COST AND IMPACT OF SCALING UP

Female Genital Mutilation Prevention and Care Programmes

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ACKNOWLEDGEMENTS

This report captures the results of a joint exercise by the United Nations Population Fund (UNFPA) and Avenir Health to estimate the cost and impact of scaling up programmes addressing female genital mutilation. A combination of programme data, secondary data analysis and population-level costing methods were used to calculate cost and impact in 31 countries with a high burden of the practice. As the first exercise of its kind, the report provides new evidence to inform advocacy and programmatic interventions addressing female genital mutilation at different levels. It also provides a starting point for similar undertakings in the future.

This initiative benefited from the experience of the UNFPA-UNICEF Joint Programme on the Elimination of Female Genital Mutilation: Accelerating Change and the TOSTAN Community Empowerment Program. UNFPA Country Offices from Burkina Faso, Djibouti, Ethiopia and Guinea provided important inputs. A team from UNFPA and Avenir Health worked on conceptualization and development; it included Nafissatou Diop, Howard Friedman, Itamar Katz, Berhanu Legesse, Bill Winfrey, Rachel Sanders and Nadia Carvalho. Ramz Shalbak assisted with the design of the document.

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TABLE OF CONTENTS

Executive Summary 7

I.Introduction 9

Female Genital Mutilation elimination and social change 9

II. Purpose and Method 10

III. How Much Does It Cost? 13

Cases averted 13

Drivers of cost 14

Comparisons to existing spending 17

Limitations 17

IV. Customizing Analysis for Countries 19

References 20

Appendix A: Behind the Numbers: Calculating the Costs 22

Appendix B: Sensitivity Analysis 31

Appendix C: Public Perceptions and Laws on Female Genital Mutilation by Country 32

ACRONYMS

DHS	Demographic and Health Survey
DSA	Daily subsistence allowance
FGM	Female genital mutilation
GDP	Gross domestic product
MICS	Multiple Indicator Cluster Survey
SDG	Sustainable Development Goal
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
WHO	World Health Organization

Luca Zordan for UNFPA - Burkina Faso

EXECUTIVE SUMMARY

Female genital mutilation (FGM) is internationally recognized as a violation of the human rights of girls and women. Yet more than 200 million girls and women alive today have undergone the practice in 31 countries in Africa, the Arab States and Asia. The number of girls estimated to be at risk of FGM will increase from 4.1 million girls in 2019 to 4.6 million in 2030, if current levels prevail, with most between infancy and age 15. While FGM is concentrated in some countries, it can be found in every region of the world.

Under the fifth of the 17 Sustainable Development Goals (SDGs), on gender equality, target 5.3 calls for eliminating harmful practices such as FGM. Yet there is limited information about how much this will cost.

This analysis, for the first time, estimates the cost and impact of programmes in 31 countries where FGM remains prevalent.

A combination of programme data, secondary data analysis and population-level costing methods were used to calculate the cost and impact of scaling up programmes to both high and moderate coverage. A group of interventions for prevention, protection, and care and treatment were defined based on work by the UNFPA-UNICEF Joint Programme on the Elimination of FGM, among others. Regression analyses estimated new incidence rates due to increased intervention coverage. These rates were used to estimate the number of averted cases.

It would take $3.3 billion to reach the high-coverage targets by 2030. This would avert 24.6 million cases at an average cost of $134 each. A moderate-coverage scenario would cost $1.6 billion and avert more than 12 million cases.

The average cost per case averted hides substantial variations among countries, however. The most cost-effective investments would be in countries with limited historic change in FGM incidence. There, the average cost per case averted would be between $3 and $90. The next most cost-effective investments would be in countries with high social approval of FGM but a pre-existing trend downward, with an expected cost per case averted of around $240.

Ethiopia - Luca Zordan for UNFPA

I. INTRODUCTION

The World Health Organization (WHO) defines female genital mutilation as all procedures that involve the partial or total removal of the external female genitalia, or other injury to the female genital organs for non-medical purposes (WHO, 2018). More than 200 million girls and women alive today have undergone the practice in 31 countries in Africa, the Arab States and Asia, where data have been collected (UNICEF, 2016). Most cases involve young girls between infancy and age 15. In 2015, FGM was performed on an estimated 3.9 million girls globally (UNFPA, 2018).

Female genital mutilation is internationally recognized as a violation of human rights. It has no health benefits, and harms girls and women in numerous ways. On 20 December 2012, the 67th United Nations General Assembly (UNGA) adopted Resolution 67/146 "Intensifying global efforts for the elimination of female genital mutilations," which provides a clear political call to action for continued acceleration towards ending the practice.

Since then, numerous efforts to counteract it have taken place at the international, national and local levels. Advances have occurred through research, work with communities and changes in public policy.

While FGM has been declining in most countries where it is prevalent, population growth means that if the practice continues at current rates, the sheer number of girls harmed will continue to rise. UNFPA estimates indicate that between 2015 and 2030, another 68 million girls will be subjected to FGM at current levels of practice (UNFPA, 2018). Protecting these girls demands significant acceleration of efforts to ending FGM.

Female genital mutilation elimination and social change

UNFPA and UNICEF lead the Joint Programme on female genital mutilation to accelerate ending the practice. The programme encourages coordinated and systematic efforts that engage whole communities, and emphasize sexual reproductive health and rights and gender equality using multiple channels.

FGM is a social norm and social norms change is complex, discontinuous and iterative (UNFPA 2020). Social norms are informal, deeply entrenched and widely held beliefs based on social roles and expectations that govern human behaviors and practices within a reference group or network. To facilitate a social norm change, it is important to address shared beliefs and expectations and collective behaviour, fully recognizing that individuals are unlikely to abandon FGM unless they think that others are going to make the same decision (UNFPA, 2020).

