotient of GDP (I\$)/GDP (US\$) for 2009, as listed in the World Development Indicators database (World Bank 2010).

International dollars have the advantage that they account for differences in price levels between countries, and allow a comparison of the actual resource use by the SE programmes in the countries concerned.

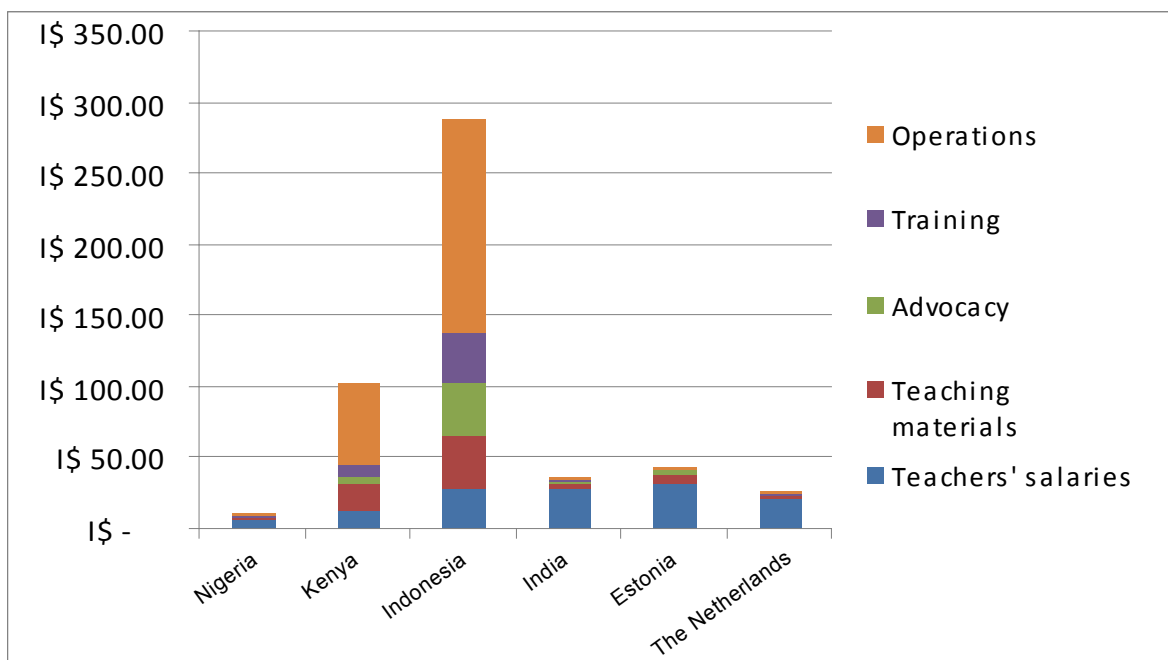
The composition of the costs per student reached *by programme phase* is shown in Figure 10-1. It shows that in every country, the vast majority of all costs are implementation costs, and only a minor fraction constitutes development, adaptation or update costs.

Figure 10-1: Costs per student reached by phase (I\$, 2009 prices)



The composition of the total costs per student reached *by activity* is shown in Figure 10-2. The figure shows that, in Kenya and Indonesia, the largest share is for operations costs (i.e. personnel of implementing NGOs, office and travel) – which account for more than 50 per cent of total costs in both countries. In Nigeria, India, Estonia and the Netherlands, these costs are smaller and the largest share is for teachers’ salary costs – these account for more than 60 per cent of total costs in all countries. The share of training, advocacy and teaching materials costs varies between countries, and each of these activities never account for more than 20 per cent of total costs.

Figure 10-2: Costs per student reached by activity (I\$, 2009 prices)





This study reports on the costs of SE programmes in six countries around the world, the impact in two countries, and the cost-effectiveness in one country. It thereby puts forward important evidence on their efficiency, required investments and resulting health gains. Yet, it is important to understand that decisions on the implementation of SE programmes should not be motivated by health gains alone. A central objective of SE programmes is to enable people to make conscious decisions regarding their sexual life. This broader sexual health perspective has been the starting point of most SE programmes in European countries during the past 50 years.

