The Economic Cost of Violence Against Women and Girls

A Study of Seychelles

Commonwealth Secretariat

The Commonwealth

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Abbreviations and Acronyms

DALYs	disability adjusted life years
DFID	Department for International Development (UK)
FGD	focus group discussion
GBV	gender-based violence
GDP	gross domestic product
GTAP	Global Trend Analysis Project
HIV/AIDS	human immunodeficiency virus/acquired immune deficiency syndrome
ILO	International Labour Organization
IOM	input-output matrix
IPV	intimate partner violence
Lf	female work (productive) days
Lm	male work (productive) days
NGOs	non-governmental organisations
QALYs	quality-adjusted life years
SAM	social accounting matrix
SCR	Seychelles rupee
SDGs	Sustainable Development Goals
UN	United Nations
UNFPA	UN Population Fund
VAW	violence against women
VAWG	violence against women and girls
VSL	value of statistical life

Summary

Background

1. International commitments to attain gender equality and end violence against women and girls (VAWG) are at the heart of Commonwealth priorities. Following on from these commitments, the Secretariat has embarked on a new project on the Economic Cost of VAWG, which seeks to contribute to the efforts to end VAWG through development of a ground-breaking framework – complementary to those based on needs and justice – which will determine the economic cost of VAWG for various sectors in the economy, and ultimately for the state.

2. The prime objective of the project is to develop a comprehensive framework in a user-friendly computing environment to assess the economic cost of VAWG. A review of the literature indicates that studies to date have mostly focused on the direct costs of violence, with few attempting to measure the indirect costs (Commonwealth Secretariat 2017c). At the same time, none of these methodologies can capture the full economic impact of VAWG due to lack of data and their inability to capture sectoral linkages. The ambition of the Commonwealth project is to overcome these problems by applying an economy-wide modelling approach which enables the capture of important linkages and secondary effects to assess the full impact of VAWG. Estimating the full cost on VAWG will enable governments to understand the benefits of prevention and/or management of VAWG. It will also provide a basis for evidence-based decision-making, which is essential for choosing particular interventions and/or policies. Furthermore, the data gathered for this framework will be useful for states when reporting on the Sustainable Development Goals (SDGs), in particular SDG5 and SDG16. The data gathering process also provides an opportunity to assess the strength of statistical system, which is crucial to measure progress across all of the goals in a way that is both inclusive and fair.

3. Seychelles is the first Commonwealth country where the framework has been applied using real country-level data and information. This book presents the outcome of applying the newly developed framework/methodology to Seychelles.

Methodology

4. The methodology includes three types of costs:

    i.   **Direct costs:** including the cost of medical treatment for physical and mental abuses – doctors'/hospital bills for physical injuries; cost of psycho-social care; cost of law enforcement/the police; and loss of earned income due to absence from work, as well as loss of imputed earnings from being unable to attend to household activities, including child care etc.

    ii. **Indirect costs:** which measure reduced gross domestic product because of the decline in private consumption due to loss of female earnings. Reduced private consumption expenditure leads to a decline in effective demand and subsequently gross domestic product – because of their inter-dependence in the circular flow of income generation in an economy (in economic literature, these effects are known as the 'first round impacts' of any shock or intervention).

    iii. **Induced costs** capture the further reduction (i.e. the 'second round effects') in gross domestic product (GDP) due to loss of demand for the products (unaffected in the first round) which are linked with the products that are affected indirectly.

    The costing module used consists of four building blocks. There are three building blocks for the direct cost component and one building block for the indirect cost component.

5. The direct cost component has three blocks:

    i.   Three types of cost approaches: (a) the unit cost approach; (b) the proportional operating cost approach; and (c) the total operational cost approach.

    ii. Three categories of costs: (a) cost of services; (b) personal material losses and cash expenses of survivors due to violence; and (c) income loss due to irreversible (deaths) and reversible temporary and permanent

disability due to gender-based violence, and reduced work productivity of survivors.

iii An important observation is the high latency (under-reporting) of offenses against women and girls according to official statistics. Thus, estimates based only on official statistics may produce a huge underestimation of the economic cost of violence. Accordingly, a sensible approach is for cost to be estimated at two levels or using two scenarios:

○ First, cost estimation based on official or survey data (in other words, estimates based on micro- and meso-level data). According to the literature, such economic cost estimates are said to be based on a **'typical' scenario** using the official police statistics on offenses.

○ Second, a so-called **'full coverage' scenario** – that is, a cost estimate based on a simulation model using the violence prevalence rates and features of survivors contained in population-based surveys. This may also be referred to as a macro-level cost estimate.

6. The economy-wide cost (i.e. this single building block comprises indirect as well as induced costs) of gender-based violence (GBV) is estimated using a multiplier model based on an economy-wide database. The two most widely used economy-wide data sets are: the input-output matrix (IOM) and the social accounting matrix (SAM). One outcome of the direct cost of VAWG is loss of work days leading to loss of income. Income loss in turn leads to a reduction in private consumption expenditure, with a subsequent negative impact on commodity demand and supply of goods and services in the economy. As production of goods and services depend on purchases of other goods and services, loss of female work days (a direct impact of VAWG) may indirectly lead to a further loss of output due to this economy-wide effect. The authors of this report use an economy-wide database or model to capture these indirect impacts of the direct cost of VAWG. In other words, they use a multiplier model derived from full economy-wide data to assess the indirect cost of VAWG.

7. This is a data demanding exercise. Unlike the other economic statistics, data required for the numerical

specifications of the model were not readily available in Seychelles. The project made a heavy investment on data collection. Two missions were carried out (i.e. inception and data collection missions), while a thorough review of the literature and statistics was also conducted. More than 70 stakeholders were met. One exclusive expert group consultation involving 15 experts and a focus group discussion with 12 VAW survivors were also conducted to gather data, as well as to cover gaps in information set.

Estimated cost of VAWG

8. The framework outlined in this book is numerically specified to 2016 data and parameters for Seychelles, since a majority of relevant data and GVB parameters were found for that year from a national baseline survey (Gender Links 2016).

The main finds are summarised in Table A.

Table A   Summary of cost of VAWG (Seychelles)

Cost categories	Typical case		Full coverage case	
	Million SCR	% of 2016 GDP	Million SCR	% of 2016 GDP
A. Direct cost	205.8	1.066	507.5	2.628
Services cost	190.0	0.984	267.7	1.386
Healthcare	115.9	0.600	115.9	0.600
Law enforcement and the judiciary	9.7	0.050	59.2	0.306
Social and specialised services	0.8	0.003	3.8	0.020
Learning time loss (education)	57.1	0.296	57.1	0.296
Personal cost	6.7	0.035	31.7	0.164
Income lost	15.8	0.082	239.8	1.242
B. Economy-wide cost (indirect and induced)	29.88	0.155	385.68	1.997
Agriculture	*4.65*	*0.024*	*60.03*	*0.310*
Industry	*11.86*	*0.061*	*153.05*	*0.790*
Services	*13.37*	*0.069*	*172.59*	*0.890*
C. Total cost (direct + economy-wide)	**235.7**	**1.221**	**893.13**	**4.625**
Memorandum Items				
Cost to Girls				**0.296**
Cost to Adult Female				**2.332**
Cost to the Private Sector				**1.997**

Note: SCR = Seychelles rupee.

Total cost: The estimated total economic cost of VAWG in Seychelles is provided for both typical case and full coverage case. The total economic cost of VAWG under the *typical case* is 235.7 million Seychelles rupees (SCR) also implying 1.22% of 2016 GDP. This comprises an estimated direct cost of SCR 205.8 million (1.07% of GDP) plus an economy-wide indirect cost of SCR 29.9 million (0.16% GDP).

9. *Under the full coverage case, the simulated (or derived) number of VAWG victims is based on population data that deems the number of women in the age cohort between 18 and 64 in 2016 to be 31,103* (National Bureau of Statistics 2016). Using this number – 31,103 – and a VAWG prevalence rate of 30 per cent (Gender Links 2016), the number of survivors in the full coverage case is estimated to be 9,331 (i.e. 31,103 × 0.3). By comparison, the number of survivors as reported in official administrative data is 609. As a result, estimated total cost under the full coverage case is substantially higher than in the typical case.

   The total cost under the *full coverage case* is estimated as SCR 893.1 million (4.63% of GDP). This is made up of the estimated direct cost of SCR 507.5 million (2.63% of GDP) and the economy-wide indirect cost of SCR 385.7 million (2% of GDP).

10. **Direct cost:** Direct cost is composed of cost of various services; personal cost (out-of-pocket expenses by survivors); and income loss.

    - *Direct cost (typical case):* Among the various types of services, the cost of healthcare turned out to be largest: SCR 115.9 million (0.6% of GDP). Learning time lost in primary school (which is not reported in most other economic cost of VAW studies) is also high, estimated at SCR 57.1 million (0.3% of GDP).

    - *Direct cost (full coverage case):* Costs for two major cost derivers found in the typical case – healthcare services and learning time lost (education) – were kept unchanged under the full coverage case, since they are based on supposedly 'full coverage' data. Thus, the costs for law enforcement, social services, specialised services, personal cost and income lost are re-estimated under the full coverage case.

      The most dramatic increase is found for income loss under the full coverage cost compared to the typical case.

Income lost increased to SCR 239.8 million in the full coverage case. Total direct cost under the full coverage case is SCR 507.5 million (2.63% of GDP).

11. **Economy-wide indirect cost**: A data SAM for Seychelles was developed for 2016 using a 1999 IOM and other required national accounts data for 2016. The data SAM was converted into a SAM multiplier model. Following this approach, two consumption shocks were set up and then used with the multiplier model to simulate output loss under the 'typical' case and 'full coverage' case.

- **Typical case:** The income loss under the 'typical' case is SCR 15.8 million. Thus, household (private consumption) is reduced by 15.8 to simulate the impact on domestic output. Simulated output loss under the 'typical' case is SCR 29.8 million (0.16% of 2016 GDP). The services sector is found to be most affected among the three broad sector categories with a bill of SCR 13.4 million.

- **Full coverage case:** The income loss under the 'full coverage' case is SCR 239.8 million. Thus, household (private consumption) is reduced by SCR 239.8 million to simulate the impact on domestic output. Simulated output loss under the 'full coverage' case is SCR 385.7 million (2% of 2016 GDP). The services sector is the most affected among the three broad sector categories, with a bill of SCR 172.6 million.

Conclusion

12. An important finding of the costing exercise that features in this book is that the deleterious effects of violence against women and girls encompass almost everyone in the society. For instance, the **cost of VAWG to girls is 0.296 per cent of GDP**; the **cost to adult women is around 2.332 per cent of GDP**; cost to the private sector is **1.997 per cent of GDP** and the cost to the whole of **society is 4.6 per cent of GDP**. The elimination of VAWG thus needs actions on different fronts. (Source Table A).

Special attention and policy actions are recommended in particular for the health and education sectors, and for private sector actors and corporations. Healthcare data

collection in Seychelles is not able to capture the use of healthcare services by VAWG survivors. The following steps could help healthcare services to better cater to the needs of VAWG victims: (i) modification of the forms used for data collation; (ii) digitisation of data collection and sharing; (iii) training and capacity building provided for relevant staff on VAWG and data/information collection, preservation, assessment and dissemination; and (iv) revisiting the healthcare budget to allocate adequate funds to carry out these activities. Learning time lost due to VAWG may have far-reaching implications on productivity and hence future earning potentials. The following steps could help improve education services: (i) employing dedicated school welfare personnel in each school to deal with cases relating to VAWG; (ii) arranging special meetings with parents at regular intervals to find out ways to deal with such cases; (iii) digitisation of data collection and sharing; and (iv) revisiting the education budget to allocate adequate funds to carry out these activities. The private sector is not immune to the cost of VAWG. In 2016, they incur cost equivalent to 2 per cent of GDP. Thus, they should come up with plan of action to combat VAWG.

13. This book presents the development of a comprehensive economic costing model for Seychelles to estimate the cost of VAWG using country-level data and parameters. The model is developed in an MS Excel environment and is a live product – officials and other stakeholders would be able to update the results with new and more concrete information. Moreover, it can also be modified or extended using new areas or categories, which could not be carried out at this stage due to lack of data and specifications. Some of these areas include: work place violence, income loss due to permanent incapacity and emotional intimate partner violence (IPV)/GBV.

14. VAWG is a major violation of human rights. This aspect coupled with the high economic cost of such violence requires immediate and effective action by national authorities. Suggestions from the consultation meetings in Seychelles, findings of the costing exercise and review of other studies has helped shape these recommendations. Some of the recommended actions include:

Enabling policy:

I.   Engaging the involvement of policy-makers, administrative officials and programme stakeholders to prepare and implement an adequately funded plan of action considering VAWG as a priority development issue.

II. Executing a multisectoral and inter-ministerial plan of action on VAWG by establishing mechanisms that focus on co-ordination and accountability.

III. Scaling up resources in primary prevention as well as establishing a dedicated budget to address VAWG.

Strengthening capacity:

IV. Capacity development of the national statistics offices and administrative agencies in gathering VAWG statistics to enable the design of effective strategies and for progress monitoring.

V.   Capacity strengthening of frontline service providers such as police, social services, healthcare services etc. for effective service delivery, and for improve the collection and maintenance of records in appropriate formats and environments.

Short term consideration:

VI. Design and implement a comprehensive communication strategy involving: communities; individual stakeholders including men and boys; government organisations; non-governmental organisations/ civil society organisations; and the corporate sector.

VII. Design a data collection protocol for frontline service providers (e.g. in healthcare, the police, the judiciary etc.) using computer enabling software for faster collection, processing and sharing.

VIII. Operationalise dedicated shelters for VAWG victims (survivors) that provide support such as medical care, accommodation, food, counselling and legal aid.

Chapter 1

Introduction and
Background

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International commitments towards attaining gender equality and ending violence against women and girls (VAWG) are at the heart of Commonwealth priorities. Commitments to end VAWG are enshrined in:

    i. The Commonwealth Charter 2013 (The Commonwealth 2013);

    ii. The Commonwealth Priorities for Gender Equality 2017–2020, endorsed by the 11th Commonwealth Women's Affairs Ministers Meeting (Sept 2016); and

    iii. The Secretariat Strategic Plan 2017/18–2020/21 intermediate outcome (The Commonwealth 2017a).

These commitments were also reaffirmed in 2018 by the Commonwealth Heads of Government Meeting (CHOGM) whereby Heads called for the Commonwealth to ratify and implement the Convention on the Elimination of All Forms of Discrimination Against Women (CEDAW), through legislation, policies and programmes that mainstream and promote gender equality and the empowerment of all women and girls in social, economic and political life (CHOGM Communique 2018). International and regional efforts to end VAWG include the Sustainable Development Goals (SDGs) – specifically SDG5 – and the African Union's legally binding Protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa ('the Maputo Protocol'), which specifically addresses, in Article 5, the elimination of female genital mutilation (FGM) and, through Article 14, women's experiences of the HIV/AIDS pandemic.

The Secretariat's project on the economic cost of VAWG seeks to contribute to efforts to end VAWG by developing a ground-breaking framework – complimentary to those based on needs and justice – which will determine the economic cost of VAWG for various sectors in the economy, and ultimately for the state.

The prime objective of the project is to develop a comprehensive framework to assess the economic cost of VAWG. A review of the literature indicates that studies conducted so far have mostly focused on the direct costs of violence, with few studies also attempting to measure the indirect costs (Commonwealth Secretariat 2017c). Indeed, none of these methodologies have been able to capture the full economic impact of VAWG, due to lack of data and their inability to capture sectoral linkages.

The ambition of this project is to overcome these problems by applying an economy-wide modelling approach that will enable the capture of important linkages and secondary effects to assess the full impact of VAWG. Estimating the full cost of VAWG will in turn enable governments to understand the benefits of prevention and/or management of VAWG. It will also provide a basis for evidence-based decision-making, which is essential for choosing particular interventions and/or policies.

Furthermore, the data gathered for this framework will be useful for governments when reporting on the Sustainable Development Goals (SDGs), in particular SDG 5, but also SDG 16 (see Box 1.1). Finally, the data-gathering process also provides an opportunity to assess the strength of the country in question's statistical system, which is crucial for measuring progress across all the goals in a way that is both inclusive and fair.

The methodology adopted to estimate the economic cost of VAWG uses an economy-wide model and comprises a direct cost component and an indirect cost component. The costing methodology is applied here to Seychelles, with the findings of the exercise presented in this book.

Estimates reported here refer to the year 2016. Cost estimates are presented for a typical case (i.e. micro- or mesa-level estimates) and a full coverage case (i.e. macro-level estimates). The typical case estimates are based on administrative data and parameters[1] (i.e. either readily available data, such as the unit cost of healthcare services, or derived data, such as per capita value

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Box 1.1 Sustainable Development Goals – data gathering will help reporting

SDG 5: Achieve gender equality and empower all women and girls

Violence against women and girls' targets only:

 5.1 *End all forms of discrimination against all women and girls everywhere;*

 5.2 *Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation;*

 5.3 *Eliminate all harmful practices, such as child, early and forced marriage and female genital mutilation.*

SDG 16: Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Targets related to violence:

 16.1 *Significantly reduce all forms of violence and related death rates everywhere;*

 16.2 *End abuse, exploitation, trafficking and all forms of violence against and torture of children.*

added by an employed person). The full coverage case estimates are based on a simulated number of survivors based on age cohort population data (i.e. in this case, the female population aged between 18 and 64 in 2016) with the parameters (including cost of services) used in the typical case.

Given the lack of information on the comprehensive costs of VAWG, this framework will enable an enhanced understanding of the actual cost of VAWG and thus contribute to raising awareness of the scale of the problem and increase willingness to act. Furthermore, it will form a baseline from which to conduct a cost–benefit analysis of potential interventions aiming at the prevention and management of VAWG.

The use of VAWG data to determine the economic cost has multiple benefits:

- **Preventing VAWG is cost-effective**

  Addressing the economic costs of VAWG contributes to preventing violence and lays the foundations for gender equality and empowerment. Knowing the costs of VAWG allows governments to establish the cost of inaction and thus of failure to prevent VAWG. It also provides strong arguments to governments that investing in prevention programmes that treat the causes of VAWG are far more economical and cost-effective than treating the symptoms. The use of VAWG data reaffirms focus and channels momentum behind establishing a culture to address VAWG and provide a basis for evidence-based decision-making, which is essential for choosing particular interventions and/or policies.

- **Preventing VAWG and investing in gender equality and empowerment is vital for economic growth**

  There is a multiplier effect that comes from investing in VAWG prevention, gender equality and empowerment. For example, investing in a girls' education contributes to a country's economic growth and raises the average gross domestic product (GDP) of that country. Likewise, investing in health increases the likelihood that a girl will complete school and, as a result, perhaps find a job that improves her quality of life and lifts her out of poverty. Delaying parenthood, eliminating child marriage and preventing intimate partner violence are equally all positive indirect effects to investing in girls' education and health. Through this, women's participation in the economy can be increased and opportunities for their leadership can be encouraged and supported. If by 2025, the gap between male and female economic participation rates can be closed by 25 per cent, then the International Labour Organization (ILO) estimates some US$5.8 trillion could be added to the world economy and unlock large tax revenues (ILO 2017).

- **Data revolution for sustainable development and gender equality**

  The 2030 Agenda for Sustainable Development encourages all member countries to 'conduct regular and inclusive reviews of progress at the national and sub-national levels, which are country-led and country-driven' (United Nations no date), which will serve as a basis for the regular reviews by the high-level political forum (HLPF), meeting under the auspices of the UN Economic and Social Council (ECOSOC). Data gathered for the use within this framework can and should be used when compiling member countries/national reports on the SDGs, in particular on SDG5 and SDG16, thus ensuring a better and more expedient way of reporting. Furthermore, the data gathering process provides an opportunity to ascertain data gaps and assess the strength of a country's statistical system – both of which are crucial for measurement of progress across all of the SDGs in a way that is both inclusive and fair, and for accelerating progress on ending extreme poverty, combating climate change, and ensuring a healthy, free from violence and prosperous life for all.

The remainder of this book consists of eight more chapters. Chapter 2 summarises some relevant methodologies and estimates available at the global level, sourced via a review of the literature. Key facts on VAWG pertaining to Seychelles are presented in Chapter 3. The methodology applied for this project is then elaborated in Chapter 4. Approaches to estimate the direct cost of VAWG in the typical case are discussed in Chapter 5, while Chapter 6 elaborates approaches to estimate the direct cost of VAWG under the full coverage case. Approaches to estimate the economy-wide/indirect cost (for both the typical and full coverage cases) are explained in Chapter 7. Finally, key outcomes are summarised in Chapter 8, with concluding observations and recommendations provided in Chapter 9.