Community empowerment programmes that shift social norms have central roles. They include a range of actors, from religious and political leaders to various family members, and are crafted in line with each context in which they are implemented.

Several studies have shown the impact of community mobilization and female empowerment strategies (Salam, et al., 2016). Until now, however, there have been no estimates of investments required to achieve substantial reductions in FGM.

Kenya - Luca Zordan for UNFPA

II. PURPOSE AND METHOD

UNPFA and Avenir Health estimated costs for scaling up three types of programmes – for prevention, protection, and care and treatment – in 31 countries with a high burden of FGM (see Appendix C for details).

The analysis used programme data, secondary data and population-level costing methods. The process began with defining a set of interventions based on work done by the UNFPA-UNICEF Joint Programme on FGM (UNFPA and UNICEF, 2018), among others, and grounded in social change theory.

Estimating costs

For each intervention, national costs were estimated by multiplying the target population by the coverage of the intervention in each year. This yielded the number of people reached, which was multiplied by the unit cost of the intervention to arrive at a total intervention cost. See Table 1 for assumptions made in the calculations.

Costs were estimated from 2020 through 2030. Regression analyses estimated new incidence rates due to increased intervention coverage; these rates were used to estimate the number of cases averted. Sensitivity analyses were performed on key variables.

Costs were estimated in 2020 US dollars with no inflation or discounting applied, and were frontloaded to account for the initial development of materials as well as legislative actions in a subset of countries. Since the pool of communities where a majority holds positive views of FGM shrinks over time based on historic trends, resource requirements decline in later years.

Table 1. Assumptions made in the calculations.

	Intervention	Target population	Population in need
Prevention	Community empowerment prevention programmes	Communities, calculated as total population/ average community size of 600 persons	Percentage of communities where more than 50 per cent of the population has positive views of FGM
	Mass media and social media		
	Health providers training on prevention	Health providers	Percentage of providers working in communities where more than 50 per cent of the population has positive views of FGM
Protection	Legislation and policy development	Countries with no legislation prohibiting FGM	100 per cent for those countries without legislation, zero for others
	Mobile courts	Communities, calculated as total population/ average community size of 600 persons	Percentage of communities where more than 50 per cent of the population has positive views of FGM
	Capacity-building for legal personnel	Legal personnel, one event per country annually	100 per cent
Treatment and care	Psychosocial support	Women having a first birth	Percentage who have experienced FGM Type 3 (infibulation)
	Capacity-building for health providers on treatment and care	Health providers	Percentage of providers working in communities where more than 50 per cent of the population has positive views of FGM

Considering two scenarios

Two scale-up scenarios were considered. Under a high-coverage scenario, 100 per cent of communities where over half of people approve of FGM would be reached with either direct or indirect community prevention programmes by 2030. A moderate scenario entailed reaching 50 per cent of such communities with either direct or indirect prevention programmes. Similar coverage targets were applied to care and treatment, and mobile court programmes for each scenario. Legislative programmes were also the same in each scenario, since they involved fixed costs for development and dissemination of new laws and legal standards.

Burkina Faso - Luca Zordan for UNFPA

III. HOW MUCH DOES IT COST?

Under the high-coverage scenario, approximately 150,000 communities would be reached with direct prevention and community empowerment programmes. An additional 450,000 communities would be reached indirectly. Psychosocial support would be provided to 1.9 million women who had undergone FGM.

The total cost for 2020 through 2030 would be about $1 billion for the Arab States and sub-Saharan Africa, with Asia requiring another $2.3 billion.

The moderate-coverage scenario would cost around $1.6 billion from 2020 to 2030, and would reach approximately 300,000 communities with either direct or indirect prevention programmes. It would provide psychosocial support to nearly 1 million women who had undergone FGM.

The majority of costs would be for prevention programmes, at 63 per cent of the total, followed by programme support costs at 20 per cent. Care and treatment, and protection programmes would absorb approximately 11 per cent and 5 per cent, respectively.

Cases averted

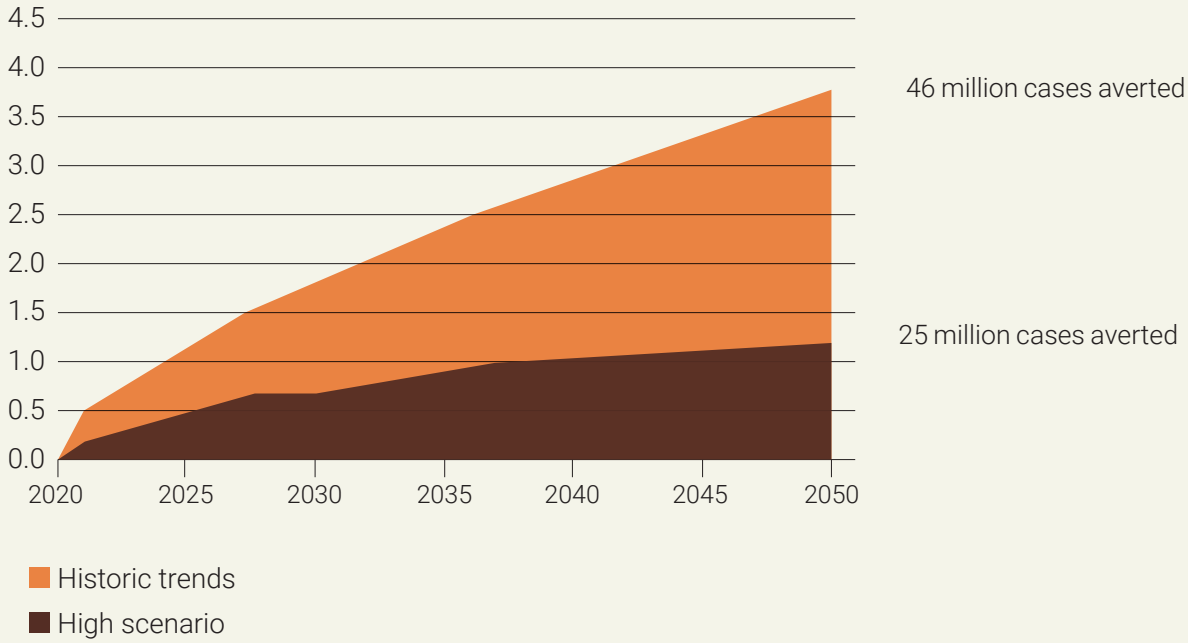
Each scenario involved estimating the number of cases averted. This entailed comparing the number of cases in each scenario, where both interventions and historic trends affect incidence, to a counterfactual case reflecting only historic trends.