### 11.1 Key observations

The SE programmes in Nigeria, Kenya, Indonesia and India have been implemented in contexts where sexuality, and therefore SE, is a sensitive issue. In contrast, SE was – and is not – a sensitive issue in Estonia and the Netherlands. The sensitivity of the topic has important consequences for how and at what pace SE programmes can be introduced, their character (comprehensive versus abstinence-only), as well as for the scale at which they can be carried out. This has an effect on costs and potential impact. In Nigeria and India, SE 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. Now, programmes in Orissa State, India (as planned) and Estonia are good examples of comprehensive, integrated and fully scaled up SE programmes, and these hold important lessons for other countries that wish to achieve this. The programmes in Kenya and Indonesia are NGO-initiated, also in response to the sensitivity of SE and the relative resistance of national governments to address the topic. These programmes are extracurricular and seem to be constrained in the coverage they can achieve. Yet, they can be important stepping stones towards the development of national SE programmes. All SE programmes in all countries require careful planning and a wide variety of advocacy and public education activities to achieve their implementation.

The sensitivity of the topic has important consequences for how and at what pace SE programmes can be introduced, their character (comprehensive versus abstinence-only), as well as for the scale at which they can be carried out. This has an effect on costs and potential impact.

#### *Impact and cost-effectiveness of sexuality education*

On the basis of our analysis in Estonia, evidence suggests that SE programmes are potentially highly effective, cost effective and even cost saving. However, any such findings are highly dependent on programme characteristics and context. Optimal SE programmes may therefore compare favourably to other preventive interventions in HIV/AIDS (such as voluntary counselling and testing, or condom social marketing) that typically incur costs to achieve health effects, as repeatedly shown in international literature.

Our impact evaluation of the SE 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.

#### *Costs of sexuality education in relation to programme design*

The programmes in Nigeria, India, Estonia and the Netherlands appear to be relatively cheap in terms of cost per student reached (costing respectively US\$7, US\$14, US\$33 and US\$33). These programmes are all intra-curricular and implemented on a large scale (now annually reaching from 25,000 up to 250,000 students)

– this 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, teachers' salaries are a major cost component). On this basis, we conclude that intra-curricular SE programmes are most efficient, and we refer to the programmes in India and Estonia as best examples in this respect (the SE programme in the Netherlands is difficult to interpret in this context, because the programme is relatively short as it is a follow-up to a more elaborate SE programme taught at primary school).

The SE programmes in Kenya and Indonesia appear to be relatively costly (respectively US\$50 and US\$160 per student reached). These programmes are currently in the pilot phase, geographically spread out, and initiated by international and national NGOs. At that stage these programmes have limited coverage (annually reaching between 1,800 and 7,300 students), and carry high operational (salaries 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 SE is a sensitive issue, and this could be a reason to accept their relatively high cost during a period of transition.

In addition, the SE 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 in Indonesia and 44 students in Kenya – is therefore constrained. This hinders the scale-up of a programme across and within schools, and the integration of it into the regular curriculum. However, our study also showed that – as learning aids – computers are not more expensive than books.

Teacher salaries are a major cost component in all programmes, and class size strongly influences cost per student reached. In Nigeria, classes for the SE lessons usually have 75-150 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 may be compromised. Even when specific strategies are developed in SE to cope with large classes, as in Nigeria, SE typically requires interactive teaching methods with high levels of student involvement, and that cannot be realized in overcrowded classes.

Advocacy costs are in all countries a significant cost component, 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 SE. Advocacy costs are incurred in the development phase of the programme but also throughout its implementation, and reflect the sensitive nature of SE curricula in a country. Advocacy includes a broad scope of activities including political lobbying, media activities, stakeholder meetings, working groups, sensitization meetings for school staff, parents, and health care providers, and exhibitions.

Programmes 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 intense (e.g. advocacy) activities. Programmes in Kenya and Indonesia were adapted from a similar programme in Uganda, and had important savings in software development costs. Yet, 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 update costs ranged between 1 per cent and 11 per cent of total costs in the other study countries (the portions of development or adaptation cost also depend, of course, on the number of years a programme has been implemented in a country).

Teacher salaries are a major cost component in all programmes, and class size strongly influences cost per student reached. While large classes are favourable for cost purposes, the quality of implementation in such classes may be compromised.