Note

1   The parameters refer to prevalence rates of different types of violence, assault and harassment; the unit cost of various services; wage rates; and per capita gross domestic product (GDP) etc.

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Chapter 2

Approaches to Estimating the Economic Cost of VAW: Literature Review

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Approaches to Estimating the Economic Cost of VAW: Literature Review

The literature review focused on issues relevant to the current exercise: first, to find methodologies recommended for a group of states or countries, since a prime objective here is to develop a Commonwealth tool; second, to look for methods where the problem of under-reporting violence against women (VAW) in administrative data or sample surveys, resulting in underestimation of the economic cost, has been addressed; third, to assess some recent trends in VAW relevant to economic cost estimates; and fourth, to find studies that have attempted to consider the value for money offered by measures to prevent VAW.

2.1 Methodology and data

When a generalised framework is developed for a number of member states, researchers are constrained by factors as such as the availability of data; comparability of statistics across member states; and special features of the group. Under such a situation, the researcher may opt for a pragmatic rather than ambitious approach. In this case, a generalised framework such as this was a rare find in the literature. Yet an attempt was accomplished by Sylvia Walby and Philippa Olive under the aegis of the European Institute for Gender Equality (EIGE) in 2014, where they tried to identify and recommend appropriate methodologies to measure the cost of gender-based and intimate partner violence (IPV) for the European Union (EU)-28 member states. We believe the recommendations of this study are relevant for the current study, since it also aims to develop a generalised framework for the Commonwealth member states.[1] Hence the approaches and data requirements identified by EIGE study are elaborated below.

The EIGE study recommended an accounting-type approach based on three types of costs – 'unit' cost; 'proportional' cost; and 'full' cost. The study identified seven clusters of costs:

1. Lost income (lost economic output);
2. Health (emergency, general and mental health services);
3. Legal sector (criminal justice and civil justice systems);
4. Social welfare (housing and child protection);

5. Personal costs (moving home);

6. Specialised services (specialist and specialist government);

7. Physical and emotional impact (physical and emotional impact on victims).

The costing specifications recommended in the study may be generalised by the following equation:

$$Economic\ Cost_j = Unit\ Cost_j \times Multiplier_j\ (or\ Proportional\ Multiplier_j)$$

Where, j=1…7 – seven clusters; multiplier refers to data (e.g. number of IPV homicides or percentage of referrals to children's social services because of abuse and/or neglect); and proportional multipliers[2] have been used to specify aspects where it is important to separate the total into costs related to VAW or otherwise.

The study also identified data requirements according to the seven clusters, above; these are summarised in Box 2.1.

The study adopted seven approaches to generate the required data for the costing studies:

1. expert judgement;

2. victim recall studies;

3. surveys;

4. administrative data;

5. population data sets;

6. studies of similar harms; and

7. specialised research projects.

An important development in costing methodology is to simulate or extrapolate an estimate based on administrative and survey data to arrive at a macro-level estimate using age cohort population data. This approach is appealing due to the high latency/under-reporting of offences – which is even more pronounced in developing countries or countries with weak administrative record keeping. Two recent attempts in this category include a study on Ukraine by the UN Population Fund and the UK Department for International Development (UNFPA and DFID 2017) and a study on Vietnam by Duvvury et al. (2012).

UNPFA and DFID Ukraine study (2017): in this study, the prevalence rates as reported in the official data were extrapolated onto the whole female population of Ukraine in the age cohort of 15–59 to simulate the number of survivors (or victims) of GBV and arrive at indicative numbers of recipients of services (such as medical services) that are provided but not reflected

Box 2.1 Data requirements for the EU-28 country study

Area A: The extent of gender-based and intimate partner violence against women:

> *Types of data:*
>
> > *The number of victims (prevalence) in the last year*
> >
> > *The number of incidents (frequency, type and severity, in the last year)*

Area B: The direct impact of intimate partner violence on the individual women concerned:

> *Types of data:*
>
> > *The injuries to health*
> >
> > *Increased family breakdown*

Area C: The extent of services utilised by women affected by violence:

> *Types of data:*
>
> > *Victim support*
> >
> > *Health services*
> >
> > *Legal services*

Area D: Cost of services utilised

Area E: The impact of the violence on employment for the women affected:

> *Types of data:*
>
> > *Number days of employment lost*
> >
> > *GDP (or income) per employed person*

Area F: The value placed on avoiding the physical and emotional impact of intimate partner violence and/or the value placed on the reduced quality-adjusted life years (QALYs) or disability adjusted life years (DALYs)

Source: EIGE (2014).

in the official data (p.71). Costs of various services or clusters are applied to the simulated number of victims to assess the potential macro-level economic cost of VAW. In the Ukraine study, the costs calculated using the administrative data was referred to as the 'typical' case, while the costs based on the simulated numbers of victims was referred to as the 'full coverage' case. The cost specifications for these two cases are summarised below:

$$\text{Typical case: } Economic\ Cost_j = Unit\ Cost_j \times Victims_j$$
$$(based\ on\ administrative\ data)$$

$$\text{Full coverage case: } Economic\ Cost_j = Unit\ Cost_j \times Victims_j$$
$$(based\ on\ derived\ data)[3]$$

Duvvury et al. Vietnam study (2012): a similar approach was adopted in the Vietnam study to give macro-level estimates. A macro estimate was extrapolated based on the incidence rate (as determined in the study) and the prevalence data reported by the General Statistics Office. These two rates (i.e. the incidence rate and prevalence rate) were used to extrapolate onto the whole population for the age cohort 18–49 to determine number of potential victims of VAW seeking various services. The unit values of various services or cost clusters were applied onto the simulated number of victims to assess the potential macro-level economic cost of VAW in Vietnam (p.44).

2.2 Estimated economic cost of VAW

Economic cost estimates vary considerably depending on methodology, coverage of cost categories, numbers of survivors or incidents, cost of services etc. Some recent and striking cost estimates are reported here.

The EIGE (2014) study provided cost estimates for all 28 EU member states. The estimates are an extrapolation of UK cost estimates, applying country population multipliers (i.e. multipliers of the other 27 member states). The results reveal some important insights:

 i. The cost of GBV is dominated by gender-based VAW in contrast to gender-based violence against men. EU estimates reconfirm this trend. More than 87 per cent of the estimated total cost of GBV – which was 1.92 per cent of 2012 EU GDP – was accounted for by GBV against women. This also suggests that although there is evidence of violence against men, this sill is a female-centric issue.

 ii. The costs of IPV or IPV against women (IPVAW) are the dominant source of cost – accounting for about 50 per cent of total GBV cost.

Two recent studies which tried to incorporate macro-level estimates on the basis of the under-reporting of VAW statistics, also produce some interesting and important outcomes:

 i. The UNFPA and DFID study on Ukraine estimated that the macro-level costs were 20 times higher than the costs based on administrative data (i.e. the typical case).

 ii. The Vietnam study also reported a hugely larger number of incidents as well as economic costs of VAW under the macro case (i.e. the full coverage case), compared to the case based on administrative data (i.e. the typical case).

Table 2.1 Economic cost of IPV and GBV in EU-28 in 2012 (billion euros)

	Member state	Cost of IPVAW	Cost of IPV	Cost of GBWAW	Cost of GBV
1	Austria	1.82	2.04	3.76	4.31
2	Belgium	2.40	2.69	4.97	5.69
3	Bulgaria	1.58	1.77	3.28	3.76
4	Croatia	0.92	1.04	1.91	2.19
5	Cyprus	0.19	0.21	0.39	0.44
6	Czech Republic	2.27	2.54	4.70	5.39
7	Denmark	1.21	1.35	2.50	2.86
8	Estonia	0.29	0.32	0.59	0.68
9	Finland	1.17	1.31	2.42	2.77
10	France	14.12	15.81	29.22	33.48
11	Germany	17.37	19.45	35.95	41.19
12	Greece	2.41	2.69	4.98	5.70
13	Hungary	2.15	2.40	4.45	5.09
14	Ireland	0.99	1.11	2.05	2.35
15	Italy	12.85	14.38	26.58	30.45
16	Latvia	0.44	0.50	0.92	1.05
17	Lithuania	0.65	0.73	1.34	1.54
18	Luxembourg	0.11	0.13	0.23	0.27
19	Malta	0.09	0.10	0.19	0.21
20	Netherlands	3.62	4.05	7.49	8.58
21	Poland	8.33	9.33	17.25	19.76
22	Portugal	2.28	2.55	4.72	5.41
23	Romania	4.35	4.87	8.99	10.30
24	Slovakia	1.17	1.31	2.42	2.77
25	Slovenia	0.44	0.50	0.92	1.05
26	Spain	10.13	11.34	20.95	24.01
27	Sweden	2.05	2.30	4.24	4.86
28	United Kingdom	13.73	15.37	28.42	32.56
Total EU 28		109.13	122.18	225.84	258.73
As % 2012 EU GDP		0.81	0.91	1.68	1.92
Female share (%)		89.3		87.3	

Source: Based on Table 6.1 of EIGE (2014)
Note: IPVW refers to intimate partner violence against women and GBVAW denotes gender-based violence against women.

Table 2.2 Economic cost of VAW: comparison between typical case and full coverage (macro) case

	Number of survivors		Cost	
	Typical case	Full coverage case	Typical case	Full coverage case
Ukraine			*In 000 $*	*In 000 $*
1. Lost income	710	16,694	97	3870
2. Cost of services	120,737	150,863	10,681	14,149
3. Personal cost		366,394		190,033
Total	*121,447*	*533,951*	*10,778*	*208,052*
Vietnam			*In 000 VND*	*In 000 VND*
1. Out of pocket expenditure	236	19,812,268	141,600	11,887,000,000
2. Lost income	148	19,812,268	79,214	21,225,000,000
3. Value of missed household work	3,168	19,812,268	27,076	10,052,000,000
Total	*3,552*	*19,812,268*	*247,890*	*43,164,000,000*

    iii. The main argument for the full coverage case (the macro-level estimates of the economic cost of VAW) is the prevalence of high invisibility of offences reported in the administrative data; this is especially the case in developing countries or where administrative data are weak.

A recent paper prepared by Fearon and Hoeffler (2014), under the aegis of the Copenhagen Consensus Center, reported the astonishing cost of domestic violence: 11.1 per cent of world GDP. Costs related to VAW and child were also reported to be high, at 5.3 per cent and 4.3 per cent of world GDP respectively (Figure 2.1). These high estimates highlight the importance of

Figure 2.1 Estimated cost of domestic violence

Estimated cost of domestic violence (% of World GDP)

Total Domestic Violence	11.14
Violence Against Women	5.26
Child Abuse and Sexual Violence	4.25
Interpersonal & Collective Violence	1.63
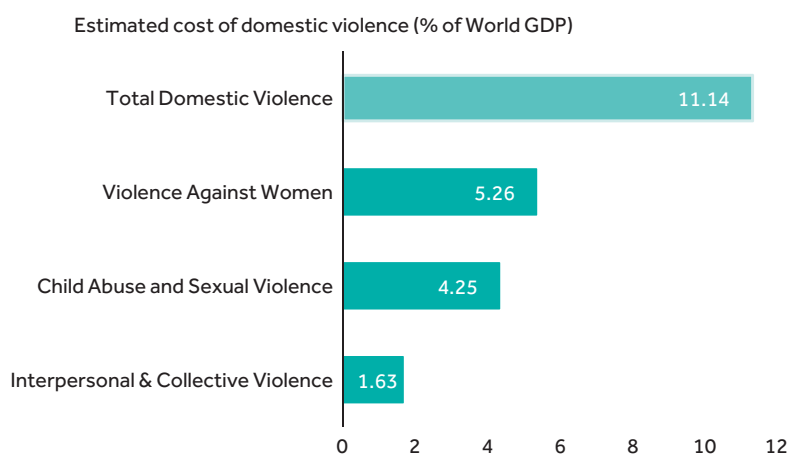
Source: Fearon and Hoeffler (2014).

establishing immediate corrective measures to reduce, prevent and eventually eliminate the incidence of VAW.

2.3 Estimated benefits of investment in preventing VAW

There is reluctance among policy-makers to invest in 'soft' sectors such as the social sectors, and projects on gender and children, compared to investment in 'hard' sectors (e.g. infrastructure and energy), because such investment is seen to enlarge the proximate productive capacity of an economy, leading to higher growth. However, recent global estimates of the economic cost of VAWG show that the loss to economy due to such violence is significant.

Considering the importance of investment in prevention of VAW, recent studies have been trying to quantify the benefit–cost ratio (or, in other words, the value for money) of investing in measures to eliminate (or prevent) VAW. Although the cost of interventions is relatively easy to determine, it is very difficult to asses the benefits of such interventions. The UNFPA and DFID study (2107), argued that 'international studies demonstrate that each $1 invested in GBV prevention saves the economy $5 to $20 in future service cost'. On the basis of these estimates, it urged Ukrainian authorities to discard the currently practised 'left over' principle for budgeting interventions to prevent VAW.

The study by the Copenhagen Consensus Center, on the other hand, provided detail on the benefit-cost ratios for interventions aiming at preventing violence, including VAW. Even though the report acknowledged that measuring the benefits of interventions to prevent domestic violence was

Figure 2.2 Estimated benefit-cost ratio of interventions

Estimated BCR (%)

Intervention	BCR
Reduce Assult	17
Eliminate Severe Physical Violence to Discipline Child	11
Reduce Wars	5
Improve Policing	No numercial vlaue but likelyto be high
Eliminate all forms of VAWG	No numercial vlaue but likelyto be high
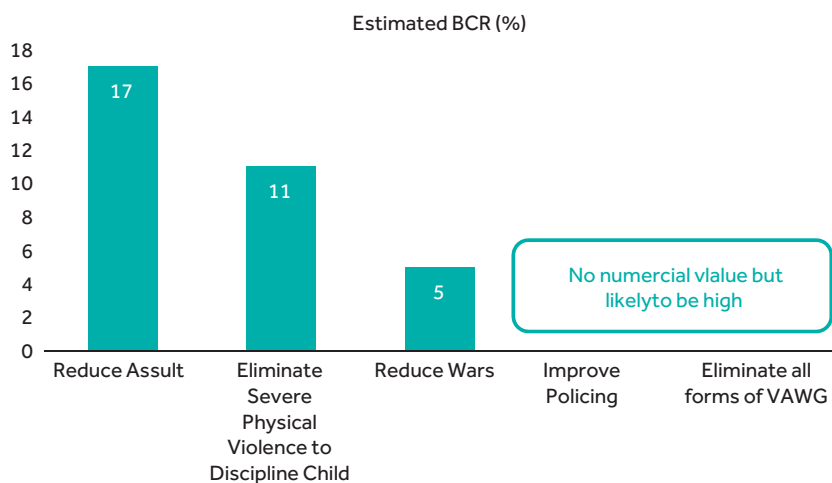
Source: Fearon and Hoeffler (2014).

difficult, it provided some benefit–cost ratios for certain interventions. The estimated benefit–cost ratios were high, suggesting good value for money in investing in programmes to prevent domestic violence (Figure 2.2).

Notes

1 The current study aims to develop an implementable framework for Commonwealth member states, while encompassing the key characteristics of comprehensiveness, transferability and flexibility to adjust to new specifications and data.
2 More specifically, the proportional multiplier has been described as 'if the cost data source also provides non-intimate partner violence services then the proportion of total budgets/expenditures attributable to intimate partner violence should be estimated (Proportion of domestic violence that is IPV~75%; Proportion of all VAW that is IPV~40%)', EIGE (2014), p.108.
3 Number of survivors are simulated (or derived) in the full coverage case using official population data of women usually aged between 18 and 64.

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Duvvury, N, HM Nguyen and P Carney (2012), 'Estimating the Costs of Domestic Violence against Women in Viet Nam', Hanoi, Vietnam, 2012.

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UN Population Fund and Department for International Development (2017), 'Economic Costs of Violence against Women in Ukraine', UNPFA and DFID, Kyiv, Ukraine.

Chapter 3

Key Facts on Violence
Against Women in
Seychelles

Chapter 3
Key Facts on Violence Against Women in Seychelles

Some key facts on VAW in Seychelles are presented here. They are excerpted from a national baseline survey, review of literature and statistics, an expert group consultation and focus group discussion.

3.1 National baseline study

One of key data sources for Seychelles was the baseline survey conducted by Gender Links in collaboration with the Department of Family Affairs (Gender Links 2016). The study reported a high prevalence rate. The total sample size was 1,109: 578 women and 531 men. A survey instrument containing 300 plus questions was used to gather information from the sample respondents.

Some of the findings included:

- That high prevalence rates were found for both women and men. However, the prevalence rates were much higher for women

Figure 3.1 Forms of violence and IPV experienced in a life time (national baseline study)
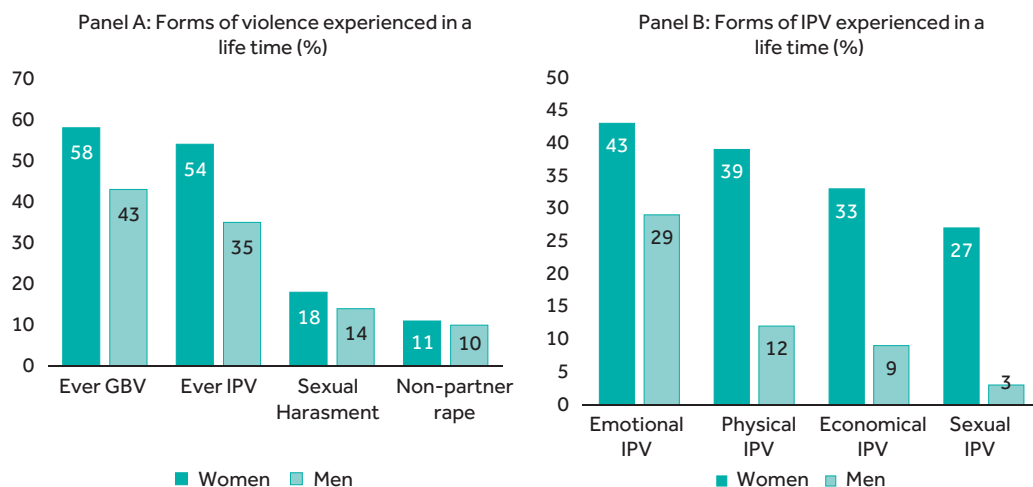
Source: National baseline study (2016).

Figure 3.2   IPV experienced in last 12 months (national baseline study)

Panel A: IPV experienced by women in last 12 months (%)

Panel B: Forms of IPV experienced last in 12 months (%)
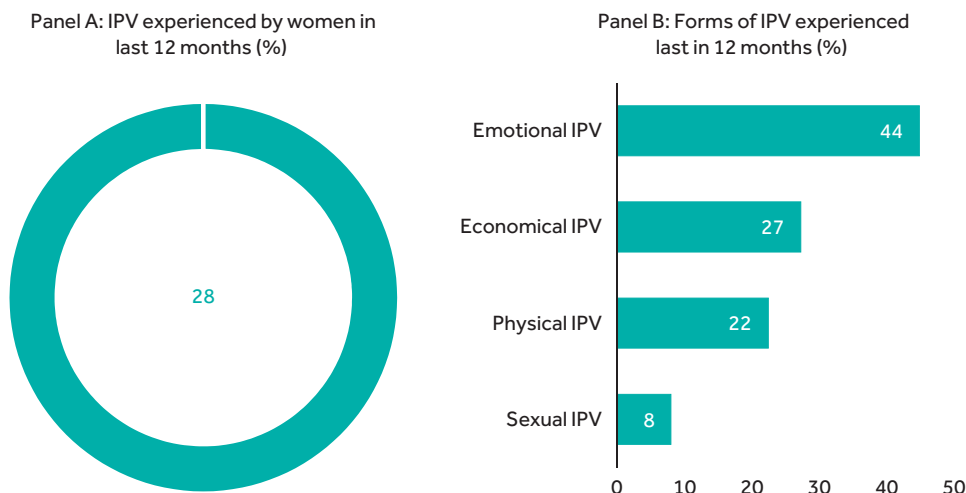
Source: National base study (2016).

compared to men. GBV against women was 58 per cent, while 54 per cent experienced intimate partner violence (IPV).

- The life time experience of sexual harassment and non-partner rape by women were respectively 18 per cent and 11 per cent.

- IPV experienced by women during the previous 12 months was reported by 28 per cent of respondents. This rate forms an important parameter for the costing framework. IPV experienced during the previous 12 months by four different forms revealed diverse rates. The highest rate was emotional IPV experienced by 44 per cent of women, followed by economical IPV experienced by 27 per cent. Thirty per cent of the women reported experiencing physical and sexual IPV. These two rates (i.e. physical and sexual) are also part of the parameter group.