Figure 1 shows that the high-coverage scenario could avert nearly 5 million cases by 2030, with an additional 20 million cases averted from 2031 to 2050. In total, about 25 million cases would be averted at an average cost of $134 per case.

The moderate-coverage scenario would prevent around 2 million cases by 2030, with an additional 10 million cases averted from 2031 to 2050.

Reductions due to past interventions, historic trends, education, and other social and economic dynamics would stop an additional 46 million cases by 2050.

Figure 1. Female genital mutilation cases averted under the high-coverage scenario and through historic trends
Gains increase over time, although the average cost per case averted depends on a wide range of variables in different countries.



Drivers of cost

Several drivers explain variations in costs among countries. Overall population size is a large factor. All else being equal, the larger the population, the larger the costs. In countries with higher gross domestic product (GDP), where prices are higher, it is more expensive to reach individuals or communities.

Prevention programme costs are higher in countries where a majority of people have positive views of FGM, primarily due to the costs of reaching more communities. Countries without legislation to prevent the practice will have higher protection costs. Care and treatment costs rise with higher prevalence and greater shares of the more severe FGM Type 3. Table 2 shows the five highest-cost countries and their primary cost drivers.

Table 2. National cost drivers

	Larger population	Higher GDP	Higher proportion of communities with positive views of female genital mutilation	High prevalence of female genital mutilation Type 3
Indonesia	✔	✔	✔	
Egypt	✔	✔	✔	
Sudan	✔		✔	✔
Nigeria	✔	✔		
Mali			✔	

Looking at countries based on their level of support for FGM and historic trends defines four categories, as seen in Figure 2.

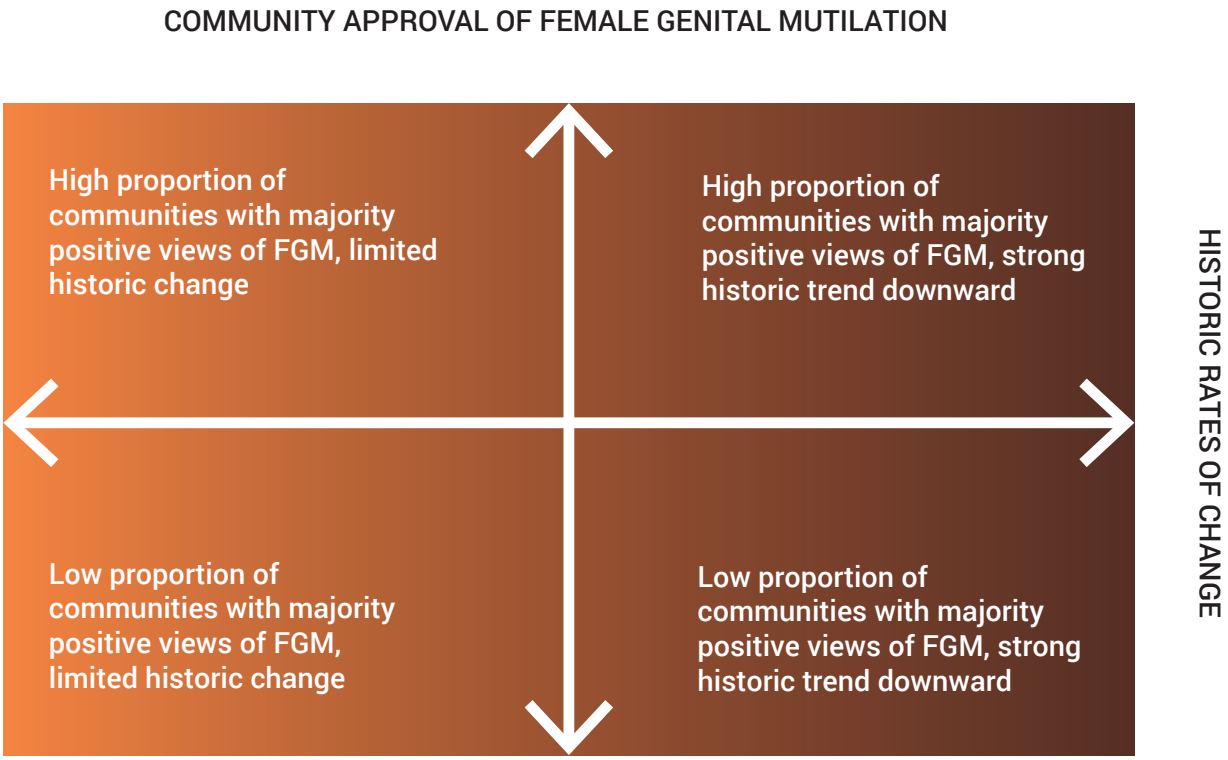
Considering the costs and impacts in each group helps prioritize scarce resources. Unsurprisingly, it is most cost-effective to invest in countries with limited historic change, and a greater share of communities where a majority of people approve of FGM. The average cost per case averted is between $2 and $56.