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 (note this is *additional* to lessons in primary school and in biology classes) to some 40 hours in most 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 (typically lasting some 45 minutes) over several years. More intensive programmes are more likely to achieve an impact.<sup>253</sup>

### *Budget impact of sexuality education programmes*

The budget impact of implementing SE 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 SE programmes. In the implementation of an SE programme, these salaries would therefore not incur additional budgetary outlay. Analyses show that budgetary outlays are less than 25 per cent of economic costs of SE programmes as estimated in this study (with the exception of Kenya and Indonesia), and range from US\$0.60 in Nigeria to US\$10 in the Netherlands. Obviously, the introduction of an SE programme comes at a loss (in economic terms: opportunity costs) of not teaching other courses.

### *Efficient pathways to scaling up programmes*

In order to assess the cost implications of scaling up SE programmes, we defined several different scenarios, and based on these we recommend most efficient pathways to greater SE coverage. The most efficient strategy appears to be to start expanding programme uptake in schools first (e.g. 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. Obviously, the ideal strategy from the efficiency point of view is to maximize uptake in schools and coverage of schools in a country.

## 11.2 Limitations

We faced a number of limitations in conducting our study. Firstly, information on the actual number of learners reached was not always available, especially in the larger intra-curricular programmes. In those instances, we calculated programme coverage on the basis of secondary sources, e.g. students' materials used or teachers trained. Second, it is not always self-evident where SE programmes begin and end. SE 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 SE. Third, we were not always able to make detailed assessment of costs. Some programmes, like in Estonia and in the Netherlands, had existed for a long time, and financial records were not always available. In those instances, we relied on programme personnel to make gross estimates. Fourth, any impact evaluation of SE programmes is difficult to undertake. Our impact evaluation and cost-effectiveness analysis should therefore be considered as exploratory only.

This study only focuses on the costs and cost-effectiveness of SE programmes. It does not answer several other very important questions, such as those related to quality of different types of programmes. Nor does it address the important question of how to develop a SE programme and how to integrate it into 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 SE in school curricula.

<sup>253</sup> UNESCO. 2009. *International Technical Guidance on Sexuality Education. An evidence-informed approach for schools, teachers and health educators*. Paris, UNESCO.

## 11.3 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.
- 2 For optimal use of education resources, the following characteristics of a sexuality education programme should be prioritised:
  - Scaled up, good quality programmes, delivered with full uptake in schools in order to best reach a critical mass of young people;
  - National coverage, or if not possible, scale-up in given geographical locations is recommended;
  - 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, i.e. 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 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.

## 12.1 Human studies topics in Estonia

Topics in human studies and biology programmes in the Estonian general education curriculum (2002).

### 2.1. Health Education (Grade 5)

- 2.1.1. HEALTH. Health – definition, related factors, evaluating one’s health.
- 2.1.2. HEALTHY LIFESTYLE. Components of healthy lifestyle, daily schedule. Personal hygiene.
- 2.1.3. MENTAL HEALTH. COMPONENTS OF MENTAL HEALTH. Positive thinking.
- 2.1.4. HEALTHY NUTRITION. My nutrition, related factors. The concept of healthy nutrition. My healthy daily menu.
- 2.1.5. PHYSICAL ACTIVITY. Different forms of physical activity. The concept of healthy physical activity. Choosing suitable sports/exercising. Competitive sport.
- 2.1.6. SEXUAL DEVELOPMENT. Pubertal maturation. Physical development and changes in relationships with opposite sex. Sexuality.
- 2.1.7. DRUGS. Different types of drugs, their characteristics and influence on the body. How to behave in drugs-related situations.
- 2.1.8. ACCIDENTS. Preventing accidents. Safe behaviour in school, at home, on the street and outside.
- 2.1.9. FIRST AID. The main concepts and skills of first aid. First aid in different situations. First aid kit at home.
- 2.1.10. DISEASES. Most prevalent diseases and their prevention. Infectious and non-infectious diseases. Allergies. Vaccination. Sexually transmitted diseases AIDS. Places to find medical help, your rights and responsibilities.