Other VAW-related key facts

1. Eighteen per cent of women and 14 per cent of men experienced sexual harassment, at school, the workplace or in public places.
2. Of the 172 women (i.e. 30% of the sample) who had experienced physical IPV, 46 women (i.e. 27%) reported sustained injuries, resulting in a total of 21 women (i.e. 12%) being bedridden.
3. The average number of days bedridden was three.
4. Almost 39 per cent of women took days off from work due to injuries they sustained.
5. The average number of days forgone was five.
6. There was serious under-reporting of violence.

3.2 Administrative data

Governments, as well as non-government agencies, are usually responsible for addressing the GBV in a country. Administrative records or data thus constitute a highly important source of information for estimating the cost of violence. Seychelles is no exception. The following agencies were found to be involved in addressing GBV in Seychelles:

Agency	Support Service Areas
A. Government agency	
1. Department of Family Affairs	Policy and strategy formulation; awareness and training
2. Family tribunal	Law and justice; and protection
3. Family support unit	Shelter, protection and counselling
4. Police	Prevention and protection
4.1. Child protection unit	Protection
4.2. Family squad	Protection
5. Ministry of Health	Treatment and counselling
6. Ministry of Education	Education, monitoring and counselling
6.1. Children welfare unit	Monitoring, awareness and counselling
B. Non-governmental organisations/ civil society organisations	Shelter, awareness and counselling

Key observations:

- Data/statistics were not compiled properly to allow cases related to GBV to be identified.

- Information collection and generation processes were not digitalised.

- Costs of various services extended by government were not readily available.

- Agency-level annual budgets were not readily available.

- Proportion of agency staff and resources devoted to addressing GBV was not readily available.

- Loss of learning time at primary and secondary schools was reported to be high, in the range to 10 to 25 per cent (primary and secondary schools in Praslin).

- Addressing GBV in the workplace did not yet constitute an activity by the relevant agencies (Ministry of Labour and Employment).

- Under-reporting of actual events (Seychelles National Bureau of Statistics).

Figure 3.3 Extent of under-reporting (expert group consultation)

Under-reporting (%)
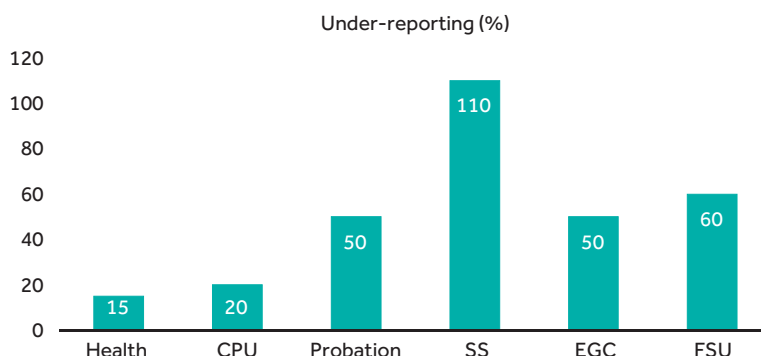
Source: Second in country mission.
Note: CPU = central planning unit; SS = social services (Praslin);
EGC = expert group consultation; and FSU = family support unit.

3.3 Expert group consultation

As part of information collection as well for validation, an expert group consultation was arranged during the second mission (February–March 2018). Among others, the expert group also validated the findings of the extent of under-reporting by various government agencies. This is reported in Figure 3.3.

3.4 Focus group discussion with survivors

Estimating the cost of VAW is data demanding. In most countries, the required data are not readily available; Seychelles is no exception in this respect. Various approaches have been attempted to gather new information, as well as to cover the obvious data gaps. Reviews of available administrative and survey data identified several gaps which needed be filled from different sources. One important and perhaps reliable source is to gather information from violence survivors. A focus group discussion (FGD) with 12 survivors was conducted by the Family Affairs Department, with support from the project during the February–March mission. Key findings of the FGD are provided below.

Key characteristics of the respondents

- *Age – mean: 43; minimum: 27; maximum: 54*
- *Employment – employed: 80%; self-employed: 10%; unemployed: 10%*
- *Have children below age 16 – No: 10%; Yes: 90%*

Figure 3.4 Frequency and forms of violence (focus group discussion)

Panel A: Frequency of violence

Panel B: Forms of violence (% of occurrences)

Emotional 56.3; Physical 25.0; Economic 12.5; Sexual 6.3

Legend Panel A: ☐ Once ■ More than 4 times
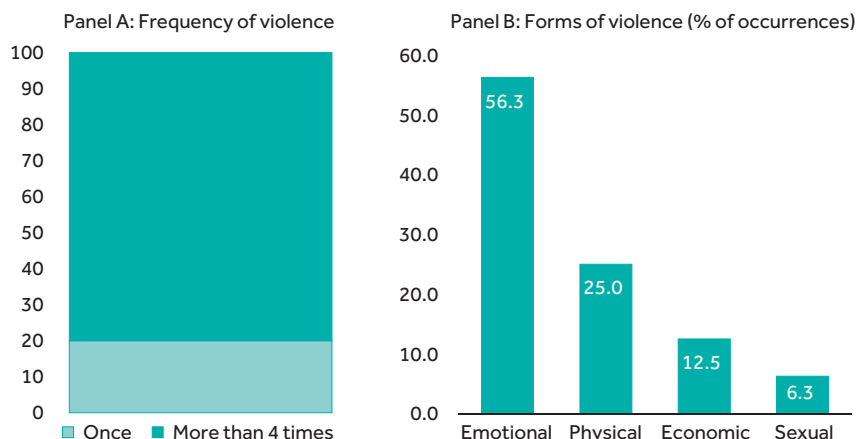
Source: FGD.

- *Number of children – No child: 10%; 1 child: 30%; 2 children: 40%; 3 children: 20%*

- *Percentage of survivors who sought help – 20%*

Frequency and forms of violence

A very important aspect of the VAW captured through the FGD was the high-frequency repeat victimisation which was not reported by the national GBV baseline survey. According to the FGD, 80 per cent of the respondents experienced violence more than four times during the 12-month time period. This was a key finding. Forms of violence were in line with findings of the national baseline survey, with emotional violence the most prominent (Figure 3.4).

Gravity of injury

Gravity of injuries has serious cost implications in terms of treatment and number of temporary incapacity days. Usually injuries are categorised into three types, depending on the extent of wound and required treatment: (i) minor bodily injuries; (ii) bodily injuries of medium gravity; and (iii) grievous bodily injuries. Twenty (20) per cent of respondents experienced grievous bodily injuries. For bodily injuries of medium gravity and minor bodily injuries, the respective figures were 30 and 50 per cent. This was important information for the costing exercise.

Thirty per cent of respondents took days off from employment due to injuries. The average number of days absent from work was around five (Figure 3.5).

Figure 3.5 Gravity of injury and days off from work (focus group discussion)

Panel A: Gravity of injuries (%)   Panel B: Days off from employment (%)

Category	Value
Minor Bodily Injuries	50
Bodily Injuries of Medium Gravity	30
Grievous Bodily Injuries	20

Category	Value
No	60
Yes	30
NA	10
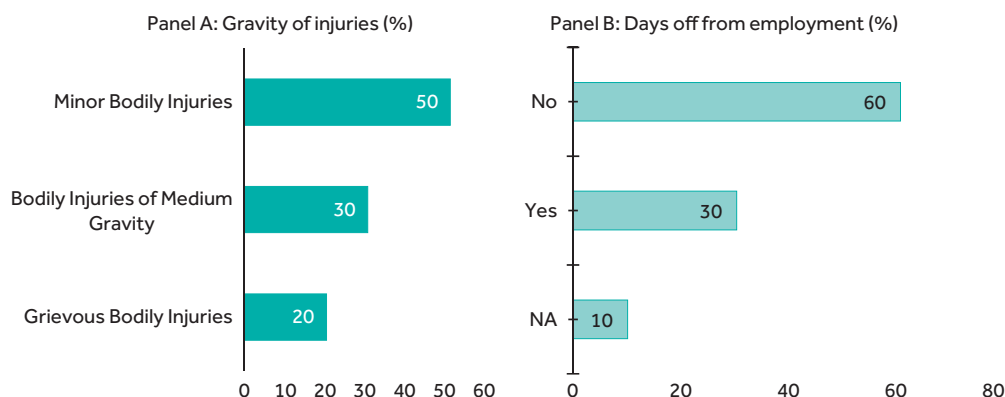
Source: FGD.

Bedridden due to injury

An inevitable outcome of grievous injuries is either hospitalisation or being bedridden at home. Thirty (30) per cent of respondents had to spend a night in hospital due to the gravity of injuries and 20 per cent were bedridden at home (Figure 3.6).

Household work

Violence usually disrupted household activities regularly performed by the survivors. Sixty (60) per cent of respondents said domestic violence had disrupted their household work. This was in line with global experiences. What was interesting was the extent of disruption. More than 30 per cent argued that the violence left long-lasting deleterious effects, resulting in

Figure 3.6 Bedridden (focus group discussion)

Panel A: Hospitalised (%)   Panel B: Bedridden at home (%)

Yes ■ No
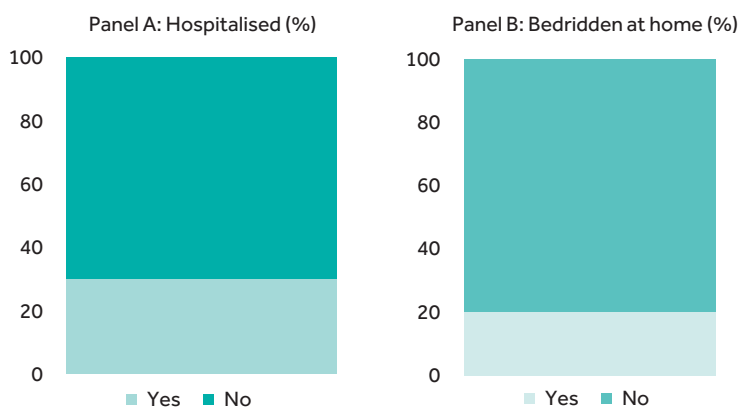
Source: FGD.

Figure 3.7 Disruption of household work (focus group discussion)

Panel A: Disrupted household work (%)

60	40

0   20   40   60   80   10

■ Yes ■ No

Panel B: Extent of disruption (days)

5 Days	60 Days	365 Days	1825 Days
33	33	17	17
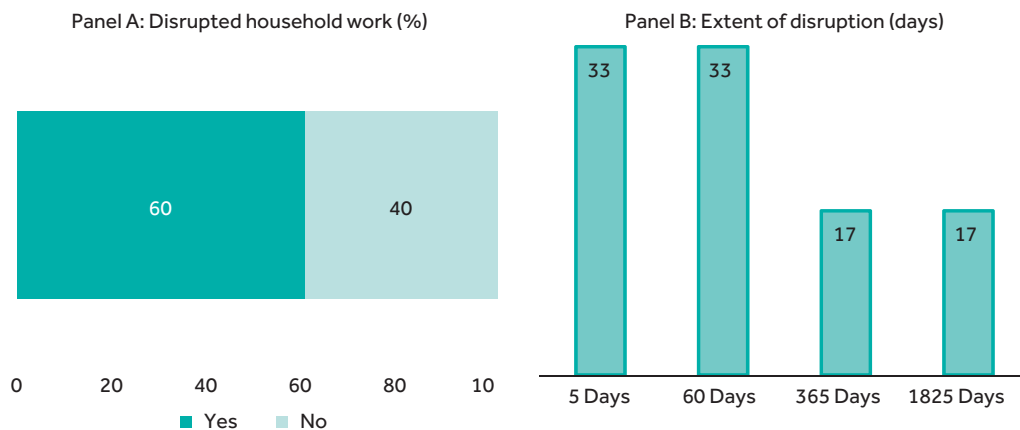
Source: FGD.

disruption of normal household work for more than 12 months. In terms of extent of disruption, 33 per cent said that 60 days of household work had been disrupted (Figure 3.7). On average, the hourly disruption rate in a typical day was five hours.

Reference

Gender Links (2016), 'Gender Based Violence: National Baseline Study in Seychelles', Johannesburg, South Africa, December.

Chapter 4

Economic Cost of VAWG
Methodology

Chapter 4
Economic Cost of VAWG Methodology

In order to capture structural interlinkages within the real economy, and thus calculate the full economic cost of VAWG, the methodology applied in the present exercise includes three types of costs, namely: (i) directly measurable costs; (ii) indirect costs (costs that are difficult to measure directly); and (iii) induced costs (costs leading to further linkages and that will have secondary effects).

Direct costs include: the cost of medical treatment for various types of physical and mental abuses – doctors'/hospital bills for physical injuries and bills for psycho-social care; costs for involvement of the law/police; loss of income due to absence from work etc. **Indirect costs** measure reduced gross domestic product (GDP) as a result of linkages between the income generation process and reduced effective demand due to loss of female work days. Loss of female work days translates into loss of income and hence reduced private consumption. This reduction in private consumption expenditure in turn leads to a decline in effective demand and subsequently GDP because of their inter-dependence in the circular flow of income generation. The third type of costs, **induced costs**, represents a further reduction (i.e. second round effects) in GDP due to loss of demand for the products (unaffected in the first round) which are inter-dependent with the products affected indirectly. For instance, tourism sector may not be affected in the first round as it is generally not an essential type of regular expenditure, but due to inter-dependence of tourism sector with rest of the economy it would be impacted in the second round as incomes of the unaffected households would likely to decline due to the slowdown of the economic activities.

The costing module used consists of four building blocks. There are three building blocks for the direct cost component (shown in Figure 4.1) and one building block for the indirect/ economy-wide cost component.

The main features of the direct cost component – with its three building blocks – are discussed below. Section 4.3 outlines the indirect/economy-wide cost component.

Figure 4.1 Costing module comprises four building blocks

3 Types of Cost	3 Cost Categories
Unit Cost	Cost of Services
Proportional Operational	Personal Cost
Total Operational	Income Loss

Costs at 2 Levels	Economy-wide Cost
Micro-meso (typical case)	Sectoral: Agriculture
Macro (full coverage case)	Industry; Services

Direct Cost   Indirect Cost
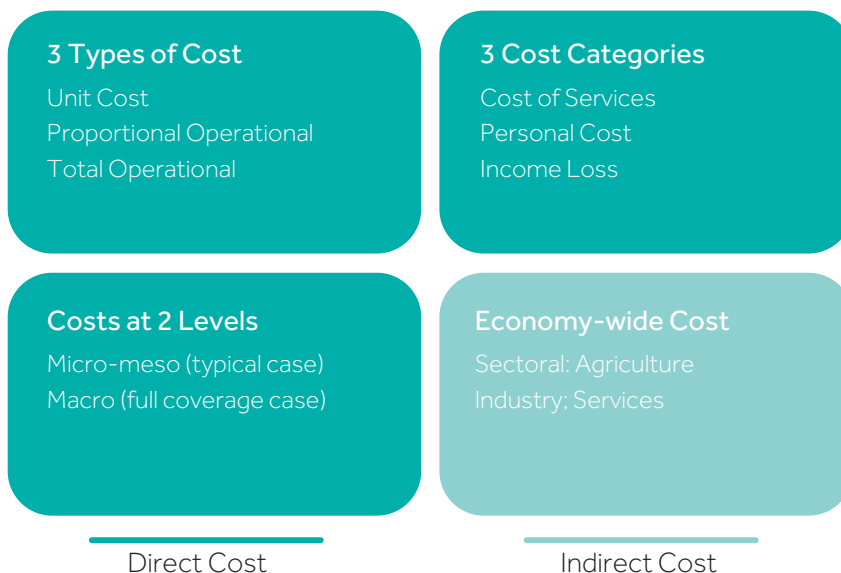
4.1 Structure of the model framework

Three types of cost approaches (1)

The estimated costs are based on three types of approaches: (i) the unit cost approach; (ii) the proportional operating cost approach; and (iii) the total operational cost. The 'unit cost' approach estimates the cost of a certain service package provided to a survivor in a certain case (e.g. per day hospital cost or medical service package for a survivor with grievous injuries). The 'proportional operating cost' approach is based on identifying the share of survivors in the total number of service recipients (e.g. 30% of the total social services budget spent for survivors). The 'total operational cost' approach is applicable to 24 hour per day/7 days per week services (such as a telephone hotline for survivors of violence).

Three categories of costs (2)

The estimates are produced for the following potential three categories of costs:

i. Cost of services provided in response to violence and assistance for survivors. This category may include: the healthcare sector, law enforcement and the system of justice, penitentiary institutions for abusers, social and specialised services for women affected by violence etc.

ii. Personal material losses and cash expenses of survivors due to violence.

iii. Lost economic output due to irreversible population losses, such as premature death of women, temporary and permanent disability due to GBV, and reduced work productivity of survivors – leading to loss in output or income.

Costs estimated at two levels (3)

An important observation is the high latency (under-reporting) of offenses against women and girls according to official statistics (UNFPA and DFID 2017). This is for obvious reasons, such fear of being stigmatised, fear of being blamed for provocative behaviour or fear of retaliation by the abuser. Thus, estimates based only on official statistics may produce a huge underestimation of the economic cost of violence (since the official data misrepresents the real magnitude of VAW). Accordingly, a sensible approach may include cost being estimated at two levels or using two scenarios:

- **First,** cost estimation based on official or survey data (in other words, estimates based on micro- and meso-level data). According to the literature, such economic cost estimates are said to be based on a 'typical' scenario using the official police statistics on offenses.

- **Second,** a so-called 'full coverage' scenario – that is, a cost estimate based on a simulation model using the violence prevalence rates and features of survivors contained in population-based surveys. This may also be referred to as a macro-level cost estimate.

4.2 Software

The model costing framework developed by the authors of this book has been created in an MS Excel environment to enable transparency, accessibility and transferability; and it has been tested with hypothetical data.

It is a generalised framework intended to be populated with country data. The model is designed to provide two types of costs: (i) typical case costs based on micro-/ meso-level information; and (ii) full coverage case costs based on a macro-level simulation using shares of micro/meso level and age cohort population data.

The logical flow of the model is shown Figure 4.2.

Figure 4.2 Schematic specification of the direct cost component

Estimated Cost: Typical Case (Micro/Meso Level)					
Victims	**Cost**	**Victims**	**Cost**	**Victims**	**Cost**

Cost Components:
1. Health Care
2. Law Enforcement
3. Social Services
4. Specialised Services
5. Learning Time Lost
		Cost Components:
		1. Loss of Personal Property
		2. Loss of Income
		3. Social Services
		4. Personal Expenses Coping with Violence
				Cost Components:
				1. Irreversible
				2. Reversible
				  a. Income Loss Due to Temporary Incapacity
				  b. Missing Value of Household Work	

Method: Unit Cost Proportional Operating Cost Full Operational Cost		Method: Unit Cost Proportional Operating Cost Full Operational Cost		Method: Unit Cost	

Level Transformation: Simulation based on Population and Typical Case Shares					
Victims	**Cost**	**Victims**	**Cost**	**Victims**	**Cost**

Estimated Cost: Full Coverage Case (Macro Level)		
B. Service Cost	C. Personal Cost	A. Lost Income

Total Cost: (Local currency; $ and GDP share)

Source: Author's Representation.

4.3 Economy-wide/indirect cost

To assess the indirect cost of VAWG, the researchers use a simple economy-wide framework. Consider an economy with earnings and spending. We earn our income from various types of activities (e.g. agriculture, manufacturing, mining, construction and services), by investing our financial resources (or capital) or through participating in the labour market (capital and labour are known as 'factors of production'). The vast majority of what we earn is spent (or consumed) on various types of commodities and services. Spending or consumption generates demand for commodities and services, which in turn stimulates supply of various activities where these are produced. Stimulated supply employs labour and capital and thus creates income for spending again – and the loop continues.

One outcome of the direct cost of VAWG is the loss of work days leading to loss of income. Income loss leads to a reduction in private consumption expenditure (spending) with subsequent negative impacts on demand for and supply of goods and services. As production of goods and services depend on purchases of other goods and services, as well as factors of production, the loss of female work days (which is a direct impact of VAWG) may indirectly lead to further loss of income due to this interdependence.

To capture the indirect impacts of VAWG, the researchers use an economy-wide database or model. The two most widely used economy-wide data sets are: the input-output matrix (IOM[1]) and the social accounting matrix (SAM[2]). The economy-wide data sets are then converted into a multiplier framework to capture the economy-wide indirect cost of VAWG.

A hypothetical example, with only three broad economic sectors (agriculture, industry, services; in reality number of sectors would be much larger) is shown in Figure 4.3.