Where countries still have many communities with majority approval, but a pre-existing historic trend downward, interventions are still cost-effective, but impacts from new prevention programmes are lower. This leads to costs in the range of $200 per case averted.

The cost in countries with low approval but limited historic change is around $500 per case averted.

For countries where approval is already low and a strong historic downward trend exists, the average cost per case averted is around $3,000. This involves mostly the fixed costs for running programmes and providing care for earlier FGM cases.

Figure 2. Four country types have varying costs



Comparisons to existing spending

Although there are no current estimates of aggregate global spending on efforts to reduce FGM, the UNFPA-UNICEF Joint Programme predicted it would spend approximately $19 million per year during its Phase III (2018-2021). This is far short of the costing estimate under either the high- or moderate-coverage scenario.

In 2018, the Joint Programme received approximately $14.3 million from donors; total expenditures were $10.2 million in Burkina Faso, Djibouti, Egypt, Ethiopia, Kenya, Nigeria, Senegal and Sudan (UNFPA-UNICEF Joint Programme on the Elimination of FGM, 2019).

Limitations

The costing estimates faced a number of limitations. Given these, the findings at this stage should be used primarily for discussion and advocacy, including for investment in programmes and evaluation, and the comprehensive use of FGM-specific modules in household surveys. See Appendix B for a discussion of sensitivity analysis.

The limitations comprise a dearth of research on FGM programme effectiveness and cost. This meant the analysis had to rely on one study for estimates of direct benefits from prevention programmes, and on an internal programme implementer for estimates of indirect benefits. Costs are based on limited country datasets from five countries. Other data gaps included insufficient FGM survey data in nine countries, which prevented incidence estimates based on recent trends (Appendix C).

Despite covering 31 diverse countries, the analysis had to make standardized assumptions about elements such as community size, facilitator compensation and programme structure. More variation in programme implementation and associated costs would be likely in reality.

Additionally, the impact analysis was an indirect process, looking first at the effect of prevention programmes on community and individual views, and then at how changing views influence actual practice. As more data become available, it will be possible to analyse the direct effects on rates of FGM from scaling up prevention programmes.

While education, urbanization, mobility and other social trends can affect decisions around FGM, this analysis relies on past historic trends without attempting to predict the role that future educational attainment and other social dynamics will play.

Changes to standard health outcomes like disability-adjusted life years could not be estimated in the absence of standardized disability weights associated with FGM. This limits the potential for comparing FGM and other health programmes. Ideally, costing initiatives will lead to more rigorous programme evaluations, incorporation of FGM into global burden of disease estimates, and greater investment in efforts to eliminate the practice.

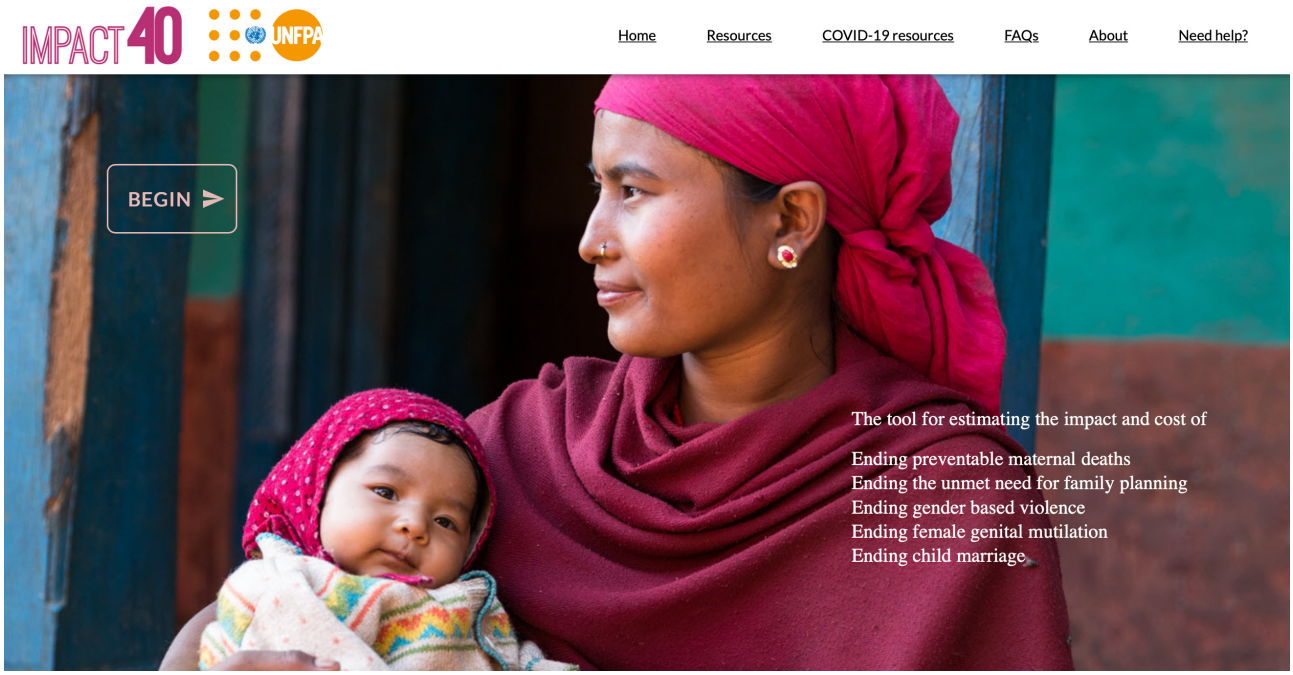
Ethiopia - Luca Zordan for UNFPA

IV. CUSTOMIZING ANALYSIS FOR COUNTRIES

UNFPA has assembled resources to support country analysis of the cost and impact of reaching goals to end preventable maternal deaths, unmet need for family planning, and gender-based violence and other harmful practices.