### 2.2. Relationship education (Grade 6)

- 2.2.1. HUMAN BEINGS IN SOCIAL RELATIONSHIPS. Basic needs. Hierarchy of human needs. Social relationships. Values and hierarchy of values. Acquiring education as a value. Moral norms.
- 2.2.2. COMMUNICATION WITH OTHER PEOPLE. Verbal and non-verbal communication. The act of communication. Active listening. Expressing one’s emotions. Opening up in personal relationships.
- 2.2.3. COMMUNICATION WITH ONESELF. The sense of self. Self-value. Analysing one’s self. Understanding one’s values and development of value system. Conflicts with oneself.
- 2.2.4. ASSERTIVENESS AND SELF-CONTROL. Saying ‘no’. Aggressive, assertive and submissive behaviour. Empathic and aggressive behaviour. Excusing and confessing. Self-control and self-limitation.
- 2.2.5. CONFLICTS. The concept and reasons for conflicts. Effective and non-effective ways of conflict solving. Coping with criticism. Negotiation skills.
- 2.2.6. CRISIS. The concept and reasons for crisis. The steps of crisis. Reactions and behaviour in critical situations. Psychological shock and coping with it. Psychological help in crisis. Counselling services. Services of psychological help for young people.
- 2.2.7. SOCIAL COMPETENCE. Helping each other, sharing, cooperation and taking care of each other. Effective and non-effective social skills. Friendship. Empathy. Responsibility. Peer pressure. Conformity and independence in relationships. Coercive/dependent relationships. Support and help from other people.



2.2.8. PROBLEM SOLVING. Different ways of problem solving. Thinking ahead to the results of one's behaviour. Means-objective way of thinking. Decision-making.

2.2.9. ACCEPTING DIVERSITY. Tolerance towards oneself and others. Individual diversity. People with disabilities. Gender diversity. Diversities in multicultural societies.

2.2.10. POSITIVE THINKING. Positive sense of self. Holistic self.

## 2.2. Human Studies (Grade 7)

2.1. HUMAN LIFE CYCLE AND PUBERTY. Growth and development. The periods of human life cycle. Puberty and adolescence. Possibilities to influence one's life. Self-development skills and related problems.

2.2. HUMAN BEINGS AND SOCIAL BEHAVIOUR. Groups and individuals. Cohabitation – norms and laws. Leadership and power dynamics in a group.

2.3. HEALTHY LIFESTYLE. The concept and forms of healthy lifestyle. Developing one's healthy lifestyle. Health-compromising and health-strengthening factors. Integrating one's outlook in sense of self. Risks and problems related to physical self.

2.4. HEALTH RISKS. Drugs and related health and social risks, delinquency. Drugs relatedness. Drug addictiveness. Behaviour and decision-making skills in drug-related situations. Where to find help.

2.5. COMMUNICATION IN PUBERTY. The basics of communication. Relationships with peers and friends. Levels of communication. Conflicts in relationships. Tolerance towards others. Coping with stress.

2.6. PUBERTAL DEVELOPMENT. Early and late pubertal maturation – everybody is unique. Main problems and questions during puberty. Characteristics of respected girls and boys. Sexual feelings and interests. Freedom to make choices. Responsibility in relationships. Family planning.

2.7. FAMILY RELATIONSHIPS DURING PUBERTY. Rights and responsibilities of teenagers. Misunderstandings and conflicts at home. Preventing and solving conflicts. Growing independence and what it means.

2.8. FIRST ROMANTIC RELATIONSHIPS. Characteristics of a romantic relationship. Love and romantic relationships during puberty. Going steady. Ending a relationship.

2.9. HAPPINESS. Having control over oneself and one's life as a precondition of personal happiness.

## Biology

3.9. ANATOMY AND FUNCTIONING OF HUMAN ORGAN SYSTEMS. Skin, bones and muscles. Blood and circulation. Breathing. Alimentary system. Kidneys and urinary system. Nervous system. Endocrine system. Immune system. Reproductive system. Human development from fertilisation up to death. Human organism as a holistic system.