As can be seen, income loss derived in the direct cost approach leads to a reduction in private consumption expenditure. For a three-sector economy, private consumption loss is recorded for services as being 1.5 per cent and for agriculture as being 4 per cent. The consumption expenditure in the industry sector is considered unaffected to capture the interdependence of the multiplier model.

These reduced consumptions are then incorporated as exogenous shocks into the multiplier model (i.e. in this case, a 3×3 multiplier model) to assess the indirect and induced cost of violence. The total indirect cost is found to be 7.8 per cent (output loss to agriculture and services, 5+2.8), while the total induced cost is 4.3 per cent (output loss to industry).

This is a highly data demanding exercise. Unlike the other economic statistics, data required for numerical specifications of the model are not readily available. The project consequently made heavy investment on data collection.

Figure 4.3 Hypothetical example of multiplier framework
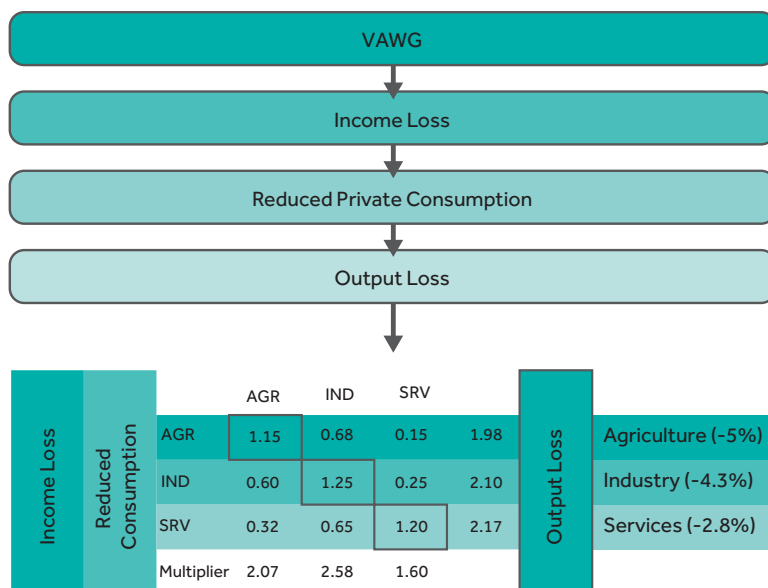
Two missions were carried out (i.e. an inception mission and a data collection mission). Thorough reviews of literature and statistics were also conducted and more than 70 stakeholders were met. One exclusive expert group consultation involving 15 experts and a focus group discussion with 12 VAW survivors were also conducted to gather data, as well as to cover gaps in the information set.

4.4 Country implementation strategy

Country-level implementation requires the steps below.

A. *The following information allows estimation of the micro/meso level or 'typical' case:*

1. Collect administrative data and available survey data on gender violence (i.e. micro/meso-level data) to generate prevalence rates for difference types of violence (e.g. minor, medium gravity and grievous types etc.).

2. Collect administrative financial information to calculate the 'unit cost' for various services (e.g. per day hospitalisation cost; outpatient fee per visit etc.) and cost categories (e.g. minimum wage; per capita income of employed person; hourly wages of police personnel, social service officials, judges etc.).

3. Get intervention parameters for different services (e.g. number of hours spent per case by the police, judiciary, social services and family welfare etc.) for cases under different types of violence.

4. Collect detailed budget information for ministries and agencies involved in preventing VAWG. This information allows the researcher to determine the amount of public funds allocated for the fight against violence.

5. Arrange consultation meetings with local experts (i.e. in-country experts) to validate findings based on administrative and survey data (i.e. micro/meso-level data).

6. Organise a focus group discussion (FGD) with survivors to supplement the information gathered from micro- and meso-level sources. Such an FGD may also help the researcher get information on personal costs incurred; duration of treatment; loss of working days etc.

B. *The following step is needed for the macro-level estimation or 'full-coverage' case:*

7. Gather age cohort gender-segregated population data to operationalise macro-level cost estimation. Information of age

cohort population data are then used alongside the information on three types of costs (i.e. unit cost, proportional operational cost, full operational cost); prevalence rates; and other relevant shares to estimate the macro-level cost or cost under the 'full coverage' scenario.[3]

C. *Economy-wide estimation requires the following strategies:*

8. Estimated output loss or income loss information are then used to examine the economy-wide indirect and induced costs of VAWG. If a consistent macroeconomic data set (i.e. IOM or SAM) is available for a recent year, the economy-wide model is specified by designating some of accounts of IOM/SAM as 'endogenous' accounts (or analogous to dependent variables) and 'exogenous' accounts (or analogous to independent variables). Endogenous[4] accounts include activities; factors of production – labour and capital; and households. Exogenous[5] accounts are composed of policy variables such as government expenditure; investment; exports etc.

9. If a recent macroeconomic data set is not available, the data set may be updated to a recent year using sectoral economic information (such as value added or GDP, imports, exports, consumption, public expenditure, investment etc.). In this case, the updated macroeconomic data set is converted into an economy-wide model.

10. Carry out a simulation exercise with the economy-wide model to assess the indirect and induced cost of VAWG.[6]

Further details on the economy-wide estimation approach are discussed in Annex 2.

4.5 Overcoming data gaps

The costing module should ideally be based on country data or data available from international agencies such as the UN, World Bank and multilateral development banks etc. However, as mentioned above, obtaining robust estimates on the cost of VAWG are subject to significant data limitations and gaps in all countries in the world (Duvvury et al. 2013). Where data/ information are not readily available, an indirect method can be adopted to derive them. For instance, unit value (or return to employment) can be derived from information on earnings of female workers and number of person days or person hours worked. In extreme cases, some 'place holder' values may be obtained from similar studies for preliminary estimates with a target that the 'place holder' values be replaced with country-level data at a later time. Moreover, in some cases, surveys may need to be conducted to fill

the data/information gaps. Digital records need to be identified and assessed and, in some cases, paper records will have to be digitised.

Another challenge will be to collect/gather IOM or SAM data to carry out indirect and induced cost estimations. Ideally the researcher needs to use a SAM for the indirect and induced cost estimations. Even when a SAM is not readily available, it may be possible to develop a SAM using an IOM (as is done for Seychelles). An important source of IOMs for a large number of countries is the Global Trade Analysis Project (GTAP) database.

In order to ensure as high a level of accuracy as possible, once the modelling is complete, meetings with administrative agencies, expert groups and survivors of VAWG will need to be arranged to discuss the findings – including under-reporting – for improvement and consolidation.

Notes

1   IOM usually captures the production structure of an economy for a particular year describing production technologies and ensuring equality of supply to demand for all sectors of activities classified in that economy.
2   SAM is an extension of IOM incorporating other important agents such as factors of production (i.e. labour and capital factors) and institutions (i.e. households; government; corporations etc.). A special feature of the SAM is that it shows income generation process (i.e. income generation process by factors of production such as labour factor or capital factor); distribution of income to various institutions such as household; government; corporation etc.
3   Some literatures have also labelled the 'full-coverage' case as the 'best' case scenario.
4   They usually include an activity account, factor account, household account etc.
5   Private and public consumption, exports and investment, pure transfers between institutions (e.g. from government to households) and foreign remittances are generally included to define the exogenous account.
6   It transpired that this method has never before been attempted in gender studies and studies to estimate the economic cost of VAW.

Reference

Duvvury, N, A Callan, P Carney and S Raghavendra (2013), 'Intimate Partner Violence: Economic Costs and Implications for Growth and Development', Women's Voice, Agency, & Participation Research Series, No.3., the Work Bank, Washington, DC.

Chapter 5

Approaches to Estimate
Direct Cost ('Typical' Case)

Chapter 5
Approaches to Estimate Direct Cost ('Typical' Case)

5.1 Health services

It is now almost universally acknowledged that the most important loss to a survivor of VAWG is the health loss. Health of an individual is defined by the World Health Organization (WHO 1948)[1] as 'a state of complete physical, mental and social well-being and not merely the absence of diseases or infirmity'. Following this, in 2013 WHO proposes three groups of effects to measure the health losses due to VAW. These are:

1. *Physical injuries (traumas)*
2. *Psychological traumas and stress disorders*
3. *Fear and effect of controlling behaviour*

The cost of the first group of effects is usually estimated and recorded, since required data/parameters are available (even if not in the best possible format and coverage). Although in some advanced countries, costs for the second group have been estimated due to the availability of administrative medical records; in most countries measurement of psychological trauma/stress is not attempted. Costs for the third group are difficult to gauge as they are generally associated with postponed effects, hence measurement is not attempted due to lack of clarity on methodology as well as lack of data.

Administrative data (i.e. medical records) is the main source of measuring the cost of healthcare services. Reviews of administrative data in order to estimate costs due to VAW have been complicated by the following two identification complexities:

- non-availability of medical statistics that identify health losses due to VAW[2] or by gender; and

- non-availability of data that identify the scope of the total health sector budget for healthcare-related services received by violence survivors.[3]

Given these identification problems, the following approaches are considered to estimate costs for the first group:

- physical (bodily) injuries and sexual violence are included in the estimation;

Table 5.1 Number of visits by types of services

Data	Numbers
1. Visit to community health centres	350,328
2. Visit to specialist	25,877
3. Emergency	81,044
4. Hospital nights by female	21,658
Source: Health Statistics Department.	

- data related to the above categories were obtained from the Health Statistics Department in Seychelles; and

- the 'unit cost' approach – which provides a minimum of doctors'/ staff time, fees, diagnostics tests and medical procedures for each 'typical' situation – was adopted.

There was no breakdown by gender and, as explained above, by causes of injuries or causes of discomfort. The following parameters (Table 5.2) were used to prepare the data set for estimation.

Unit costs of various services estimated for 2013 were obtained from WHO (2013) – see Table 5.3. The costs were adjusted upward by considering inflation rates between 2013 and 2016.[4]

The following generalised specification is applied to estimate the healthcare costs of physical and sexual violence for each service or category:

$$Healthcare\ Cost_i = (Data_i \times Gender\ Parameter\ x\ Prevalence\ Rate_j \times Unit\ Cost_i)$$

Where, $i=1…4$ (1=community clinic, 2=specialist services, 3=emergency services and 4=hospitalisation), while $j=1…2$ (1=prevalence rate for physical injuries and 2=prevalence rate for sexual violence).

The specifications and estimated costs are provided in the Table 5.4.

Table 5.2 Parameter set (healthcare services)

Parameter set	Value
1. Ratio of female visitors (gender parameter)	0.50
2. Prevalence rate: physical injuries (baseline survey)	0.22
3. Prevalence rate: sexual violence (baseline survey)	0.08
4. Prevalence rate: physical injuries and sexual violence (baseline survey)	0.30
Source: Gender Links (2016).	

Table 5.3 Unit costs by types of services (healthcare services)

Unit cost	2013	2016
Visits to community health centres	561	604
Emergency	821	884
Medical wards	1,518	1,635
Surgical wards	1,434	1,544
Average	1,766	1,902
Memorandum items (assumed)		
Sexual traumatic cases: 10 times of average	17,661	19,021
Visits to specialist: equals the average	1,766	1,902

Source: WHO (2013).

Table 5.4 Estimated cost of healthcare services due to VAW (SCR = Seychelles rupee)

Category	Data*	Parameters		Unit cost (SCR)	Cost (SCR)
		Gender	Prevalence rate		
Community clinic	350,328	0.5	0.3	604	31,750,069
Emergency	81,044	0.5	0.3	884	10,749,072
Specialist	25,877	0.5	0.3	1,902	7,383,161
Hospitalisation	21,658		0.3	1,635	10,622,508
Total physical injury					**60,504,810**
Sexual exposer: case	350,328	0.5	0.08	1,902	26,654,589
Sexual exposer: psychological case	350,328	0.5	0.08	1,902	26,654,589
Sexual exposer: traumatic case**	108			19,021	2,054,286
Total sexual violence					**55,363,463**
Total healthcare cost					**115,868,273**

Note: *refers to number of visits by patients not identified by gender whereas hospital nights are by female patients and ** denotes to cases registered with police. *Please note* the cost of treating a traumatic case of sexual violence is ten times higher than that of the sexual exposure case. Following WHO (2003), the cost for traumatic case includes psychological support, emergency contraction, treatment and prevention of sexually transmitted infections, adequate prevention of HIV-infection, information on safe abortion etc. It may also include at least one consultation with a gynaecologist, an ultrasound of the pelvic organs, and a mandatory test for HIV, hepatitis and sexually transmitted infections. Inclusion of all the above listed procedures, tests and consultations may result in the higher cost for treating a traumatic case. Thus, the ten times higher cost for traumatic cases considered in this study seems reasonable. The Ukraine study set three-unit costs depending on the nature of violence: (i) minimum cost at US$236 (dealing with procedures and medications); (ii) cost at US$536 for traumatic cases; and (iii) cost at US$810 including psychological support (UNPFA and DFID 2017).

5.2 Law enforcement and judiciary

Two important agencies dealing with law enforcement and the judiciary are the Family Tribunal and Seychelles police. The Family Tribunal was established in 1998 under the amended Children's Act. It administers the Family Violence Act (Gender Links 2016). Services it renders include:

- *protection orders against all forms of family violence;*
- *eviction orders; and*
- *counselling and rehabilitation.*

The Family Tribunal consists[5] of a secretariat and board. The secretariat has 12 staff and the board includes three judges: two work full time and one part time. The composition of three-member board is: chairperson, vice chairperson and a member. The secretariat's main tasks include registration, evidence gathering, including visits, meeting with clients, mediation, case compilation for the board, enforcement and send official notices etc. It takes about three days for the secretariat to complete a case – from registration to case compilation – for the board. The board sits three times a week and the number of cases considered each day is shown below:

Morning session: 8:30 – 12:30	Afternoon session 1:30 – 4
25 cases	15 cases

The Family Tribunal claimed that most of its cases related to VAWG and it spent 90 per cent of its time combating VAWG. The board spent 100 per cent of its time dealing with VAWG. An important feature was the difference in numbers between non-registered (i.e. applications not forwarded) and registered applications. Data for 2015 and 2016 revealed that the number of cases not put forward to the board (i.e. case compilation) was between 4.8 or 8.2 times higher than those that were put forward. According to Family Tribunal, this is an indication of the extent of violence.

	2015/Q2	2015/Q3	2015/Q4	*2015*	2016/Q1	2016/Q2
A. Registered applications	160	168	144	*472*	183	111
B. Applications not forwarded	795	814	843	*2,452*	898	907
C = B/A	5.0	4.8	5.9	5.2	4.9	8.2

The total number of registered cases in 2016 was 504 – of which three were brought by men. Thus, the total number of VAW registered cases brought by women in 2016 was 501. As many as 262 cases were put under protection,

with the number of probation cases being 137. Around 58 men were evicted from their homes; nine men were sent to prison.

Seychelles police department is legally obliged to protect everyone from all criminal acts associated with DV, GBV and VAWG. The department is also responsible for enforcing all protection orders made by the Family Tribunal and should be contacted immediately when orders are breached.[6] However, it has the mandate only to investigate cases of GBV, and prosecution is decided by the Office of the Attorney General (AG).

Within the Seychelles police department, the Child Protection Unit works to safeguard the well-being of children aged between 0 and 14; it has eight staff. The unit handles three types of cases: (i) physical injury; (ii) sexual offences; and (iii) negligence. In 2016, there were 145 reported cases of physical and sexual offences. As many as 50 girls experienced physical injury and 57 girls reported sexual offences. By comparison, the number of boys who reported physical injuries and sexual offences were, respectively, 38 and 4. There were 24 cases of negligence, but no gender breakdown was provided for these. The total number of cases handled in 2016 was $169 = 145 + 24$. Time spent for each of these categories is reported in Table 5.5.

Table 5.5 Time spent by cases (Child Protection Unit)

Physical Injury	Sexual offences	Negligence
Team composition: Police 1 Family Support Unit (FSU) 1 Medical staff 1 Staff from Attorney General (AG) Office	*Team composition:* Police 1 Family Support Unit (FSU) 1 Medical staff 1 Gynaecologist 1 Staff from Attorney General (AG) Office	*Team composition:* Police 1 Family Support Unit (FSU) 1 Staff from Attorney General (AG) Office
Tasks include: • Registration • Medical examination • Evidence collection, including visits • Counselling • Report preparation and report forwarding to AG Office	Tasks include: • Registration • Medical examination, including semen collection • Evidence collection, including visits • Counselling • Report preparation and report forwarding to AG Office	Tasks include: • Registration • Evidence collection, including visits • Counselling • Report preparation and report forwarding to AG Office
Time spent: 4 days x 7 hours Average case time: Registration to AG (5 days)	Time spent: 4 days x 8 hours Average case time: registration to AG (7 days)	Time spent: 1 day x 2/3 hours

Table 5.6 Data and parameters used in cost estimation for law enforcement and the judiciary

Data and parameter	Value	Source
Data:		
Number of complaints (administrative offences)	501	Family Tribunal
Number of protection orders	262	Family Tribunal
Number of probation cases	137	Family Tribunal
Number of evictions	58	Family Tribunal
Number of persons sent to prison	9	Family Tribunal
Number of sexual offences	108	Police
Unit Cost:		
Hourly wage of a police officer	63	Derived
Hourly wage of a judge	415	Derived
Hourly wage of a medical officer	90	Derived
Hourly wage of Family Tribunal personnel	40	Derived
Daily cost of detention	585	Probation
Hourly cost of service call (patrol)	130	Assumed

Costing for law enforcement and the judiciary is based on the data and activities of these two agencies. Data and parameters used for cost estimation for law enforcement and the judiciary are reported in the Table 5.6.

The following generalised specification is used to estimate costs for law enforcement and the judiciary for each category:

$$Law\ Enforment\ and\ Judiciary\ Cost_i = Data_i \times Days_i \times Unit\ Cost_i$$

Where, $i=1…7$ (1=service call, 2=registration, 3=protection, 4=probation, 5=eviction, 6=sexual offences and 7=prison). The specifications and estimated costs are provided in Table 5.7.

5.3 Social services

Social services are provided by the Family Support Unit of Seychelles Social Affairs Department. The unit has five staff and provides support for four types of cases: (i) physical injury; (ii) sexual offences; (iii) negligence; and (iv) complicated cases brought by the Family Tribunal and mediating self-referral cases.

Data provided by the Family Support Unit suggest that in 2016, 156 cases were compiled for the Family Tribunal. The number of self-referral cases[7]

Table 5.7 Estimated cost of law enforcement and judiciary services due to VAW (SCR)

Category	Data	Days	Unit cost (SCR)	Total cost (SCR)
Cost of service call by police	501		193=130+(1*63)	96,443
Registration and administration cost of case	501		1,041=(2*63)+(8*40)+(2*90)+(1*415)	521,040
Protection orders	262		861=(2*63)+(8*40)+(1*415)	225,320
Probation cases/arrests	137	30	1,625=1,040+585	6,678,750
Eviction	58	1	1,625	94,250
Sexual offences	108		1,653=(7*63)+(8*40)+(2*150)+(1*415)	178,470
Long-term detention (prison)	9	365	585	1,921,725
Total cost				9,715,998

was 224 in 2016 and there were 96 child protection cases reported that same year. The Family Support Unit further explained that although no breakdown was provided by male and female, 90 per cent of cases concerned women/girls.

Time spent for each of these categories are reported in Table 5.8.

The following generalised specification is used to estimate the cost of social services for each category:

$$Social\ Servcies\ Cost_i = (Data_i \times Days_i\ x\ Parameter_i \times Unit\ Cost_i)$$

Where, $i=1...3$ (1=case compilation for family tribunal, 2=self-referral cases, and 3=counselling services). The specifications and estimated costs are provided in Table 5.10.

Table 5.8 Cases (Family Support Unit)

	Family violence	Domestic violence	Total
Compiled for the Family Tribunal			
2016	69	96	156
2107	60	81	141
Self-referral cases			
2016	116	108	224
2107	45	44	89
Source: FSU.			

Table 5.9 Time spent on cases (Family Support Unit)

Physical Injury	Sexual offences	Neglect	Self-referral case
Team composition: Family Support Unit (FSU) 1	*Team composition:* Family Support Unit (FSU) 1	*Team composition:* Family Support Unit (FSU) 1	1.5 hours 1 person
Tasks include: • Interview • Joint session • Evidence collection, including visits • Counselling • Report preparation and report forwarding to Family Tribunal	*Tasks include:* • Interview • Joint session • Evidence collection, including visits • Counselling • Report preparation and report forwarding to Family Tribunal	*Tasks include:* • Registration • Evidence collection, including visits • Counselling • Report preparation and report forwarding to Attorney General Office	
Time spent: 4 hours by 1 person Average case time: registration to family tribunal (case closed by 5 days)	*Time spent:* 1.5 hours by 1 person Average case time: registration to family tribunal (case closed by 5 days)	*Time spent:* 2/3 hours by 1 person	

Note: On top of these services, FSU staff spent a substantial amount of time on counselling services (so that they worked way above their stipulated time of 35 hours a week).