These resources can be found at the Impact40 website (https://impact40.org/). They include spreadsheets to help estimate the cost and impacts of scaling up programmes to eliminate female genital mutilation in specific countries.

Users can establish a customized package of services, adjust input costs and vary scale-up plans to develop strategies and advocacy. A user guide and recorded webinars provide additional guidance.



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APPENDIX A: BEHIND THE NUMBERS: CALCULATING COSTS

Unit costs

UNFPA reviewed unit cost estimates from the TOSTAN programme in Senegal and for larger community programmes in Burkina Faso, Djibouti, Ethiopia and Guinea to define the scope of interventions, and to identify associated inputs and unit costs for prevention programmes, community programmes, legislation and enforcement protection programmes, and treatment and care programmes. Costs were based on community empowerment programmes, including classes on human rights, problem-solving and hygiene, and the assumption that for each community receiving direct programmes, an additional three communities would be sensitized indirectly through conversations and meetings with community members (UNICEF, 2008).

In most cases, unit costs were only available for a limited number of countries. Where only one unit cost was available, it was converted to estimates for other countries through a formula accounting for differences in prices and salaries (World Bank, 2018). Where multiple unit costs were available, entries for each country were used, and the median was extrapolated to other countries where estimates were not available using the same formula. The analysis used constant dollars in the baseline year and did not forecast currency fluctuations.

Prevention interventions

Both men and women need to take part in community-wide efforts to shift deep-rooted norms, such as those underpinning FGM. Several projects were key to identifying the process and interventions involved. In Ethiopia, Kembatti Mentti Gezzimma (KMG) demonstrated how to meaningfully engage men in abandonment and advances in gender equality (Stern & Anderson, 2015). TOSTAN has showed how to bring about social change in a community by mobilizing members around abandonment (Diop, et al., 2004).

Community prevention and empowerment programmes involved intensive interpersonal communication, a range of mechanisms to reach target populations and training of community leaders. Practitioners helped people identify harmful norms; reflect about the extent to which they affect health, happiness and well-being; and identify and enact strategies to change them. Interventions costed comprised community-based empowerment and prevention programmes and mass media. Calculations included capacity-building and material development costs (Table A.1).

Table A.1. Prevention interventions: details and sources

Intervention	Details	Sources
Community empowerment		
Facilitator training	Daily subsistence allowance (DSA) for 1 facilitator per community for 10-day training; consulting fee (country-specific) and DSA for 2 trainers for 10 days of training and 2 days of preparation	UNFPA community partners in Ethiopia; Guinea 2017 survey on FGM; TOSTAN, Senegal
Refresher training	DSA for 2-day training per community facilitator; DSA and consultant fee (country-specific) for 2 days of training and 1 day of preparation for 2 trainers (per 25 trainees)	UNFPA team on FGM; UNFPA community partners in Burkina Faso and Ethiopia
Intercommunity meetings	DSA for 1 meeting per month for 6 months with 2 participants per community	Consultations with FGM programme implementers at UNFPA
Training: community management committees	DSA for 5-day training for 5 participants per community; DSA and consulting fee for 2 trainers (per 25 participants) for 5 days of training and 2 days of preparation	Consultations with FGM programme implementers at UNFPA
Training: religious leaders	DSA for 5-day training for 2 religious leaders per community; DSA and consulting fee for 2 trainers (per 25 trainees) for 5 days of training and 2 days of preparation	Consultations with FGM programme implementers at UNFPA
Training: district officials	DSA for 5 days of training for 30 participants; DSA and consulting fee for 2 trainers (per 25 trainees) for 5 days of training and 2 days of preparation	Consultations with FGM programme implementers at UNFPA
Community outreach		
Material	Cost per person	
Community facilitator	Monthly rate for 1 full-time facilitator per community	TOSTAN, Senegal
Community supervisor	For 1 supervisor per 10 communities: 10 per cent full-time equivalent of a supervisor	UNFPA community partner in Ethiopia
Community supervisor car and transport costs	For 1 supervisor per 10 communities: vehicle: 10 per cent of vehicle cost; fuel cost 1,467 liters per year	UNFPA community partner in Ethiopia
Mass media and social media		

Intervention	Details	Sources
Public declaration of abandonment	Cost per community based on country-specific costs	TOSTAN, Senegal; UNFPA community partners in Djibouti and Ethiopia
Radio	Resource needs model; cost per person for HIV prevention radio programming	UNAIDS resource needs model
Health provider training		
Training for health workers	DSA for 50 trainees for 5-day training; trainer fee and DSA for 4 trainers and support staff for 28 person days (5 days of training and 2 days) of preparation	UNFPA team on FGM; UNFPA community partner in Burkina Faso
Other		
Development of training material	Training materials for health workers, mobile courts, district officials, religious leaders, community management, facilitator training and refresher training,	Consultations with FGM programme implementers at UNFPA

Protection interventions

Protection programmes encompassed the development of laws and policies where no legal framework exists, along with mobile courts and capacity-building for legal personnel (Table A.2).