## 12.2 Inflation rates

Inflation rates (percentages) used for costing.<sup>254</sup>

	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009
India				13.2	4.7	4.0	3.8	4.3	3.8	3.8	4.2	6.2	6.4	8.3	10.9
Estonia	28.8	23.1	10.6	8.2	3.3	4.0	5.8	3.6	1.3	3.1	4.1	4.4	6.6	10.4	0.0
Kenya											10.4	14.4	9.8	26.2	9.4
Nigeria					6.6	6.9	18.9	13.1	13.9	15.4	17.9	8.4	5.4	11.5	12.4
Netherlands					2.2	2.3	4.2	3.3	2.1	1.2	1.7	1.2	1.6	2.5	1.2
Indonesia											10.4	13.3	5.8	9.5	4.9

<sup>254</sup> The World Bank, consumer price inflation, update 6 November 2010.

## 12.3 School survey summary

Programme	FLHE Lagos State Nigeria	WSWM Kenya	DAKU! Indonesia	LLL the Netherlands	Estonia
Selection criteria of schools	Good implementing government/public schools	Random selection of schools	Good implementing schools, based on information from WPF Indonesia	Good implementing schools, based on screening calls	Random selection from four clusters: Estonian or Russian teaching language and urban or rural location.
	Criteria: 1. At least two teachers of the school have undergone FLHE training 2. FLHE teachers' guide and students' handbooks are available 3. Teachers have participated in biannual coordination meetings	Criteria: 1. Implementing WSWM programme for at least 1 full year 2. Using computers 3. At least two teachers trained 4. Part of the 2009 evaluation study	Criteria: 1. Implementing DAKU! programme for at least 1 full year 2. Using computers, not LCD screen 3. At least two teachers trained	Criteria: 1. At least 4 out of 6 LLL lessons taught during the last school year 2. Distribution between urban and rural schools	
Data collection method	Interviews	Interviews	Interviews	Interviews	Online questionnaires, in Estonian and Russian, were emailed to SE teachers
School type	Junior secondary schools (JSS)	Secondary schools, day and boarding	High schools	Secondary schools	Primary schools
Sample size	12 schools	13 schools	10 schools	12 schools	84 schools

Programme	FLHE Lagos State Nigeria	WSWM Kenya	DAKU! Indonesia	R&S the Netherlands	LLL the Netherlands	Estonia
Comments on the schools		<p>3 of the 13 schools initially selected for interview were found to have abandoned the computer teaching and were therefore excluded from the analysis</p> <p>In the 10 computer schools there were on average 12.3 computers for WSWM and 3.9 students sharing one computer</p>	On average, schools had 25.5 computers for DAKU! and 1.35 students sharing one computer	<p>9 out of 10 schools (90%) took part WvLK. In 75% of schools the WvLK campaign is repeated to same students every year</p> <p>3 out of 10 schools (30%) using R&amp;S materials outside of the WvLK campaign</p>	In 83% of the schools, LLL is a one-off event, not repeated to the same students	
Classes to which SE programme is taught	JSS1 to JSS3	Forms 1 to 4, depending on the school	Grades 1 to 3, depending on the school	Groups 6 to 8	Grades 2 or 3	Grades 5 to 7
Age group to which SE programme is taught	11 to 14 years	14 to 18 years	15 to 17 years	9 to 12 years	13 to 15 years	11 to 14 years
Average school size (surveyed schools)	1,548 students JSS1 to JSS3	763 students Forms 1 to 4	724 students Grades 1 to 3	445 students	667 students	322 students, (107 students in grades 5, 6 and 7)
Average class size (SE lessons)	75 students	44 students (no parallel groups)	30 students	30 students	20 students	18 students