Table 5.10 Data and parameters used in social services cost estimation due to VAW (SCR)

Data and parameter	Value	Source
Data:		
Number of compiled cases	252=(156+96)	Family Support Unit
Number of self-referral cases	224	Family Support Unit
Parameter:		
Percentage of emotionally disturb cases	0.6	FGD and national baseline survey
Unit cost:		
Hourly wage of a social worker	40	Derived

5.4 Specialised services

Women in Action and Solidarity (WASO) has been operating 24-hour helpline (i.e. hotline) services for VAW victims. The total operating cost approach was adopted to measure the cost of this service. The total cost of the hotline in 2016 was SCR 547,500.

5.5 Learning lost

An important revelation during the second mission was on the learning time lost at education intuitions due to VAW. Teachers from two schools in Praslin claimed that learning lost due to VAW was between 25 and 35 per cent of total learning time in a year. Brief profiles of these two schools are reported in Table 5.11.

Learning time losses of these magnitudes seem large and hence were corroborated with the school welfare officer at the Ministry of Education. Although acknowledging the prevalence of learning time loss in schools due to VAW, the officer suggested a much lower rate of 10 per cent learning time lost. The fact remains that there was reported learning time lost in Seychelles schools, with this varying between 10 and 35 per cent. Converting this loss to a monetary measure is not straightforward and is seldom attempted.

Table 5.11 Estimated cost of social services due to VAW (SCR)

Category	Data	Days	Parameter	Unit cost (SCR)	Total cost (SCR)
Cost of case completion for family tribunal	252	5		160 = 4 x 40	201,600
Cost of self-referral cases	224			60 = 1.5 x 40	13,440
Counselling services	252	5	0.6	80 = 2 x 40	60,480
Total cost					275,520

Table 5.12 School profiles and extent of learning time lost

	Secondary school	Primary school
Student	600 (girls – 55%; boys – 45%)	609 (girls – 65%; boys – 35%)
Teachers	50	50
Ways to detect	• Observations by child protection officers • Teachers' observations of physical injuries, absenteeism, erratic behaviour, neglect, drop-outs	• Observations by child protection officers • Teachers' observations of physical injuries, absenteeism, erratic behaviour, neglect, drop-outs
Vital signs		Neglect 1/10 = 10% Physical injury 1/20 = 5%
Methods to combat	Task force Counselling Liaison with social services; police; education ministry etc.	Task force Counselling Liaison with social services; police; education ministry etc.
Time spent	6 hours	5 hours
Learning lost	25% of effective learning time	35% of effective learning time

Source: Field visit.

Table 5.13 Data and parameters used in learning lost estimation

Data and parameter	Value	Source
Data:		
Primary education budget (SCR)	16,598,000	Ministry of Finance: PPBBS Vol 2
Secondary education budget (SCR)	214,864,000	Ministry of Finance: PPBBS Vol 2
Parameter:		
Extent of learning time lost	0.15	Assumed

In order to convert learning time lost to a monetary measure, the proportional cost approach is adopted. The education budgets for primary and secondary education were, respectively, SCR 16,598,000 and SCR 214,864,000 in 2016 (Programme Performance Based Budget Statements [PPBBS]: Volume 2). Thus, the total education budget for primary and secondary education for 2016 was SCR 380,844,000. The extent of learning time lost is set at 15 per cent, as a compromise between the three suggested different rates (i.e. 10%, 25% and 35%). It is also assumed that there is one-to-one correspondence between learning and education budget – that is, one (1) SCR spent on education leads to one SCR worth of learning.

The following generalised specification is used to estimate the cost of learning time lost:

$$Learningh\ Time\ Lost_i = Budget_i \times Proportional\ Cost_i$$

The specifications and estimated costs are provided in Table 5.13.

Table 5.14 Estimated cost of learning time lost in schools (SCR)

Category	Data	Parameter	Total cost (SCR)
Primary and secondary education budget	380,844,000	0.15	57,126,600
Total learning time lost			57,126,600

5.6 Personal cost

Given that the extent of public services (i.e. those services provided free at the point of delivery) sought by VAW survivors is low, assessment of personal cost (i.e. out-of-pocket expenses) incurred by survivors themselves and their families may turn out of be an important source of cost. The main and perhaps only source of data to estimate personal cost was the target survey of actual VAW victims. As expected, such information was not readily available in Seychelles and hence this aspect was covered under the FGD carried out with survivors. Data and parameters for assessing personal cost are based on the FGD (Table 5.15).

Table 5.15 Data and parameters used in the estimation of personal cost due to VAW (SCR)

Data and parameter	Value	Source
Data:		
Number of women who sought help	609	Family Tribunal & police
Parameters:		
% survivors who reported loss of property due to violence	0.200	Focus group discussion
% survivors who reported loss of income due to violence*	0.170	Focus group discussion
% survivors who reported coping costs due to violence	0.200	Focus group discussion
Unit costs:		
Average value property lost (SCR)	15,000	Focus group discussion
Average income loss (other than employment income) [SCR]	15,000	Focus group discussion
Average value personal expenses incurred (without medical expenses) [SCR]	27,000	Focus group discussion

Note: * refers to income loss other than employment income and lost value of household work.

The following generalised specification is used to estimate personal cost of physical and sexual violence for three types of losses:

$$Personal\ Cost_i = (Data_i \times Prevalence\ Rate_i) \times Unit\ Cost_i$$

Where, $i = 1\ldots3$ (1 = personal property losses, 2 = personal income losses, and 3 = personal expenses incurred). The specifications and estimated costs are provided in Table 5.15.

5.7 Income loss

In addition to the cost of services associated with VAW, such violence also results in large income losses to survivors, their families, communities and the whole of society. This is due to VAW-related deaths and temporary incapacity to carry out regular work and household activities. Violence-led income losses are usually classified into following categories:

1. Death: income equivalent (income forgone) of irreversible losses (VAW-related death)
2. Disability: income loss due to temporary and permanent incapacity (disability) of VAW survivors
3. Disorder: income loss arises out of employment termination or reduced labour productivity.

The following approaches have been used in various studies to estimate income loss under the irreversible and reversible categories: value of statistical life and disability adjusted life years.

Value of statistical life (VSL): this approach estimates the lost life value (i.e. it is applicable to irreversible cases only) based on lost future income and intangible costs such lost employment life and lower quality of life. It is very difficult to provide a monetary equivalent of the last component – lower quality of life. As a result, it is argued that 'loss in life' has no market value. As such, the VSL approach to estimate income loss has only been attempted in some statistically advanced countries.

Disability-adjusted life years (DALYs): this approach was designed by WHO to measure global losses due to diseases burden. It tries to measure the overall disease burden, expressed as the number of years forgone due to poor health, disability or early death. The main limitations with DALYs is: (i) the lack of any systematic method to translate it into monetary costs;[8] and (ii) it is extremely data intensive and methodologically complex (Duvvury et al. 2013).

Considering the difficulties in applying the VSL approach and the WHO-recommended DALYs, due to non-availability of parameters as well as their suitability in the context of Seychelles, a much simpler unit cost approach[9] is adopted based on data on: VAW-related deaths; the female labour force participation rate; the working life of a women; and per capita GDP of an employed person.

Although the most reliable source of VAW-related deaths is the police department, no such data were found on Seychelles police records. Nonetheless, health statistics provided data on number of deaths due to injuries/assault so we used these as a proxy for the number of deaths due to VAW.

We could not gather any VAW-related disability data in Seychelles. Although it was suggested that some information may be found in the invalidity data, attempts to collect such data failed.

According to Gender Links (2016), the average number of days spent in hospital is three. Moreover, the experts in the group consultation suggested that the average number of incapacity days may be five, in addition to days spent in hospital. Thus, the total number of incapacity days for an employed/ active female has been set at eight in the present study.

Table 5.16 Estimated personal cost of VAW (SCR)

Category	Data	Parameters	Unit cost (SCR)	Cost (SCR)
Loss of personal property	609	0.20	15,000	1,827,000
Loss of personal income	609	0.17	15,000	1,552,950
Personal expenses incurred	609	0.20	27,000	3,288,600
Total personal cost				6,668,550

Table 5.17 Selected studies on using VSL approach

Countries	Year	Authors	VSL (in million $)
Australia	1991	Kniesner and Leeth	5.3
Canada	1999	Meng and Smith	2.9
Canada	2001	Gundrson and Hyatt	5.1–23.1
Hong Kong	1998	Siebert and Wei	2.1
India	2001	Shanmugan	1.3–1.8
UK	2000	Arabsheibani and Marin	38.4
USA	1990	Miller	4
USA	1993	Viscusi	4.9–11.5
USA	1996	Miller, Cohen and Wieresema	4
USA	2000	Smith	2.9–6.1
USA	2000	Viscusi	4.0–11.9
USA	2003	Leeth and Ruser	3.4
USA	2004	Viscusi	6.4
USA	2008	Andi and Viscusi	4.3–9.5
USA	2008	Viscusi	7.0–12.5

Table 5.18 Data and parameters used in income loss estimation due to VAW (SCR)

Data and Parameter	Value	Source
Data:		
Number of deaths	01	Health Statistics
Number of survivors	609 (501+108)	Family Tribunal and police
Parameters:		
Employment rate among working-age women (%)	0.69	Labour Force Data
Median *days* incapable of household work	32	Focus group discussion
Unit costs:		
Average *hours* incapable of household work	**5**	Focus group discussion
GDP per employed person in per year – 2016 (SCR)*	304,288	National Accounts
GDP per employed person *per data* – 2016 (SCR)**	1,207	National Accounts

Note: * GDP in 2016 was 19,014,056,175; number of employed persons were 62,487. Thus, GDP per employed person in 2016 was SCR 304,288 (=19,014,056,175/62,487). ** Given that there are 252 working days in a year, the per day per employed person's GDP was calculated to be: 1,207 (=304,288/252).

Table 5.19 Estimated income loss due to VAW (SCR)

Category	Data	Parameters			Unit cost (SCR)	Cost (SCR)
		Employment rate	Days	Hours		
Irreversible (death)	01				304,288	304,288
Total irreversible						304,288
Reversible						
a. employment income loss	609	0.62	8		1,207	3,706,228
a. household income loss	609		32	05	1,207	11,765,803
Total reversible						15,472,031
Total income loss						**15,776,319**

In addition to hours spent at work, women also spend time on household activities – for example, childcare, preparing food etc. Survivors in the focus group discussion suggested the average incapacity hours to be five. Finally, GDP per employed person for 2016 was estimated using the National Accounts and Labour Force Data. The data and parameters used are reported in Table 5.16.

The following generalised specification has been employed to estimate income loss under the irreversible and reversible categories:

Irreversible (death)

> *Income Loss=Data* (death)×*Unit Cost (GDP per employed person)*

Reversible (disorder)

> a. *Income loss from employment=*[*Data (number of survivors)*× Parameters (female employment rate)]×*Unit cost (GDP per employed person per year)*

> b. *Income loss from household activities=*[*Data (number of survivors)*× *Parameter 1 (median incapacity days)*×*Parameter 2 (average incapacity hours)*]×*Unit cost (GDP per employed person per year)*

The specifications and estimated costs are provided in the Table 5.17.

Notes

1 Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19–22 June 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948.

2 The current system of documentation of injuries does not follow compulsory registration of the cause of injuries or cause of discomfort, thereby making it impossible to identify cases of domestic or sexual violence.

3 That is, expenses of medical institutions are financed via line-item budgeting, leading to non-identification of the actual cost of specific services. For instance, in Seychelles (and perhaps in other countries), the significant component of the medical budget is allocated for wages and salaries (i.e. 39% of the total healthcare budget). Under such a financing system, it is almost impossible to assess the actual costs of specific services utilised by patients.

4 The period inflation rate was around 7 per cent between 2013 and 2016.

5 These information was provided by the Family Tribunal.

6 See: http://www.socialdevelopment.gov.sc/index.php/social-services/of-domestic-violence/ 18-domestic-violence-role-of-service-provider.

7 'Self-referral cases' mean cases that were resolved through joint session.

8 Access Economics (2004) used a method of deriving the value of a life year, ascribing value to statistical life and applying this to disability-adjusted life years to convert DALYs into dollar terms.

9 Such an approach was adopted by UNFPA and DFID (2017) to estimate income loss due to VAW in Ukraine.

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Chapter 6

Approaches to Estimate Direct Cost ('Full Coverage' Case)

Chapter 6
Approaches to Estimate Direct Cost ('Full Coverage' Case)

The total number of women aged between 18 and 64 in Seychelles in 2016 was 31,103 (National Bureau of Statistics 2016). According to the baseline survey (Gender Links 2016), two prevalence rates were reported as:

- *Prevalence rate for physical violence – 22%*

- *Prevalence rate for sexual violence – 8%*

Using these statistics, the number of women who experienced violence for 2016 (or in any typical year) in Seychelles was established as 6,843 (31,103×0.22). Similarly, the total number of women who experienced sexual violence was determined as 2,488 (31,103×0.08). Thus, the estimated number of VAW survivors in 2016 in Seychelles was 9,331 (6,843+2,488).

This number constitutes the main element of scenario generation under the 'full coverage' (or macro) case. All other parameters and the unit costs used in the typical case are retained for full coverage case estimation. Therefore, it may be argued that full coverage estimates are only influenced by the number of survivors estimated from the female population aged between 18 and 64.

The costs of two major cost derivers found in the typical case – healthcare services and learning time lost (education) are kept unchanged under the full coverage case since they have been based on supposedly 'full coverage' data (i.e. healthcare: total number of visits to medical institutions in 2016; learning time lost: actual primary and secondary school budget for 2016). Analogously, specialised services (i.e. 24-hour telephone hotline) has also been considered to derive from 'full coverage' data. Thus, costs of law enforcement; social services; personal cost and income loss are re-estimated under the full coverage case.

6.1 Law enforcement and the judiciary

Data and parameters generated for the 'full coverage' case record a number of differences compared to the typical case. These are:

- *Number of VAW-related registrations is 2,893 compared to 609 in the typical case*

- *Number of protection orders is now increased to 1,513 rather than 262*

Table 6.1 Data and parameters used in law enforcement and the judiciary cost estimation due to VAW ('full coverage' case)

Data and parameters	Value	Source
Data:		
Number of registrations	2,893 (=9,331×0.31)	Derived using FGD shares for women who sought help (0.31) and full coverage case survivors
Number of protection orders	1,513 (=2,893×0.5234)	Derived using Family Tribunal share for protection orders (0.5234=262/501)
Number of probation cases	791 (= 2,893×0.2734)	Derived using Family Tribunal share for probation cases (0.2734=137/501)
Number of evictions	335 (= 2,893×0.1157)	Derived using Family Tribunal share for evictions (0.1157=58/501)
Number of persons sent to prison	52 (= 791×0.066)	Derived using Family Tribunal share for persons sent to prison out of probation or arrest (0.066=9/137)
Number of sexual offences	2,488	Full coverage case estimate
Unit Costs:		
Hourly wage of a police officer	63	Derived (typical case)
Hourly wage of a judge	415	Derived (typical case)
Hourly wage of a medical officer	90	Derived (typical case)
Hourly wage of Family Tribunal personnel	40	Derived (typical case)
Daily cost of detention	585	Probation (typical case)
Hourly cost of service call (patrol)	130	Assumed (typical case)

- *Number of probation cases, which was 137, has now increased to 791*
- *Number of evictions is simulated at 335 in place of 58 in the typical case*
- *Number of persons sent to prison is now increased to 52 rather than 9*

The following generalised specification is used to estimate the cost of law enforcement and the judiciary for each category:

$$Law\ Enforment\ and\ Judiciary\ Cost_i = (Data_i \times Days_i) \times Unit\ Cost_i$$

Where, $i=1…7$ (1=service call, 2=registration, 3=protection, 4=probation, 5=eviction, 6=sexual offences and 7=prison). The specifications and estimated costs are provided in Table 6.2.

Table 6.2 Estimated cost of law enforcement and the judiciary due to VAW (SCR) ('full coverage' case)

Category	Data	Days	Unit cost (SCR)	Total cost (SCR)
Cost of service calls by police	2,893		193=130+(1*63)	556,821
Registration and administration cost of cases	2,893		1,041=(2*63)+(8*40)+(2*90)+(1*415)	3,008,282
Protection orders	1,513		861=(2*63)+(8*40)+(1*415)	1,300,910
Probation cases/arrests	791	30	1,625=1,040+585	38,560,503
Evictions	335	1	1,625	544,163
Sexual offences	2,488		1,653=(7*63)+(8*40)+(2*150)+ (1*415)	4,111,817
Long-term detention (prison)	52	365	585	11,095,292
Total cost				59,177,788

6.2 Social services

Data and parameters to estimate the cost of social services under the full coverage case are provided in the Table 6.3. This provides an update of the data and parameter sets used for the typical case, with only one exception – the number of women who sought assistance is now 2,893 instead of the 156 used in the typical case.

The following generalised specification is used to estimate the cost of social services for each category:

$$Social\ Servcies\ Cost_i = (Data_i \times Days_i) \times Unit\ Cost_i$$

Table 6.3 Data and parameters used in social services cost estimation due to VAW ('full coverage' case)

Data and parameters	Value	Source
Data:		
Number of compiled cases	2,893	Full coverage case estimate
Number of self-referral cases	4,151	Derived (2,893×1.435*)
Parameters:		
Percentage of emotionally disturbed cases	0.6	FGD and baseline survey (typical case)
Unit cost:		
Hourly wage of a social worker	40	Derived (typical case)

Note: * according to Family Support Unit (FSU) data, self-referral cases were 1.4 times higher than the case compiled for the Family Tribunal.

Table 6.4 Estimated cost of social services due to VAW under the full coverage case (SCR)

Category	Data	Days	Parameter	Unit cost (SCR)	Total cost (SCR)
Cost of case completion for Family Tribunal	2,893	5		160=4×40	2,314,063
Cost of self-referral cases	4,151			60=1.5×40	249,051
Counselling services	2,893	5	0.6	80=2×40	694,219
Total cost					3,257,333

Where, $i=1…3$ (1=case compilation for Family Tribunal, 2=self-referral cases, and 3=counselling services). The specifications and estimated costs are provided in Table 6.4.

6.3 Personal cost

Data and parameters to estimate personal cost under the full coverage case are provided in Table 6.5. It is an update of the data and parameter sets used for the typical case, with only one exception – the number of women who sought assistance is now 2,893 persons instead of the 609 used in the typical case.

The following generalised specification is used to estimate personal cost of physical and sexual violence for three types of losses:

$$Personal\ Cost_i=(Data_i \times Parameters_i) \times Unit\ Cost_i$$

Where, $i=1…3$ (1=personal property losses, 2=personal income losses, and 3=personal expenses incurred). The specifications and estimated costs are provided in the Table 6.6.

Table 6.5 Data and parameters used in personal cost estimation due to VAW ('full coverage' case)

Data and pparameters	Value	Source
Data:		
Number of women who sought help	2,893	Best-case estimate
Parameters:		
% survivors who reported loss of property due to violence	0.200	FGD (typical case)
% survivors who reported loss of income due to violence	0.170	FGD (typical case)
% survivors who reported coping costs due to violence	0.200	FGD (typical case)
Unit cost:		
Average value property lost (SCR)	15,000	FGD (typical case)
Average income loss (other than employment income) [SCR]	15,000	FGD (typical case)
Average value personal expense incurred (without medical expenses) [SCR]	27,000	FGD (typical case)

Table 6.6 Estimated personal cost of VAW under the full coverage case (SCR)

Category	Data	Parameters	Unit cost (SCR)	Cost (SCR)
Loss of personal property	2,893	0.20	15,000	8,677,737
Loss of personal income	2,893	0.17	15,000	7,376,076
Personal expenses incurred	2,893	0.20	27,000	15,619,927
Total personal cost				31,673,740

6.4 Income loss

Data and parameters to estimate income loss under the full coverage case are given in Table 6.7. This is an update of the data and parameter sets used for the typical case, with two exceptions:

- *Number of deaths due to VAW is 12 persons instead of one in the typical case*

Table 6.7 Data and parameters used in income loss estimation due to VAW (full coverage case)

Data and parameters	Value	Source
Data:		
Number of deaths due to VAW	$12=(374\times0.05\times0.62)$	Derived using official female deaths of 374; proportion of female deaths due to VAW assumed 5%* and female employment ratio of 62%
Number of survivors	9,331	Full coverage case estimate
Parameters:		
Employment rate among working age women (%)	0.62	Labour Force Survey
Median *days* incapable of household work	32	FGD (typical case)
Average *hours* incapable of household work	5	FGD (typical case)
Unit costs:		
GDP per employed person in per year – 2016 (SCR)	304,288	Derived (typical case)
GDP per employed person *per data* – 2016 (SCR)	1,207	Derived (typical case)

Note: * This assumption seems reasonable considering estimates reported in Stöckl et al. (2013) for intimate partner violence. Some of the relevant rates are: female homicides: 9 per cent; IP female homicides: 7 per cent; and child homicides: 5 per cent. Citing the United Nations Office on Drugs and Crime, the USNEWS (2016) argued that 'women face an especially high risk of violence from those closest to them. Between 2005 and 2012, up to 55 per cent of all female homicide victims were killed by intimate partners or family members. The same is true for less than 20 per cent of male homicide victims'.