Table A.2. Protection interventions: details and sources

Intervention	Details	Sources
Legislation		
Drafting a bill and producing evidence-based research on social norms and FGM	1 consultant per country (cost not country specific)	Consultations with FGM programme implementers at UNFPA
Two 1-day consultation workshops	100 participants (based on cost per participant per day)	Country-level workshops in Botswana, Georgia, Indonesia, Kenya, Lebanon, and Zambia, and with the H6 joint programme (UNFPA, UNAIDS, UNICEF, WHO, UN Women, World Bank)

Intervention	Details	Sources
Advocacy among journalists	3 per country per year (cost not country specific)	Consultations with FGM programme implementers at UNFPA
Enforcement		
Capacity development workshops	2 3-day workshops with DSA for 50 participants	Consultations with FGM programme implementers at UNFPA
Mobile courts	12 visits, DSA for 1 lawyer and 1 judge	Consultations with FGM programme implementers at UNFPA

Care and treatment interventions

Care and treatment interventions were assumed to target women with FGM Type 3, and comprised psychosocial support and training for health workers on management of FGM (Kimani, Muteshi, & Njue, 2016). These interventions were assumed to be provided to women at the time of first birth (Table A.3).

Table A.3. Care and treatment interventions: details and sources

Intervention	Details	Sources
Psychosocial support	Country-specific per person cost based on individual support, group-based support, home visits, etc. Assumed to be provided to women with Type 3 **FGM at** first birth.	**FGM** survey November 2017: Mauritania, Côte d'Ivoire; HIV/AIDS Program Sustainability Analysis Tool (HAPSAT), Guyana and Sierra Leone
Capacity-building for health providers	DSA for 50 trainees for 5-day training; trainer fee and DSA for 4 trainers and support staff for 28 person days (5 days training and 2 days) preparation	UNFPA **FGM** team; UNFPA community partner Burkina Faso

Programme support costs

Programme costs cover support to ensure high-quality prevention, protection, and care and treatment interventions. These costs include programme management, supervision, monitoring and evaluation, transport, communications and safety in conflict areas. With no information on specific programme costs for FGM interventions, percentages over and above programme implementation costs from various sources were applied (Table A.4).

Table A.4. Programme support costs and sources

Cost type	Value over and above intervention costs, percentage	Sources/notes
Programme-specific human resources	1	R4D Above Service Delivery Costs Review (Clift & Chaitkin, 2016)
Supervision	2	
Transport	2	
Communications and media	1	
Monitoring and evaluation	7.5	Average of range specified by donors of 5 to 10 per cent
General programme management	12	Overhead for female genital mutilation programme implementers at UNFPA
Safety in conflict areas	1	Programme budget data; applied in countries where the United States State Department provides hazard pay
Total	**26.5–27.5**	**Variable based on safety levels**

Estimating the incidence and prevalence of female genital mutilation

Incidence

A multistage process estimated the incidence of FGM for children aged 0 to 14.

Age-specific incidence

The first step was tabulating age-specific incidence from Demographic and Health Survey (DHS) or Multiple Indicator Cluster Survey (MICS) datasets based on mothers responding to queries about whether children had been cut, and if so, at what age.

Historical time trend for reduction

The next step was calculating a historical time trend for reduction based on tabulating historical age-specific incidences for the age at which incidence is greatest. This age varies by country. In most of West Africa, incidence is greatest in children less than 1 year old. In East and North Africa, the age range is mostly 5 to 12 years old.

Intervention-specific female genital mutilation reduction

An intervention-specific reduction was calculated based on the regression described in the subsequent section.

Incidence reduction by year

A year-to-year incidence reduction at every age was calculated as the sum of the historical trend and the intervention-based reduction. The historical trend was applied at every year between the year of the latest survey and the end of the projection period.

Female genital mutilation prevalence

The age-specific prevalence of **FGM** is the sum of incidences at each age and year previous to the current year. Age-specific incidences are appropriately lagged by year(s) to assure the correct incidence is applied (Shell-Duncan, 2016).

$$Prevalence_{a,t} = \sum_{i=0}^{a} Incidence_{i,t-(a-i)}$$

"a" is the age of the girl for which we are calculating the prevalence.

"t" is the year for which we are calculating the prevalence.

The prevalence for women aged 15 to 49 is assumed not to change as a cohort ages.

Mathematically:

$Prevalence_{a,t} = Prevalence_{a-1,t-1}$ (for a >= 15)

Adult prevalence will change over time as children (where prevalence is changing) become adults.

Estimating the impact of community programmes

Estimated impact was based on the theory of social change and reductions in FGM incidence (Kincaid & Do, 2006), and was calculated as follows.

Probability that a daughter is cut

A regression calculated logistic equation coefficients used to calculate probabilities that a daughter is cut. The regression-dependent variables were women's support/non-support of FGM, average community support, and control factors including age, wealth, education, urban/rural location and religion.

Effect of programmes

The impact of **FGM** programming was assumed to largely result from changes in the attitudes of individuals leading to changes in community norms (Shell-Duncan and others, 2011). A mother's negative attitude to the practice was presumed to lead to a lower probability that her daughter will be cut. Further, a negative average community attitude towards the practice was assumed to lead to a lower probability that a daughter will be cut, independent of the mother's attitude (UNFPA, 2013). The influence of these factors is country specific.

Programme effects were quantified for direct beneficiaries and indirectly sensitized communities. The direct effect was modeled as 71 per cent (Berg & Denison, 2013) effective in changing the attitudes of supporters of FGM. The indirect effect, assumed to be via sensitization in neighbouring communities by direct beneficiaries, was modeled as 44.6 per cent effective (TOSTAN, 2017).