Programme	FLHE Lagos State Nigeria	WSWM Kenya	DAKU! Indonesia	R&S the Netherlands	LLL the Netherlands	Estonia
Average number of students reached per school per year	516 students in grade JSS1	44 students	42 students	202 students	114 students	36 students in grade 5
Average programme uptake	100% of grades JSS1 to JSS3	5.8% of all students in forms 1-4	5.8% of all students in grades 1-3	45.3%	17.1%	100% of grades 5 to 7
Average students per SE teacher	196 students per SE teacher	15.3 students per SE teacher	21.7 students per SE teacher	14.4 students per SE teacher	43.8 students per SE teacher	93 students per SE teacher
Average number SE teachers per school	7.89 teachers per school	2.88 teachers per school	2.3 teachers per school	14 teachers per school	2.6 teachers per school	1.15 teachers per school
Teachers' regular teaching topic Most common only	Social Studies and Basic Science teachers	Broad range, generally Science or Computer studies teachers	Counselling and Biology teachers	Class teachers	Biology or Personal care teachers	Human Studies and Biology teachers
Average SE teaching time per class per year (hours, teachers' time excluding preparation time)	14.2 hours per class per year (average of grades JSS1-JSS3) 42.7 hours over three years (JSS1-JSS3).	46.3 hours per class per year (time spent on preparations of the end exhibition is excluded)	47.2 hours per class per year (time spent on preparations of the end exhibition is excluded)	6.5 hours per class during the WvLK campaign. And 17 hours per school all teachers together = 1.2 hours per teacher. In total 8.7 hours per teacher  Outside of the WvLK 2 hours per teacher	11.4 hours per class (one LLL lesson is 2.2 hours)	7.9 hours per class per year (average of grades 5 to 7)  23.7 hours over three years (grades 5 to 7)

Programme	FLHE Lagos State Nigeria	WSWM Kenya	DAKU! Indonesia	R&S the Netherlands	LLL the Netherlands	Estonia
Average SE teaching time per teacher per year (hours, excluding preparation time)	41.6 hours per teacher per year	46.3 hours per teacher per year (typically one teacher was teaching WSWM lessons per school)	28.4 hours per teacher per year (on average 1.66 teachers were teaching a DAKU! lesson to one class at the same time)		26.7 hours per teacher per year	41.2 hours per teacher per year
Teachers' preparation time per one SE lesson	33 minutes 96 minutes per FLHE topic. There were 2.9 arms (classes) per FLHE teacher	16 minutes	26 minutes	22 minutes	14 minutes	60 minutes
% of teachers' working time spent on SE teaching and preparations	3.70%	3.07%	3.9%		1.67%	3.76%
Teachers' monthly gross salary US\$ (local currency)	US\$350 (NGN 52,300)	US\$467 (KES 36,200)	US\$276 (IDR 2.9 million)	US\$3,040 (€2,272)	US\$4,137 (€3,092)	US\$1,500 (EEK 16,900)
% teachers trained for the SE programme	100% of surveyed teachers	100% of surveyed WSWM teachers	100% of teachers teaching DAKU!	64% of teachers teaching R&S had been trained by GGDs	62% of teachers teaching LLL had been trained by GGDs	81% of the surveyed teachers
Topics taught (% of curriculum topics taught)	78% of JSS1 topics 81% of JSS2 topics 81% of JSS3 topics	73% – 11 out of 15 WSWM lessons were taught	100 % – all 15 Daku! lessons were taught	No fixed topics, teachers choose the lessons from R&S lesson package	87% of schools taught all six LLL lessons	90% – 19 out of 21 SE topics were taught



Programme	FLHE Lagos State Nigeria	WSWM Kenya	DAKU! Indonesia	R&S the Netherlands	LLL the Netherlands	Estonia
Teaching materials used and % of schools using the materials Main materials only	<p>98.1% of teachers had a personal copy of FLHE Teachers' Guide US\$1.33 (NGN 200)</p> <p>98.1% of teachers had a personal copy of FLHE Students' Handbook US\$3 (NGN 450)</p> <p>90.7% of schools had a copy of the Lagos State scheme of work in their schools 0.47</p> <p>In 3.7% of schools, students had a copy of the FLHE Students' Handbook US\$3 (NGN 450). Schools do not provide the FLHE Students' handbooks for students. Parents may purchase a copy</p>	Computer-based programme, no teaching materials	Computer-based programme, no teaching materials	<p>97% R&amp;S lessons package US\$101.01 (€75.50)</p> <p>84% teachers' materials (free download)</p>	<p>100% LLL teachers' manual and LLL DVD US\$31.84 (€23.80)</p> <p>91% pupils' magazines US\$1.86 (€1.39)</p> <p>9% distributed condoms</p>	<p>In Estonian schools: 98% of teachers used the human studies textbook, US\$7.10 (EEK 80). 87% used human studies workbook US\$2.9 (EEK 33)</p> <p>In Russian schools: 100% of teachers used human studies textbook, US\$6.5 (EEK 75). 75% used human studies workbook, US\$4.5 (EEK 52)</p>