Table 6.8 Estimated personal income loss due to VAW under the full coverage case (SCR)

Category	Data	Parameters			Unit cost (SCR)	Cost (SCR)
		Employment rate	Days	Hours		
Irreversible (deaths)	12				304,289	3,651,456
Total irreversible income loss						3,651,456
Reversible						
a. employment income loss	9,331	0.62	8		1,207	55,884,259
b. household income loss	9,331		32	05	1,207	180,271,803
Total reversible income loss						236,156,062
Total income loss						239,807,518

- *Number of VAW survivors is 9,331 persons instead of 609 in the typical case*

The following generalised specification has been used to estimate income loss under the irreversible and reversible categories:

Irreversible (death)

Income Loss = Data (death) × *Unit Cost* (*GDP per employed person*)

Reversible (disorder)

a. *Income loss from employment = [Data (number of survivors) × Parameters (female employment rate)] × Unit cost (GDP per employed person per year)*

b. *Income loss from household activities = [Data (number of survivors) × Parameter 1 (median incapacity days) × Parameter 2 (average incapacity hours)] × Unit cost (GDP per employed person per year)*

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Chapter 7

Approaches to Estimate Economy-wide/Indirect Cost (Both Cases)

Chapter 7
Approaches to Estimate Economy-wide/Indirect Cost (Both Cases)

An important feature of the methodology used in the present exercise is that it is able to estimate the economy-wide impacts (cost) of VAW. There are three widely used approaches to capture the economy-wide impacts:

i. a fixed price multiplier model based on an input-output table or matrix (IOM);

ii. a fixed price multiplier model using a social accounting matrix (SAM) – which is a super set of the IOM encompassing activities, commodities, factors of production and institutions; and

iii. a flex price computable general equilibrium (CGE) model – which invokes markets (e.g. product markets, the labour market etc.), behavioural specifications of all agents (e.g. producers, consumers etc.) and closure rules (e.g. defining how the accounts are balanced).

Since the CGE model is a highly data demanding exercise[1] and usually requires a longer time to reach a solution, it was agreed that a SAM-based fixed price model be used to assess the economy-wide impacts of VAW.

No SAM was available for Seychelles; nor was an IOM available for a recent year.

The Global Trade Analysis Project (GATP)[2] project at the University of Purdue is a repository of IOMs for most of the countries in the world, as the project regularly simulates the welfare impacts of global trade reforms or shocks. Seychelles is not yet included in the list of GTAP countries. However, there is an IOM for Seychelles for 1999 (Valenghi 2004). This IOM includes 16 activities and two factors of production (i.e. one labour and one capital).

The authors of the present example used this 1999 IOM to develop a SAM for 2016. In the *first step*, the 1999 IOM was adjusted upward using price information for 2016. In the *second step*, the Seychelles SAM for 2016 was developed using the 2016 IOM. The SAM 2016 consists of 22 accounts – these are shown in Figure 7.1.

The move from a SAM data framework to a SAM model (also known as a multiplier framework) requires decomposing the SAM accounts into

Figure 7.1 Basic structure of a social accounting matrix (SAM)

		Expenditure columns							
		Activities C1	Commodities C2	Factors C3	Households C4	Government C5	Investment C6	Rest of world C7	Total
Income rows	Activities R1		Domestic Supply						Activity income
	Commodities R2	Intermediate demand			Consumption spending (C)	Recurrent spending (G)	Investment demand (I)	Export earnings (E)	Total demand
	Factors R3	Value-added							Total factor income
	Households R4			Factor payments to households		Social transfers		Foreign remittances	Total household income
	Government R5		Sales taxes and import tariffs		Direct taxes			Foreign grants and loans	Government income
	Savings R6				Private savings	Fiscal surplus		Current account balance	Total savings
	Rest of world R7		Import payments (M)						Foreign exchange outflow
	Total	Gross output	Total supply	Total factor spending	Total household spending	Government expenditure	Total investment spending	Foreign exchange inflow	

Note: R = rows and C = columns.

'exogenous' and 'endogenous'. Generally, accounts intended to be used as policy instruments (for example, government expenditure, investment and exports) are made exogenous and accounts specified as objectives or targets (for example, output, commodity demand, factor return, and household income or expenditure) must be made endogenous. For any given injection into the exogenous accounts of the SAM, influence is transmitted through the interdependent SAM system among the endogenous accounts.

The interwoven nature of the system implies that the incomes of factors, households and production are all derived from exogenous injections into the economy via a multiplier process. The multiplier process is developed here on the assumption that when an endogenous income account receives an exogenous expenditure injection, it spends it in the same proportions as shown in the matrix of average propensities to spend (APS). The elements of the APS matrix are calculated by dividing each cell by the sum total of its corresponding column (please Annex 2 for details on SAM-based modelling).

The multiplier analysis using the SAM framework helps to understand further the linkages between the different sectors and the institutional agents at work within the economy. Accounting multipliers have been calculated according to the standard formula for accounting (impact) multipliers, as follows:

$$y = A\,y + x = (I - A)^{-1}\,x = M_a\,x$$

Where:

y is a vector of endogenous variables (*which is 16 according to SAM 2016, with only the activities account considered endogenous*)

Figure 7.2 Description of Seychelles SAM 2016

SAM accounts	Detailed sector classification
Activities (16)	
	Agriculture and Forestry, Fishing (02)
	Food Processing, Petroleum Products, Other Manufacturing, Electricity and Water, and Construction (05)
	Distribution of Goods, Hotels, Restaurants, Land Transport, Air Transport, Sea Transport, Communications, Other Services and Public services (09)
Factors of Production (02)	
	Labour factor
	Capital factor
Institutions (04)	
	Household
	Government
	Rest of the World
	Savings or Gross Fixed Capital (consolidated capital)

x is a vector of exogenous variables (*which is also 16 according to SAM 2016*)

A is the matrix of average expenditures propensities for endogenous accounts, and

$M_a = (I - A)^{-1}$ is a matrix of aggregate accounting multipliers (generalised Leontief inverse).

The present multiplier model has only one endogenous account (i.e. activities), and hence it can calculate only one type of multiplier (activity multiplier) measures due to changes in any one of the various exogenous accounts.

The economy-wide impacts of the reduced income (resulting from VAW) are examined by changing the total exogenous injection vector, especially household consumption. More specifically, the income losses under the 'typical' case is SCR 16 million while it is SCR 239.8 million under the 'full coverage' case approach. The base year (i.e. 2016) consumption is adjusted downward for each of the 16 activities according to observed base year shares to determine two separate injections – one for the typical case and other for the full coverage case – into the multiplier framework as exogenous shocks. The simulated results are provided in Table 7.2.

Simulated output loss under the 'typical' case is nearly SCR 30 million or 0.155 per cent of 2016 GDP. The services sector was found to be most affected among the three broad sector categories, with a loss of SCR 13.4 million. The total loss to the tourism sector (hotels, restaurants and transport inclusive) was found to be more than SCR 4 million. The output loss for the industry sector has been simulated at SCR 11.8 million, with other manufacturing and food processing bearing the major loss. Agriculture is the least

Table 7.1 Simulated output loss (million SCR)

	Activity description	Output loss (typical case)	Output loss (full coverage case)
1	Agriculture and Forestry	2.87	37.01
2	Fishing	1.78	23.02
Agriculture		**4.65**	**60.03**
3	Food Processing	3.83	49.48
4	Petroleum Products	2.07	26.66
5	Other Manufacturing	4.83	62.39
6	Electricity and Water	1.12	14.52
7	Construction	0.00	0.00
Industry		**11.86**	**153.05**
8	Distribution of Goods	2.11	27.26
9	Hotels	0.10	1.26
10	Restaurants	0.54	6.99
11	Land Transport	0.72	9.34
12	Air Transport	1.72	22.16
13	Sea Transport	1.03	13.28
14	Communications	3.83	49.41
15	Other Services	3.32	42.89
16	Public Services	0.00	0.00
Services		**13.37**	**172.59**
Total		**29.88**	**385.68**
Memorandum items			
As percent of GDP		*0.155*	*1.997*
Indirect effect		*0.144*	*1.856*
Induced effects		*0.011*	*0.141*

Source: Based on Seychelles SAM model.

affected sector, with an output loss of SCR 4.7 million. Indirect impacts are overwhelming large just over 0.14 per cent, while the induced impact is small at 0.011 per cent.

Simulated output loss under the 'full coverage' case is substantially larger than under the 'typical case' due to larger income loss of 239.8 million SCR (compared to only 16 million SCR in the typical case). The simulated output loss is SCR 385.7 million or 1.997 per cent of 2016 GDP. Again, the services sector is the most affected sector, with an output loss of SCR 172.6 million. The total loss to the tourism sector (hotel and transport inclusive) was found to be SCR 53 million. The output loss for the industry sector was simulated at SCR 153 million. Loss for agriculture is around SCR 60 million. Shares of

Table 7.2 Estimated economic cost of violence (Seychelles)

Cost category	Typical case			Full coverage case		
	Victims	SCR	$	Victims	SCR	$
A. Income Loss						
1. Irreversible (deaths)	1	304,288	23,407	12	3,651,456	280,881
2. Reversible (Income loss)	609	15,472,031	1,190,156	9,331	236,156,062	18,165,851
i. Employment Income loss	609	3,706,228	285,094	9,331	55,884,259	4,298,789
ii. Missing value of lost household work	609	11,765,803	905,062	9,331	180,271,803	13,867,062
Total		**15,776,319**	**1,213,563**		**239,807,518**	**18,446,732**
B. Healthcare						
1. Sexual violence	14,121	55,363,463	4,258,728	14,121	55,363,463	4,258,728
2. Domestic violence	75,085	60,504,810	4,654,216	75,085	60,504,810	4,654,216
Total		**115,868,273**	**8,912,944**		**115,868,273**	**8,912,944**
C. Law enforcement and judiciary						
1 Cost of service call by police	501	96,443	7,419	2,893	556,821	42,832
2. Registration and administration cost of case	501	521,040	40,080	2,893	3,008,282	231,406
3. Protection	262	225,320	17,332	1,513	1,300,910	100,070
4. Probation/Arrest	137	6,678,750	513,750	791	38,560,503	2,966,193
5. Eviction	58	94,250	7,250	335	544,163	41,859
6. Sexual offences	108	178,470	13,728	2,488	4,111,817	316,294
7. Long term detention (prison)	9	1,921,725	147,825	52	11,095,292	853,484
Total		**9,715,998**	**747,384**		**59,177,788**	**4,552,138**

(Continued)

Table 7.2 Estimated economic cost of violence (Seychelles) (*Continued*)

Cost category	Typical case			Full coverage case		
	Victims	SCR	$	Victims	SCR	$
D. Social services						
1. Case completion for Family Tribunal	252	201,600	15,508	2,893	2,314,063	178,005
2. Mediating self-referral cases	224	13,440	1,034	4,151	249,051	19,158
3. Counselling services	151	60,480	4,652	1,736	694,219	53,401
Total		**275,520**	**21,194**		**3,257,333**	**250,564**
E. Specialised services						
Hotline		547,500	42,115		547,500	42,115
F. Education services						
Learning time lost		57,126,600	4,394,354		57,126,600	4,394,354
G. Personal expenses						
1. Loss of personal property	122	1,827,000	140,538	579	8,677,737	667,518
2. Loss of personal income	104	1,552,950	119,458	492	7,376,076	567,390
3. Personal expenses incurred	122	3,288,600	252,969	579	15,619,927	1,201,533
Total		**6,668,550**	**512,965**		**31,673,740**	**2,436,442**
Total direct cost		**205,978,759**	**15,844,520**		**507,458,753**	**39,035,289**
Total economy-wide cost		**29,876,327**	**2,298,179**		**385,676,228**	**29667402**
Total cost		**235,855,087**	**18,142,699**		**893,134,981**	**68,702,691**
Total direct cost as % of GDP		*1.067*			*2.628*	
Total economy-wide cost as % of GDP		*0.155*			*1.997*	
Total cost as % of GDP		*1.221*			*4.625*	

Source: Seychelles costing framework.

the indirect and induced effects are 1.856 per cent and 0.141 per cent of 2016 GDP respectively.

Notes

1   Generally, all data and parameters required for numerical specifications may not be available for countries like Seychelles where a SAM is not readily available.
2   the GTAP 9 Data Base features 2004, 2007 and 2011 reference years, as well as 140 regions for all 57 GTAP commodities.

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Chapter 8

Estimated Cost of VAWG
in Seychelles

Chapter 8
Estimated Cost of VAWG in Seychelles

8.1 Seychelles summary findings

The framework used to estimate the economic cost of VAWG has been numerically specified to 2016 data and parameters, since a majority of relevant data and GVB parameters were found for that year from the national baseline survey (Gender Links 2016). The main finds are summarised in Table 8.1.

Total cost

The estimated total cost of VAWG in Seychelles under the *typical case* is 235.7 million Seychelles rupees (SCR) (or 1.22% of 2016 GDP). This comprises an estimated direct cost of SCR 205.8 million (1.07% of GDP) plus an economy-wide indirect cost of SCR 29.9 million (0.16% GDP).

Under the full coverage case, the simulated (or derived) number of VAWG victims is based on population data that deems the number of women in the age

Table 8.1 Summary of cost of VAWG (Seychelles)

Cost categories	Typical case		Full coverage case	
	Million SCR	% of 2016 GDP	Million SCR	% of 2016 GDP
A. Direct cost	205.7	1.066	507.5	2.628
Services cost	190.0	0.984	267.7	1.386
Healthcare	115.9	0.600	115.9	0.600
Law enforcement and the judiciary	9.7	0.050	59.2	0.306
Social and specialised services	0.7	0.003	3.8	0.020
Learning time loss (education)	57.1	0.296	57.1	0.296
Personal cost	6.7	0.035	31.7	0.164
Income lost	15.8	0.082	239.8	1.242
B. Economy-wide cost (indirect and induced)	29.88	0.155	385.68	1.997
Agriculture	*4.65*	*0.024*	*60.03*	*0.310*
Industry	*11.86*	*0.061*	*153.05*	*0.790*
Services	*13.37*	*0.069*	*172.59*	*0.890*
C. Total cost (direct+economy-wide)	**235.7**	**1.221**	**893.13**	**4.625**

Note: SCR=Seychelles rupee.

*cohort between 18 and 64 in 2016 to be 31,*103 (National Bureau of Statistics 2016). Using this number – 31,103 – and a VAWG prevalence rate of 30 per cent (Gender Links 2016), the number of survivors in the full coverage case is estimated to be 9,331 (i.e. 31,103 × 0.3). By comparison, the number of survivors as reported in official administrative data is 609. As a result, estimated total cost under the full coverage case is substantially higher than in the typical case.

The total cost under the ***full coverage case*** is estimated as SCR 893.1 million (or 4.63% of GDP). This is made up of estimated direct cost of SCR 507.5 million (2.62% of GDP) and the economy-wide indirect cost of SCR 385.7 million (2% of GDP).

Direct cost

Direct cost consists of cost of various services; personal cost (out-of-pocket expenses by survivors); and income loss.

- *Direct cost (typical case):* Among the various types of services, the cost of healthcare turned out to be largest with SCR 115.9 million (0.6% of GDP). Learning time lost in primary school (which is not reported in most other economic cost of VAW studies) is also high, estimated at SCR 57.1 million (0.3% of GDP). Therefore, the combined cost for the social sector is significant at around 0.90 (i.e. 0.60 + 0.30) per cent of GDP, with subsequent effects on the quality of human resources and productivity. Costs for law enforcement and social/specialised services are estimated SCR 9.7 million and SCR 0.7 million respectively. The *estimated total cost of services is SCR 190 million (1% of GDP).* The estimated personal cost is SCR 6.7 million. Income loss due to the irreversible factor (VAW-related deaths) and the reversible factor (temporary incapacity to carry out paid work and household work) is estimated at SCR 15.8 million (0.08% of GDP) under the typical case.

- *Direct cost (full coverage case):* Costs of the two major cost derivers found in the typical case – healthcare services and learning time lost (education) – have been kept unchanged under the full coverage case, since they are based on supposedly 'full coverage' data. Thus, the costs for law enforcement, social services, specialised services, personal cost and income lost are re-estimated under the full coverage case. Costs of law enforcement increased to SCR 59.2 million. Cost of social/specialised services together are estimated at SCR 3.8 million. The estimated personal cost is SCR 31.7 million.

  The most dramatic increase is found for income loss under the full coverage cost compared to the typical case, due to the higher

number of simulated VAW-related deaths which is 12 (compared to 1 in typical case) and the number of VAW survivors unable to attend work being 9,331 compared to only 609 under the typical case. Income lost increased to SCR 239.8 million in the full coverage case. Total direct cost under the full coverage case is SCR 507.5 million (2.63% of GDP). This estimate suggests an increase of about 2.5 times under the full coverage cost compared to the typical case.

Economy-wide indirect cost

A data SAM for Seychelles was developed for 2016 using a 1999 IOM and other required national accounts data for 2016 (i.e. value added, prices etc.). The data SAM was converted into a SAM multiplier model. Then, in order to carry out the consumption reduction shock on GDP through the SAM, the 2016 consumption values were adjusted downward for each of the activities according to their shares for 2016. Following this approach, two consumption shocks were set up – one for the typical case and other for the full coverage case. These shocks were then used with the multiplier model to simulate output loss under the 'typical' case and 'full coverage' case.

- **Typical case:** The income loss under the 'typical' case is SCR 15.8 million. Thus, household (private consumption) is reduced by 15.8 to simulate the impact on domestic output. Simulated output loss under the 'typical' case is SCR 29.8 million (0.16% of 2016 GDP). The services sector is found to be most affected among the three broad sector categories with a bill of SCR 13.4 million. The output loss for the industry sector is simulated at SCR 11.8 million, with other manufacturing and food processing bearing the major loss. Agriculture is least affected, with an output loss of 4.7 million SCR.

- **Full coverage case:** The income loss under the 'full coverage' case is SCR 239.8 million. Household (private consumption) is thus reduced by SCR 239.8 million to simulate the impact on domestic output. Simulated output loss under the 'full coverage' case is SCR 385.7 million (2% of 2016 GDP). The services sector is the most affected among the three broad sector categories, with a bill of SCR 172.6 million. The output loss for the industry sector is simulated at SCR 153.1 million. Agriculture is least affected, with an output loss of SCR 60 million.

These results of the present exercise can also be summarised according to broad cost categories and broad sectors for the typical case (direct costs and economy-wide/indirect and induced costs) and the full coverage case (direct costs and economy-wide/indirect and induced costs) – see below.

8.2 Typical case (micro level)

Estimated direct cost of VAW in Seychelles under the 'typical case' is presented in Figure 8.1. As explained in the methodology chapter above (Chapter 4), the cost estimates are based on: administrative data; parameters derived from the baseline study; the unit cost of services provided by agencies; and engagement of services personnel (e.g. police, social workers, medical staff etc.).

- The estimated *direct cost under the 'typical case' is SCR 205 million or 1.066 per cent of 2016 GDP* (Table 8.1). A breakdown of direct cost by the three cost categories (services, personal expenses, income lost) suggests that highest cost is incurred for various services. Cost incurred for services is 0.95 per cent of GDP. Income lost due to temporary incapacity (i.e. because of women's inability to attend work or perform household activities) is estimated at 0.0965 per cent of GDP. Personal expenses accounts for about 0.035 per cent of GDP.

- The share of cost by the three categories in total direct cost reveals overwhelming dominance of the services component. This alone accounts for almost of 89.1 per cent of total direct cost. The shares of other two categories – income lost and personal expenses – are 7.7 per cent and 3.2 per cent respectively.

The multiplier model based on the 2016 SAM is used to estimate the indirect cost of the violence. The SAM structure with 'endogenous' and 'exogenous' accounts is presented in Figure 8.2.