New probability of a daughter being cut

The new probability of a daughter being cut was calculated using the regression coefficients applied to each country dataset. Women's attitudinal changes were adjusted based on the effect sizes above to reflect influence on community support. Country-specific regression coefficients were used to model the probability that a daughter would be cut under different estimates of individual and community support. Community support changed as a result of shifts in individual support, so community levels were recalculated accordingly.

Impact of prevention programmes

The impact of the programme was calculated as the difference between the original probability of being cut minus the new probability divided by the original probability.

The calculation assumed that interventions were applied only in communities with more than 50 per cent support for the continued practice of FGM (Howard & Gibson, 2017). Appendix C documents each country in the analysis, the survey used and the percentage of communities with more than 50 per cent support. For each of the blue cells in Table A.5, a probability was calculated that a woman in a community has a daughter who has been cut. This was used to calculate overall national probabilities that a woman has a daughter who has been cut based on the coverage of the intervention (i.e., the percentage of communities with greater than 50 per cent support who receive the intervention) and the number of communities indirectly impacted. This was translated into coverage based on the coverage of the direct impact (i.e., the number of communities multiplied by the coverage of communities receiving direct impact).

Table A.5. Distribution of intervention groups

	Community receives direct impact of intervention	Community receives indirect impact of intervention	Community receives no intervention
Community has greater than 50 per cent support for continuing the practice	Interventions modelled	Interventions modelled	Interventions modelled
Community has less than 50 per cent support for continuing the practice	No interventions modelled	No interventions modelled	Diffusion effects modelled

Since girls are likely to be cut at different ages in different countries, the costing exercise used DHS or MICS surveys to identify the most probable age of cutting, designated as "a", in each country. A woman then defined as having a daughter cut was one who had a daughter or daughters cut between age "a" and five years older or "a+5". The regression included only women who had daughters between the age of "a" and "a+5".

Communities were defined as sampling clusters in the surveys. The sampling clusters were not perfect measures of communities as they do not necessarily correspond to an administrative unit, nor are they necessarily uniform in terms of ethnic or other important cultural factors. On the other hand, the clusters are groups of households close to one another. The level of support for FGM was the percentage of all interviewed women aged 15 to 49 (not just those with daughters) in the cluster who believed that the practice should continue.

The assumption is that once opinions shift, the change remains over time and does not revert to approval. Another assumption is that the intervention continues to change community norms after implementation. To reflect longer-term impacts, the analysis examined an additional generation of girls, although costs were only calculated at the time of the intervention.

The following tables provide an example of the estimated impact of a prevention programme, noting that every country and survey will have different distributions and associated probabilities.

Table A.6. (Example) Percentage distribution of intervention groups

	Community receives direct impact of intervention	**Community receives indirect impact of intervention**	**Community receives no intervention**
Community has greater than 50 per cent support for continuing the practice	2.1%	6.2%	0%
Community has less than 50 per cent support for continuing the practice			91.7%

Table A.7. (Example) Probabilities of a daughter being cut based on DHS analysis

	Community receives direct impact of intervention	Community receives indirect impact of intervention	Community receives no intervention
Community has greater than 50 per cent support for continuing the practice	0.087	0.113	0.228
Community has less than 5 per cent support for continuing the practice			0.127

The post-distribution probability will be calculated as:

0.127*91.7% + 0.087*2.1% + 0.113*6.2% + 0.228*0.0%

The percentage reduction in probability of being cut (or alternatively, the percentage reduction in incidence) is the difference between the baseline incidence and the endline incidence divided by the baseline value. In the case above, it would be the following:

%Reduction_Incidence = [Prob(pre-intervention) – Prob(post-intervention)] / Prob(pre-intervention)

Prob(pre-intervention) = 0.138

Prob(post-intervention) = 0.127

%Reduction_Incidence = (0.138 – 0.127) / 0.138 = 8%

APPENDIX B: SENSITIVITY ANALYSIS

The costing analysis was limited by a lack of data. Sensitivity analysis shed light on how assumptions could affect results, focusing on those around the indirect sensitization of communities and the duration of the effects of prevention programmes. It also considered the "herd" effects of interventions reaching communities that are not directly or indirectly sensitized, as well as costs in high-security settings (Table A.8).

Although the sensitivity analysis highlighted the importance of the assumptions made, the overall results and conclusions did not change.