Data SAM 2016 is converted into a multiplier model by partitioning the SAM into endogenous account (i.e. the 16 × 16 activity matrix) and exogenous

Figure 8.1 Estimated direct cost by broad cost categories (typical case)
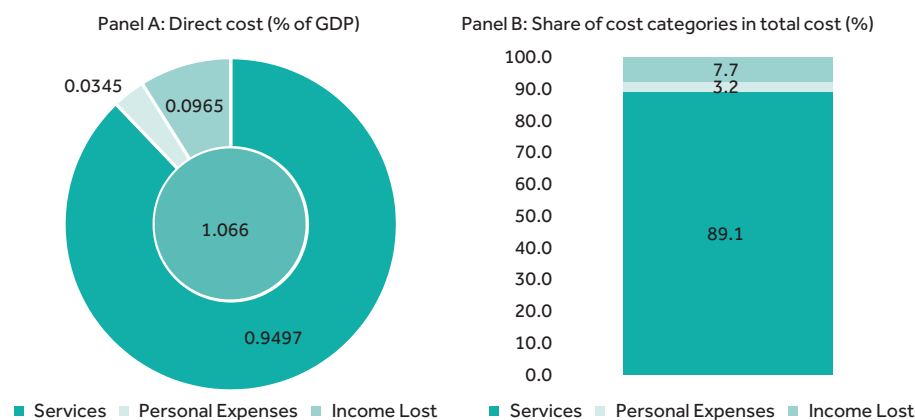
Source: Costing framework.

Figure 8.2 Structure of Seychelles SAM multiplier model

		Activity					Factors		Institutions				Total use
		A1	...	...	...	A16	LAB	CAP	HH	GoV	SAV	RoW	
Commodity	C1												
	...	Activity matrix (16 x 16) (Endogenous)					(Exogenous)						
	...												
	...												
	C16												
Factors	Labour	Leakages					Unrelated						
	Capital												
Institution	Household												
	Government												
	Savings												
	Rest of the world												
	Total supply												

**Note:** CAP = capital; LAB = labour; HH = households; SAV = savings; RoW = rest of the world.
Source: Costing model.

account (i.e. factor account and final demand matrix – which contain the private consumption vector).

Income lost is estimated at SCR 15.8 million at 2016 prices (see Table 8.1). The SCR 15.8 million lost income implies a reduction of private consumption expenditure (i.e. the household account in the SAM in Figure 8.2) by this amount. The private consumption vector of the SAM is adjusted downward by SCR 15.8 million, preserving the consumption shares by the 16 commodities. The changed final demand due to the reduced private consumption vector is applied to the multiplier matrix to estimate the economy-wide cost of the VAWG (Figure 8.3).

Figure 8.3 Estimated economy-wide cost by broad sectors (typical case)

Panel A: Indirect cost by economic sector (% of GDP)

0.024
0.069
0.155
0.061

Panel B: Indirect and induced cost (% of GDP)

0.011
0.144
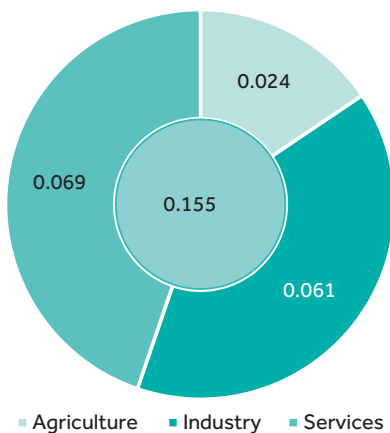
■ Agriculture   ■ Industry   ■ Services

■ Indirect   ■ Induced
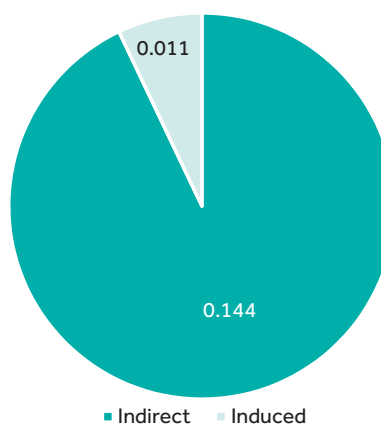
The estimated economy-wide (indirect cost) under the 'typical case' is found to be 0.155 per cent of GDP. Among the three broad activities of the economy (agriculture, industry, services), the largest impact is recorded for services at 0.069 per cent of GDP. The estimated GDP loss for industry and agriculture activities are 0.061 per cent and 0.024 per cent respectively. The estimated indirect cost of 0.144 per cent of GDP substantially outweighs the induced cost of 0.011 per cent of GDP.

8.3 Full coverage case (macro level)

The full coverage case estimates are simulated using the parameters of the typical case along with age cohort population data (i.e. in this case, the female population aged between 18 and 64).

Estimated direct cost under the 'full coverage case' is presented in Figure 8.4.

- Estimated direct cost under 'full coverage case' is SCR 507.5 million or 2.628 per cent of 2016 GDP (Table 8.1) – more than 2.5 times the cost found in the 'typical case'. A breakdown of direct cost by three cost categories (services, personal cost, income loss) suggests that highest cost is associated with income lost (as opposed to various services found in the 'typical case'). Income loss due to temporary incapacity (i.e. inability to attend work or perform household activities) is estimated at 1.242 per cent of GDP. Cost incurred for services is now 1.222 per cent of GDP – not substantially higher than the cost of services reported in the 'typical case' (i.e. 0.95%). This is because the health services cost as well as the learning time

Figure 8.4 Estimated direct cost by broad cost categories (full coverage case)

Panel A: Direct cost (% of GDP)

Panel B: Share of cost categories in total cost (%)
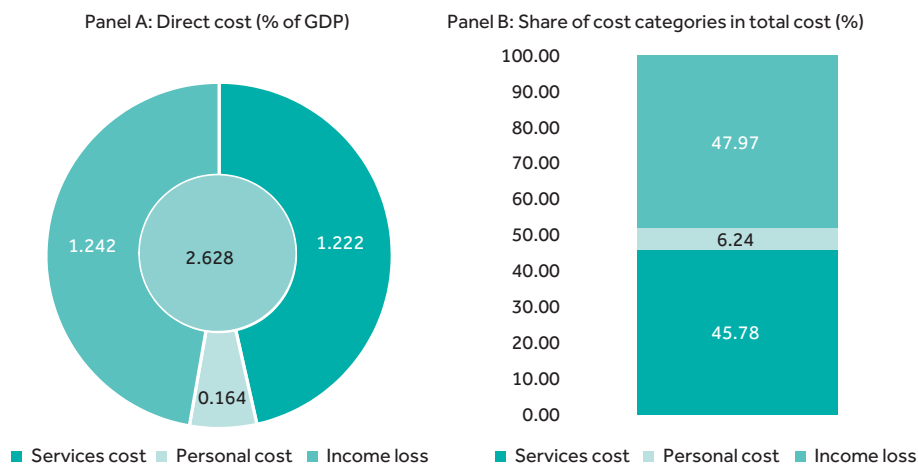
Source: Costing model.

Figure 8.5 Estimated economy-wide cost by broad sectors (full coverage case)

Panel A: Indirect cost by economic sector (% of GDP)

Panel B: Indirect and induced cost (% of GDP)

Agriculture ■ Industry ■ Services

Indirect ■ Induced
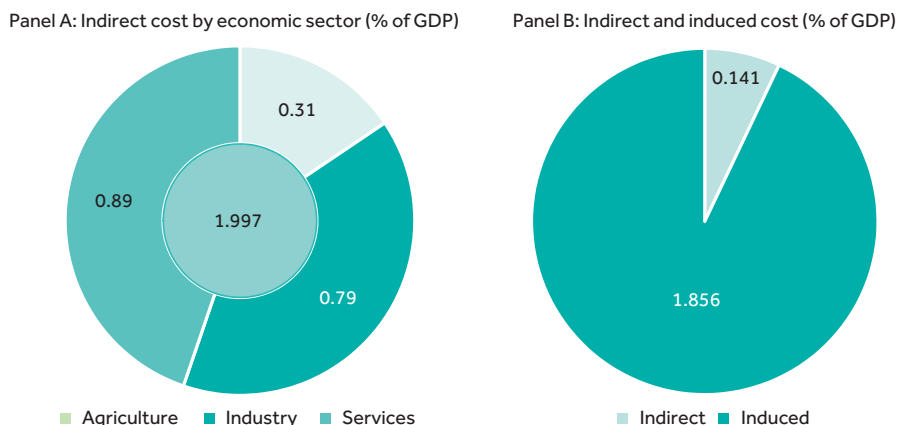
Source: Multiplier model.

lost in the 'typical case' are based on supposedly 'full coverage data'. Personal expenses accounts for about 0.164 per cent of GDP under the 'full coverage case'.

- The share of cost by the three categories in total direct cost reveals dominance of income loss – with almost a 50 per cent share. Cost of services now accounts for about 46 per cent of total direct cost – substantially lower than reported in the typical case (i.e. 89.1%). The share personal expense is 6 percent.

Estimated income loss under the 'full coverage case' is estimated at SCR 239.8 million at 2016 prices (Table 8.1). The lost income implies a reduction of private consumption expenditure (i.e. household consumption in the SAM in Figure 8.2) by this amount. The changed final demand due to the reduced private consumption vector is applied to the multiplier matrix (as explained above) to estimate the indirect cost of the VAWG in Seychelles.

The estimated economy-wide cost under the 'full coverage case' is found to be 1.997 per cent of GDP. Among the three broad activities of the economy (agriculture, industry, services), the largest impact is recorded for services at 0.89 per cent of GDP. The estimated GDP loss for industry and agriculture activities is 0.79 per cent and 0.31 per cent respectively. The estimated Indirect cost of 1.856 per cent of GDP again substantially outweighs the induced cost of 0.14 per cent of GDP.

Reference

Gender Links (2016), 'Gender Based Violence: National Baseline Study in Seychelles', Johannesburg, South Africa, December.

Chapter 9

Conclusions

Chapter 9
Conclusions

An important finding of the costing exercise that features in this book is that the deleterious effects of VAWG encompass everyone in the society. For instance, the **cost of VAWG to girls is 0.296 per cent of GDP** (or learning time lost in school); the **cost to adult women is around 2.332 per cent of GDP; cost to the private sector is 1.997 per cent of GDP**; and thus the cost to the whole of **society is 4.625 per cent of GDP**. The elimination of VAWG thus needs actions on different fronts (source Table A).

9.1 Health and education services need special attention

Healthcare data collection in Seychelles is not able to capture the use of healthcare services by survivors of VAWG and hence the cost. By using assumptions, the present exercise was able to estimate the cost of certain healthcare services (direct costs of medical treatment etc.) to be around SCR 115 million or 0.60 per cent of GDP, yet other healthcare services costs could not be estimated due to data limitations. These include the emotional and psychological costs of VAWG. The following steps could help healthcare services to better cater to the needs of VAWG victims: (i) modification of the forms used for data collation; (ii) digitisation of data collection and sharing; (iii) training and capacity building provided for relevant staff on VAWG and data/information collection, preservation, assessment and dissemination; and (iv) revisiting the healthcare budget to allocate adequate funds to carry out these activities.

Another important finding of the Seychelles costing exercise concerns the learning time lost in school due to VAWG. Even a conservative estimate suggests that the static cost of learning time lost could be SCR 57 million or about 0.3% of GDP. Learning time lost may have far-reaching implications on productivity and hence future earning potentials. The following steps could help improve education services: (i) employing dedicated school welfare personnel in each school to deal with cases relating to VAWG; (ii) arranging special meetings with parents at regular intervals to find out ways to deal with such cases; (iii) digitisation of data collection and sharing; and (iv) revisiting the education budget to allocate adequate funds to carry out these activities.

Table 9.1 Employment Effects of VAWG in Seychelles

| Broad economic sector	Employed persons		Job loss (persons)	
	All	Private		
Agriculture	400	304	7	5
Industry	9,978	9,478	63	60
Services	36,398	20,872	223	128
Total employment	46,776	30,654	323	212

Source: Based on Unemployment Statistics, 2017, National Bureau of Statistics.

9.2 Employment and role of the private sector

Total employment in Seychelles in 2016 was 46,776, representing almost of 50 per cent of the total population. Around 78 per cent of these people were employed in the services sector. The employment situation is also impacted by VAWG, with estimations that at least **323 persons may be become jobless** due to VAWG. **Out of total job losses, 65 per cent would be in the private sector.**

Table 19.1 the use of an economy-wide model reveals some interesting implications for the private sector. Almost all of the 16 activities or sectors considered in the model are run by the private sector. **Annual output loss to the private sector due to VAWG is SCR 385.7 million or almost 2 percent of GDP. Given this high loss to the private sector, elimination of VAWG in Seychelles should also be a priority of this sector.** The authors of this report envisage a number of roles for the private sector:

- representatives from the private sector must be included in working groups dealing with VAWG;
- as VAWG affects staff members' health and thus performance, employers should engage with specialist women's organisations to devise and implement strategies to prevent VAWG;
- the corporate sector should invest part of their corporate social responsibility funds in VAWG prevention;
- the occupational health and safety agenda should include mental health and well-being;
- companies should clearly define their stance on VAWG via an employee conduct policy;
- domestic violence risk assessments should be carried out; and
- training on gender equality and VAWG prevention should be provided for all staff, recognising that some staff (e.g. human resources, managers, security) may require a more advanced training.

Figure 9.1 Long Term Cost of VAWG
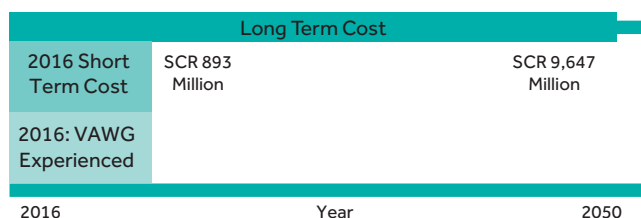
9.3 Estimated long-term costs

Although in this report, the cost of VAWG is only considered for one year (2016), these costs may continue for much longer (e.g. until the death of VAWG survivors). For instance, it is argued that the health costs will last for as long as it takes to treat longer-term health effects. By comparison, costs to replace damaged property are likely to be incurred in the year when the event of violence took place – hence this is considered to be a short-term cost.[1] Using the victims' median age of 43 and average female life expectancy of 77, the longer-term time cost of VAWG in Seychelles that took place in 2016 is represented by Figure 9.1.

A longer-term cost estimated over the 34-year period at 2016 prices using a discount rate of 7.5 per cent yields an overall cost of SCR 9,647 million.

9.4 Prototype costing model

This book presents the development of a comprehensive economic costing model for Seychelles to estimate the cost of VAWG using country-level data and parameters.

The prototype costing model developed under the aegis of the Commonwealth Secretariat has been numerically specified with member country data from Seychelles. The Seychelles costing model is based on official data and covers several important services such as healthcare, law enforcement, social services and specialised services. It also includes out-of-pocket personal cost incurred by VAW survivors, cost of learning time lost at schools and an estimation of income loss due to women being absent from paid work and household activities. However, the model was unable to include some important costs – such as those related to emotional intimate partner and workplace violence.

A major limitation of the model is the number assumptions (as explained above) made to convert the healthcare data for this exercise. More accurate healthcare data may have implications for the outcomes of the costing exercise. Another limitation is the use of the social accounting matrix (SAM) based on a dated input-output matrix (IOM) to estimate the economy-wide costs. More time and resources could be allocated into this component to

improve the outcome of the economy-wide estimation. A newly developed SAM based on more recent data would not only improve the VAWG costing component, but also help assessment of various economic policies considered in the country's development plan.

The major advantage of this model is that it is developed in an MS EXCEL environment and thus can be transferred to government counterparts (as well to other stakeholders) with focused training. A modular approach has been considered in developing it, such that multiple developers can work simultaneously on different model components. The most important merit is that *it is a live product* – it allows updates, modifications and extensions with ease.

9.5 Recommended actions

VAWG is a major violation of human rights. This aspect coupled with the high economic cost of such violence requires immediate and effective actions by the national authority. Suggestions from the consultation meetings in Seychelles, findings of the costing exercise and review of other studies (such as Duvvury et al., 2013) has helped shape these recommendations. Some of the recommended actions include:

Enabling policy:

    i. Engaging the involvement of policy-makers, administrative officials and programme stakeholders to prepare and implement an adequately funded plan of action considering VAWG as a priority development issue.

    ii. Executing a multisectoral and inter-ministerial plan of action on VAWG by establishing mechanisms that focus on co-ordination and accountability.

    iii. Scaling up resources in primary prevention as well as establishing a dedicated budget to address VAWG.

Strengthening capacity:

    iv. Capacity development of the national statistics offices and administrative agencies in gathering VAWG statistics to enable the design of effective strategies and for progress monitoring.

    v. Capacity strengthening of frontline service providers such as police, social services, healthcare services etc. for effective service delivery, and for improve the collection and maintenance of records in appropriate formats and environments.

Short term consideration:

    vi. Design and implement a comprehensive communication strategy involving: communities; individual stakeholders including

men and boys; government organisations non-governmental organisations/civil society organisations; and the corporate sector.

   vii. Design a data collection protocol for frontline service providers (e.g. in healthcare, the police, the judiciary etc.) using computer enabling software for faster collection, processing and sharing.

  viii. Operationalise dedicated shelters for VAWG victims (survivors) that provide support such as medical care accommodation, food, counselling and legal aid.

Note

1. PWC estimated the economic cost violence against women and their children (VAWC) for 2014–15 at 22 AUS $ billion. The longer-term cost of VAWC using 30-year period (i.e. from 2014–15 to 2044–45) has been estimated at AUS $ 323.4 billion. For details please refer to PWC Australia, (2015). A high price to pay: The economic case for preventing violence against women.

References

Breisinger, C, M Thomas and J Thurlow (2009), 'Social Accounting Matrices and Multiplier Analysis: An Introduction with Exercises', IFPRI, Washington, DC.

Duvvury, N, A Callan, P Carney and S Raghavendra (2013), 'Intimate Partner Violence: Economic Costs and Implications for Growth and Development', Women's Voice, Agency, & Participation Research Series, No.3., the Work Bank, Washington, DC.

Annex 1

Direct Cost Estimation
Approach

Annex 1
Direct Cost Estimation Approach

A. Services

1. Healthcare

   - *Predominant approach: unit cost*

   - *Unit cost; number of visits and length of stay at hospital will vary for physical violence and sexual assault*

   1.1. Physical assault

      1.1.1. Outpatient cost: No. of visits [No. of victims] × physical violence prevalence rate × unit cost per visit

      1.1.2. Hospitalisation cost: No. of nights × No. of victims × physical violence prevalence rate × unit cost per night

   1.2. Sexual assault

      1.2.1. Outpatient cost: No. of visits [No. of victims] × physical violence prevalence rate × unit cost per visit

      1.2.2. Hospitalisation cost: No. of nights × No. of victims × physical violence prevalence rate × unit cost per night

2. Law enforcement

   - *Predominant approach: unit cost*

   - *Number of hours and number of law enforcement officials engaged will vary for domestic violence and sexual assault cases*

   2.1. Domestic violence

      2.1.1. Police cost – case registration to closure: [(No. of police personnel engaged for each case × No. of hours spent for each case) × number cases × wage per hour]

      2.1.2. Police cost – petrol: [(No. of police personnel engaged × No. of hours spent) × number cases × wage per hour] + cost of petrol car per visit

      2.1.3. Judiciary cost: (No. of judges engaged for each case × No. of hours spent for each case) × number cases × wage per hour

   2.2. Sexual assault

      2.2.1. Police cost – case registration to closure: [(No. of police personnel engaged for each case × No. of hours spent for each case) × number cases × wage per hour]

2.2.2. Police cost – petrol: [(No. of police personnel engaged × No. of hours spent) × number cases × wage per hour] + cost of petrol car per visit

2.2.3. Judiciary cost: (No. of judges engaged for each case × No. of hours spent for each case) × number cases × wage per hour

3. Social services

- *Predominant approach: unit cost and proportional budget*
- *Number of hours and number of officials involved may vary for physical assault and sexual assault cases*

3.1. Physical assault

3.1.1. Social service – counselling: [(No. of officials engaged for each case × No. of hours spent for each case) × number cases × wage per hour]

3.1.2. Social service – shelter: total shelter expenditure × proportion of shelter service used for physical violence victims

3.2. Sexual assault

3.2.1. Social service – counselling: [(No. of officials engaged for each case × No. of hours spent for each case) × number cases × wage per hour]

3.2.2. Social service – shelter: total shelter expenditure × proportion of shelter service used for physical violence victims

4. Specialised services

- *Predominant approach: full operational budget*

4.1. Physical, sexual and psychological assault

4.1.1. 24-hour telephone service: full budget

4.1.2. Shelter: total shelter expenditure × proportion of shelter service used for physical violence victims

B. Personal Cost

5. Loss of property

- *Predominant approach: unit cost*

5.1. Loss of personal property: No. of survivors (No. of women sought help) × % of survivors who reported lost property due to violence × average amount of reported loss

6. Personal expenses incurred

- *Predominant approach: unit cost*

6.1. Personal expenses incurred: No. of survivors (No. of women sought help) × average amount of reported personal expenses

C. Income Loss

7. Irreversible (death)

- *Predominant approach: unit cost*

7.1. Irreversible cost: No. of deaths × per capita income of female workers

8. Reversible

- *Predominant approach: unit cost*

8.1. Temporary incapacity: No. of victims (survivors) × No. of days incapacitated × per capita per days income of female workers

8.2. Income lost due to disability: No. of victims (survivors) × No. of days incapacitated × disability pension

8.3. Disability pension: No. of victims × disability pension

8.4. Household work: No. of victims (survivors) × No. of days incapacitated × minimum wage

Annex 2

Economy-wide Cost Estimation Approach

Annex 2
Economy-wide Cost Estimation Approach

One of direct cost of violence is loss of work days leading to loss of income. Income loss leads to a reduction in private consumption expenditure, with subsequent negative impacts on commodity demand and supply of goods and services. As production of goods and services depend on purchases of other goods and services, as well as factors of production, loss of female works days (a direct impact of violence) may lead to further of loss of incomes indirectly due to the economy-wide effect. The researcher needs to use an economy-wide database or model to capture these indirect impacts of the direct cost of violence.

As argued in the main text, this can most conveniently be done utilising a social accounting matrix (SAM) framework. The SAM is a macroeconomic data set which captures the key interdependence between product markets (activities/commodities); factor markets (labour, capital, land etc.); and institutions (households, corporations, government etc.). The SAM is based on an input-output matrix (IOM); a SAM or IOM is available for most countries. The present researchers proposed to use a readily available country SAM or IOM or their modified versions to estimate the indirect/induced cost of VAW. A stylised SAM structure is provided in Figure A2.2: this is abridged version of basic SAM structure shown above.

As indirect and induced costs would mainly be transmitted via loss of female work (productive) days, a SAM (as shown here) is a suitable framework to capture the indirect and induced cost of VAW. The highlighted cells are accounts which are affected by the loss of female work (productive) days. Loss of female days is denoted by 'Lf'. This leads to a reduction in domestic outputs. Households are the sole recipient of labour income. Thus, a reduction in labour income leads to a reduction in household income and their consumption possibilities. A reduction in household expenditure (which is a major component of effective domestic demand) leads to fall in effective demand for commodities. This in turn triggers reduced supply, with the transmission mechanism continuing until it reaches a new steady start equilibrium.

Input-output matrix and social accounting matrix

A social accounting matrix (SAM) is an extension (or generalisation) of the input-output matrix by incorporating other parts of the economy – namely

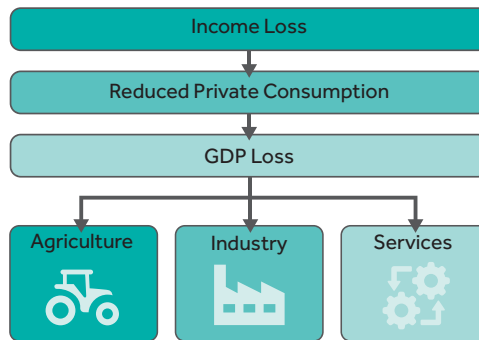**Figure A2.1 Personal income loss to GDP loss transmission mechanism**

Figure A2.2 Stylised SAM framework

A stylised SAM framework								
		ACT/COM	LAB		OF	HH	OI	Total
			Male	Female				
ACT/COM		W	0	0	0	Cp	Coi	Y
LAB	Male	Lm	0	0	0	0	0	Yml
	Female	*Lf*	0	0	0	0	0	Yfl
OF		OF	0	0	0	0	0	Yfo
HH		0	Lmy	Lfy	OF	0	Troi	*Yh*
OI		0	0	0	OF	Ty	0	Yoi
Total		Y	Yml	Yfl	Yfo	Yh	Yoi	

ACT: activities; COM: commodities; W: inter-industry transaction matrix; Y: income
LAB: labour factor; OF: other factors; HH: households; OI:other institutions.

primary and secondary income distribution and institutions of an economy. More specifically, Input-output analysis involves constructing a table in which each horizontal row describes how one industry's total product is divided among various production processes and final consumption. Each vertical column denotes the combination of productive resources used within one industry. A table of this type (Figure A2.3) illustrates the dependence of each industry on the products of other industries: for example, an increase in

Figure A2.3 Input-output table

		Activity					Final demand				Total use
		A1	...	...	...	A16	C_p	C_g	I	Ex	
Commodity	C1										
	...										
	...	Technology matrix (16 x 16)					Final demand				
	...										
	C16										
Value added	Compensation										
	Operating surplus	GDP (Income Approach)					GDP (Expenditure Approach)				
	Indirect taxes										
	Import										
	Total supply										

Figure A2.4 Basic structure of a SAM

		Expenditure columns							
		Activities C1	Commodities C2	Factors C3	Households C4	Government C5	Investment C6	Rest of world C7	Total
Income rows	Activities R1		Domestic Supply						Activity income
	Commodities R2	Intermediate demand			Consumption spending (C)	Recurrent spending (G)	Investment demand (I)	Export earnings (E)	Total demand
	Factors R3	Value-added							Total factor income
	Households R4			Facto payments to householdsr		Social transfers		Foreign remittances	Total household income
	Government R5		Sales taxes and import tariffs		Direct taxes			Foreign grants and loans	Government income
	Savings R6				Private savings	Fiscal surplus		Current account balance	Total savings
	Rest of world R7		Import payments (M)						Foreign exchange outflow
	Total	Gross output	Total supply	Total factor spending	Total household spending	Government expenditure	Total investment spending	Foreign exchange inflow	

manufacturing output is also seen to require an increase in the production of power.

SAM is a square matrix which captures all the main circular flows (Figure A2.5) within an economy in a given period.

The input-output part of SAM captures production linkages between sectors that are determined by those sectors' production technologies. These linkages can be differentiated into backward and forward linkages. Stronger forward and backward production linkages lead to larger multipliers.

Figure A2.5 Circular flow in an Economy
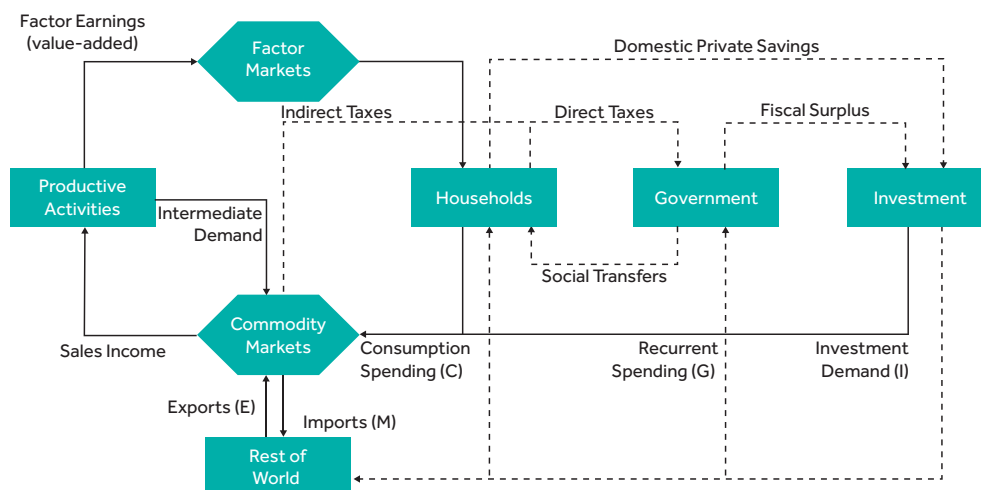
Backward production linkages are the demand for additional inputs used by producers to supply additional goods or services. For example, when electricity production expands, it demands intermediate goods like fuel, machinery and construction services. This demand then stimulates production in other sectors to supply these intermediate goods. The more input intensive a sector's production technology is, the stronger its backward linkages are.

Forward production linkages account for the increased supply of inputs to upstream industries. For example, when electricity production expands, it can supply more power to the economy, which stimulates production in all the sectors that use power. Thus, the more important a sector is for upstream industries, the stronger its forward linkages will be. Forward linkages are particularly important for the energy sector, as it provides key input into the majority of other sectors in the economy.

Methodology – description of social accounting matrix model

The move from a SAM data framework to a SAM model (also known as a multiplier framework) requires decomposing the SAM accounts into 'exogenous' and 'endogenous'. Generally, accounts intended to be used as policy instruments (for example, government expenditure, including social protection, investment and exports) are made exogenous and accounts specified as objectives or targets must be made endogenous (for example, output, commodity demand, factor return, and household income or expenditure). For any given injection into the exogenous accounts of the SAM, influence is transmitted through the interdependent SAM system among the endogenous accounts.

The interwoven nature of the system implies that the incomes of factors, households and production are all derived from exogenous injections into the economy via a multiplier process. The multiplier process is developed here on the assumption that when an endogenous income account receives an exogenous expenditure injection, it spends it in the same proportions as shown in the matrix of average propensities to spend (APS). The elements of the APS matrix are calculated by dividing each cell by the sum total of its corresponding column.

The economy-wide impacts of personal income loss are examined by changing the household consumption vector.

The shift from a 'data' SAM structure to a SAM multiplier module requires the introduction of assumptions and the separation of the SAM accounts into 'exogenous' and 'endogenous' components.[1]

The separation is needed to enter the system, allowing some variables within the SAM structure to be manipulated exogenously (via injection

Table A2.1 Description of the endogenous and exogenous accounts and multiplier effects

Endogenous (y)	Exogenous (x)
The activity (gross output multipliers), indicates the total effect on the sectoral gross output of a unit-income increase in a given account, *i* in the SAM, and is obtained via the association with the commodity production activity account *i*.	
The consumption commodity multipliers, which indicates the total effect on the sectoral commodity output of a unit-income increase in a given account *i* in the SAM, is obtained by adding the associated commodity elements in the matrix along the column for account *i*.	Intervention into through activities (x = c + i + g + e), where i = GFC + ST (GFCF) Household Consumption (c) Exports (e) Government Expenditure (g) Investment Demand (i) Inventory Demand (i)
The value-added, or GDP multiplier, giving the total increase in GDP resulting from the same unit-income injection, is derived by summing up the factor-payment elements along account *i*'s column.	

instruments) to assess the subsequent impacts on the endogenous accounts, as well as on the exogenous accounts.

Generally, accounts intended to be used as policy instruments are classified as exogenous and accounts specified a priory as objectives (or targets) are classified as endogenous. Two accounts are designated as endogenous accounts: 1) Production (production activities and commodities) account; 2) and Factors of Production account.

The exogenous accounts comprise: 3a Household (consumption), Government (expenditure, transfer, remittances); 4 Capital account of institutions (savings

Table A2.2 General SAM modular structure

		1a-PA	1b-CM	2-FP	3a-HH-OI	4-KHH-OI	5-ROW	TDD
1a	PA		$T_{1a, 1b}$		0			Y_{1a}
1b	CM	$T_{1b, 1a}$			$T_{1b, 3}$	$T_{1b, 4}$	$T_{1b, 5}$	Y_{1b}
2	FP	$T_{2, 1a}$					$T_{2, 5}$	Y_2
3	HH-IO	$T_{3, 1a}$	$T_{3, 1b}$	$T_{3, 2}$	$T_{3, 3}$		$T_{3, 5}$	Y_3
4	KHH-OI	$T_{4, 1a}$			$T_{4, 3a}$		$T_{4, 5}$	Y_4
5	ROW		$T_{5, 1b}$	$T_{5 2}$	$T_{5, 3}$	0	0	Y_5
	TSS	E_{1a}	E_{1b}	E_2	E_3	E_4	E_5	

Note: Where: by definition $Y_i = E_j$ and 1 Production (1a PA = Production activities and 1b CM = Commodities); 2 FP = Factors of Production; 3 HH-IO = Households and Other Institutions (incl. Government); 4 KHH-OI = Capital Account Households and Other Institutions (including government); 5 ROW = Rest of the World (current and capital account). Blank entries indicate that there are no transactions by definition.

and demand for houses, investment demand, infrastructure and machinery and equipment); and 5 ROW transfers, remittances, export demand and capital. The SAM flows and the categorisation into endogenous and exogenous accounts are shown in Table A2.3.

SAM coefficients (A_{ij}) are derived from payment flows by endogenous accounts to themselves (T_{ij}) and other endogenous accounts as to the corresponding outlays ($E_i = Y_j$); similarly, the leak coefficients (B_{ij}) are derived from flows reflecting payments from endogenous accounts to exogenous accounts. They are derived in Table A2.5.

The multiplier analysis using the SAM framework helps us to understand the linkages between the different sectors and the institutional agents at work within the economy. Accounting multipliers are calculated according to the standard formula for accounting (impact) multipliers, as follows:

$$Y(t) = A\,Y(t) + X(t) = (I - A)^{-1} X(t) = M_a X(t)$$

Where:

t is time

Y is a vector of incomes of endogenous variables

X is a vector of expenditures of exogenous variables

A is the matrix of average expenditure propensities for endogenous accounts

$M_a = (I - A)^{-1}$ is a matrix of aggregate accounting multipliers (generalised Leontief inverse).

Table A2.3 Endogenous and exogenous accounts

		1a-PA	1b-CM	2-FP	3a-HH-OI	3b-Gov	4-KHH-OI	5-ROW	TDD
1a	PA		$T_{1a, 1b}$		0				Y_{1a}
1b	CM	$T_{1b, 1a}$			$T_{1b, 3a}$	$T_{1b, 3b}$	$T_{1b, 4}$	$T_{1b,5}$	Y_{1b}
2	FP	$T_{2, 1a}$						$T_{2, 5}$	Y_2
3a	HH-OI			$T_{3a, 2}$	$T_{3a, 3a}$	$T_{3a, 3b}$		$T_{2, 5}$	Y_3
3b	Gov	$T_{3b, 1a}$	$T_{3b, 1b}$		$T_{3b, 3a}$	$T_{3b, 3b}$		$T_{3a, 5}$	
4	KHH-OI	$T_{4, 1a}$			$T_{4, 3}$			$T_{4, 5}$	Y_4
5	ROW		$T_{5, 1b}$	$T_{5, 2}$	$T_{5, 3a}$	$T_{5, 3b}$	$T_{5, 4}$	0	Y_5
	TSS	E_{1a}	E_{1b}	E_2	E_{3a}	E_{3b}	E_4	E_5	

Note: Where Endogenous: 1 Production (1a PA = Production Activities and 1b CM = Commodities); 2 FP = Factors of Production; 3a HH = Households and Other Institutions (excluding Government). Where Exogenous: 3b Government; 4 KHH-OI = Capital Account of Households and of Other Institutions (incl. government); 5 ROW = Rest of the World (current and capital account).Blank entries indicate that there are no transactions by definition.

Table A2.4 Endogenous and components of exogenous accounts

	PA	CM	FP	EXO	INCOME	Exogenous Accounts (EXO) used as injections Column Vectors
1a PA		$T_{1a\,1b}$		X_{1a}	Y_{1a}	$X_{1a} = 0$
1b CM	$T_{1b\,1a}$			X_{1b}	Y_{1b}	X_{1b} = Government Consumption Subsidies – Taxes + Exports + Gov. Investment (capital formation in infrastructure and machinery and equipment) + Gross Capital Stock formation
2 FP	$T_{2\,1a}$			X_2	Y_2	X_2 = Factor Remittances from ROW
3b-5 Leaks	L_{1a}	L_{1b}	L_2	$L_{3b-5} = X_{3b-5}$	Y_{3b-5}	3b = Aid to Government from ROW
EXPN	E_{1a}	E_{1b}	E_2	E_{3b-5}		Where $E_i = Y_j$
L_{1a} = Activity Tax						L_{3a} = Income Tax + Household Savings + Corporate Savings
L_{1b} = Commodity Tax + Import Duty + Imports						$L_{3b-5} X_{3b-5}$ and Y_{3b-5} falls out of the model
L_2 = Factor Remittances to ROW						Blank entries indicate that there are no transactions by definition.

Note on injection: *For any given injection into the exogenous accounts X_i (i.e., instruments) of the SAM, influence is transmitted through the interdependent SAM system among the endogenous accounts. The interwoven nature of the system implies that the incomes of factors, institutions and production are all derived from exogenous injections into the economy via a multiplier process. Multiplier models may also be built on the input-output frameworks. The main shortcoming of the IO model is that the feedback between factor income generation (value-added) and demand by private institutions (households) does not exist. In this case, the circular economic flow is truncated. The problem can be partly tackled by endogenising household consumption within the I-O framework; this is typically referred to as a 'closed I-O model'. In this case, the circular economic flow is only partially truncated. A better solution is to extend the I-O to a SAM framework, which captures the full circular economic flow derivation of SAM multipliers.*

The aggregate accounting multiplier (M_a) is then further decomposed to separately examine the direct and induced effect. In order to generate the direct and induced effects, the M_a multiplier is decomposed using both multiplicative and additive forms.

Table A2.5 Coefficient matrices and vectors of the SAM model

Account	1a – PA	1b – CM	2 - FP	3a … 5 EXO	Income
1a – PA		$A_{1a,1b} = T_{1a,1b}/Y_{1b}$		X_{1a}	Y_{1a}
1b – CM	$A_{1b,1a} = T_{1b,1a}/Y_{1a}$			X_{1b}	Y_{1b}
2 – FP	$A_{2,1a} = T_{2,1a}/Y_{1a}$			X_2	Y_2
3a … 5 Leaks	$B_{1a} = L_{1a}/Y_{1a}$	$B_{1b} = L_{1b}/Y_{1b}$	$B_2 = L_2/Y_2$		
Expenditure	$E_{1a} = Y_{1a}$	$E_{1b} = Y_{1b}$	$E_2 = Y_2$		

From the above, it logically follows that the SAM model mainly provides answers to following basic issues: The model helps to assess:

   i. the impacts on the endogenous and exogenous accounts in a clear and differentiated manner;

   ii. the technological structure of the sectors oriented towards the production of basic intermediate and final goods and services;

   iii. the expenditure structures of factors of production, institutions and demand for goods and services of domestic and foreign origin;

   iv. the identification of key sectors, commodities, factors of production, institutional accounts and basic needs in the economy and quantification of the main linkages (total and partial);

   v. the dynamics of the production structure, factorial and institutional income formation;

   vi. the effects of incomes of institutions and their impact on production via their corresponding demand;

   vii. the intra, across or extra and inter-circular group effects, both in additive and multiplicative manner;

   viii. how matching labour and investment requirements can be calculated;

   ix. price changes on endogenous accounts arising out of endogenous account price changes, as well as exogenous account price changes;

   x. design simulations and alternative scenario and perform analysis; and

   xi. it serves as the basis for development of computable general equilibrium.

Note

1 This methodology follows Pyatt, G and JI Round (1977), 'Social Accounting Matrices for Development Planning', *Review of Income and Wealth*, Series 23 No.4; Pyatt, G and JI Round (1979), 'Accounting and Fixed Price Multipliers in a SAM Framework', *Economic Journal*, No. 89; and Pyatt, G and A Roe (1987), (eds.). The layout follows Alarcon, JV et al. (1984), *La Matriz de Insumo-ProductoAdaptadapara la Planificación de lasnecesidadesbásicas,* Ecuador 1975 y 1980, ISSPREALC, Quito; and Alarcon, JV et al. (1991), *The Social Accounting Framework for Development*, Gower House, Avebury.

The Commonwealth

Estimating the full cost of violence against women and girls (VAWG) will enable governments to understand the cost of inaction and benefits of prevention and management, and provide a basis for selecting appropriate interventions and policies. However, studies to date have mostly focused on the direct costs of violence, with few attempting to measure the indirect costs. At the same time, none of these methodologies capture the full economic impact of VAWG due to the lack of data and inability to integrate sectoral linkages.

This publication provides a comprehensive framework – complimentary to those based on needs and justice – to assess the economic cost of VAWG. It applies an economy-wide modelling approach that enables governments to capture important linkages and secondary effects to assess the full impact of VAWG. The data gathered for this framework will be useful for countries when reporting on the Sustainable Development Goals (SDGs), in particular, SDG5 and SDG16. Moreover, the data gathering process also provides an opportunity to assess the strength of the national statistical system, which is crucial to measuring progress across all of the SDGs in a manner that is both inclusive and fair.

Seychelles is the first Commonwealth country where the framework has been applied using real country-level data and information. This book presents the process and outcomes of applying the newly developed framework and methodology to Seychelles.