Table A.8. Results from s/ensitivity analysis

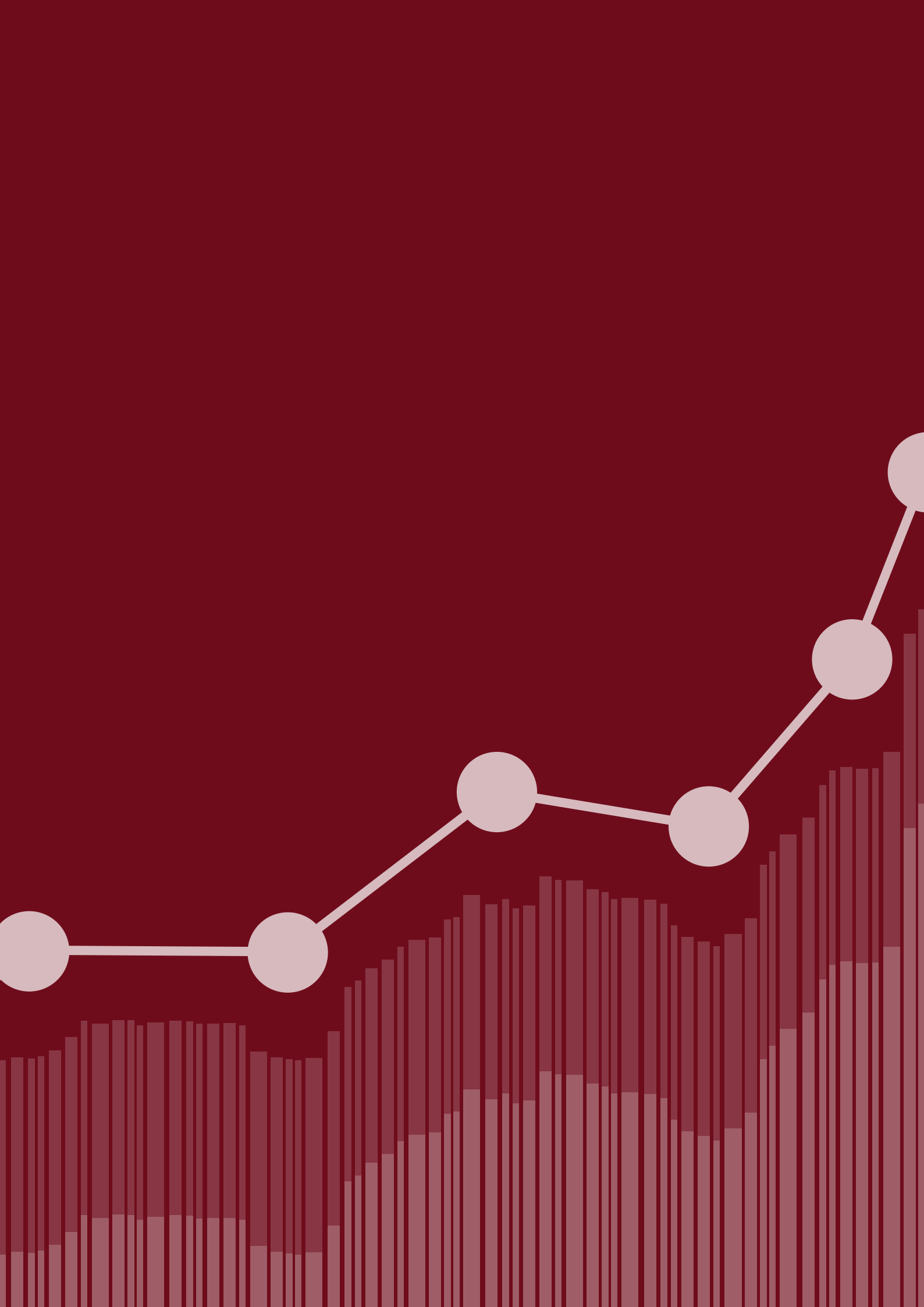
Parameter	Primary assumption	Alternative assumptions	Impact of sensitivity analysis on results
Communities sensitized indirectly	3 communities sensitized indirectly	2 communities sensitized indirectly	10 per cent fewer cases of **FGM** prevented No cost differential
Spillover effects	No impact in communities where views of FGM are already relatively negative	Spillover effects modelled in all communities	Cases of **FGM** reduced by 18 to 25 per cent more, depending on effectiveness assumed for communities not reached directly
Targets for prevention programmes	Implementing programmes in communities with more than 50 per cent positive views of FGM	All communities	Faster decline in **FGM** incidence and prevalence, higher costs, lower cost-effectiveness
Post-intervention effects	Effects of prevention programmes continue at similar levels beyond the final year of implementation	50 per cent effective No post-intervention effect	22.6 million cases of **FGM** averted 18.6 million cases of **FGM** averted
Costs of working in insecure zones	Additional 1 per cent of programme implementation costs	Additional 50 per cent of programme implementation costs	5 per cent increase in total costs

APPENDIX C: PUBLIC PERCEPTIONS AND LAWS ON FEMALE GENITAL MUTILATION BY COUNTRY

Country	Survey	Percentage of communities with >50 per cent reporting positive views of female genital mutilation	Legal framework exists
Benin	2014 MICS	0.32	Yes
Burkina Faso	2010 DHS	1.55	Yes
Cameroon*	2011 DHS	7	Yes
Central African Republic	2010 MICS	8	Yes
Chad	2014 DHS	39	Yes
Côte d'Ivoire	2011 DHS	5	Yes
Djibouti*	2006 MICS	42	Yes
Egypt	2015 DHS	71	Yes
Eritrea*	2002 DHS	46.3	Yes
Ethiopia	2016 DHS	8	Yes
The Gambia	2010 MICS	82	Yes
Ghana	2011 MICS	1	Yes
Guinea	2018 DHS	87.7	Yes

Country	Survey	Percentage of communities with >50 per cent reporting positive views of female genital mutilation	Legal framework exists
Guinea-Bissau	2014 MICS	8	Yes
Indonesia*	2016 RISKEDAS	92.4	No
Iraq*	2011 MICS	11.7	No
Kenya	2014 DHS	3.42	Yes
Liberia*	2013 DHS	39	No
Maldives	2016 DHS	4.84	No
Mali	2018 DHS	89	No
Mauritania	2015 MICS	54	Yes
Niger*	2012 DHS	5*	Yes
Nigeria	2018 DHS	12	Yes
Senegal	2016 DHS	4.3	Yes
Sierra Leone	2017 MICS	82.7	No
Somalia	2011 MICS	68	No
Sudan	2014 MICS	44.9	Yes
Togo	2013 DHS	0.1	Yes
Uganda*	2016 DHS	8.7	Yes
United Republic of Tanzania	2015 DHS	0.31	Yes
Yemen*	2013 DHS	13.1	No

*These nine countries lacked sufficient data for country-specific incidence and historic change analysis.



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