



Incorporating gender equality into GIF's impact framework

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Introduction: purpose and intended audience

The Global Innovation Fund (GIF) forecasts and measures the impact of its investments. Its Practical Impact methodology uses a single yardstick to gauge impact across all sectors and outcomes; including health, education, and livelihoods. By comparing the seemingly incomparable, GIF can consistently pursue maximum impact.

GIF invests in innovations that explicitly aim to transform unequal gender relations for women and girls living on less than \$5 per day. This requires considering a range of impacts and outcomes, including changes in social norms, rights, decision-making, and reduction in violence against women and girls (VAWG). To ensure that these outcomes are fully recognised in prioritising and tracking investments, GIF is expanding the Practical Impact framework to include agency and VAWG consistently.

This paper explains why this approach helps to promote attention to, and learning from, innovations that aim to transform gender relations and outlines a guiding methodology. The technical details of the methodology for implementing this approach are included in the appendix.

The intended audience of this note includes stakeholders who want a deeper understanding of how GIF assesses its investments in gender equality, gender experts, advocates, programme and project implementers interested in how to assess the impact of innovations for gender equality, and impact investors and donors who would like to better integrate gender equality goals into investment selection and assessment.

Plan of the paper

We start with a brief background on the [Practical Impact methodology](#) and its use in prioritising investments. This sets up the challenge of trying to assign impact measures to the diverse set of investments that promote women's equality. The next section explains why doing so is beneficial not only for GIF but also for the wider community interested in promoting gender equality. The paper next lays out a simple framework: innovations may impact people via one or more of three dimensions of gender equality: control over body, control over assets, and changes in voice and decision-making. The impacts are felt along one or more well-being outcomes. These include 'standard' well-being measures such as health, consumption, education, and also enhanced agency and reductions in VAWG. We then look at each of those classes of impacts and discuss practical methods of measuring them. The paper concludes by outlining how each measure would be 'scored' to yield an impact metric.

Background: Practical Impact

GIF invests in innovations that benefit people living on less than \$5 per day and seeks to maximise the social benefits it creates. As part of its investment decision-making, GIF forecasts the impact of candidate investments using its Practical Impact methodology (Figure 1) and prioritises investments with higher impact. GIF also uses this information to actively manage its portfolio for impact.

Practical Impact = low-income people impacted at year 10 x depth of impact x probability of success



Figure 1 Practical Impact defined

Four key features of Practical Impact underpin this approach:

- Practical Impact is a disciplined forecast of long-term impact, adjusted for risk – this focuses GIF’s attention on testing early-stage innovations that are small-scale today but have the potential to benefit very large numbers of people.
- Practical Impact focuses attention on poor people and tallies only the benefits accruing to those living on less than \$5 per day – within this population Practical Impact gives greater weight to benefits that accrue to those who are less well-off.
- Practical Impact uses a standard measure of impact for all investments.
- Practical Impact is easy to apply and aims for good-enough, order-of-magnitude accuracy rather than painstaking precision.

Practical Impact’s approach embodies value judgments (See Box 1). Of course, value judgments are inherent in *any* decision to choose investment A over investment B. Practical Impact makes those values explicit and transparent, rather than implicit and possibly inconsistent. The unit of measure a ‘person-year of income-equivalent’ (PYI) is the improvement in well-being that a person would experience if they got a one-time benefit equal to 100% of their annual consumption. Practical Impact is not used in a mechanical fashion and some aspects of an investment will defy quantification. However, Practical Impact provides a consistent jumping-off point for discussion. GIF has found it useful, for instance, in thinking about trade-offs between investments that benefit millions of people, but only a little, versus investments that profoundly benefit tens of thousands.

Box 1 How Practical Impact values different outcomes

Think of one Practical Impact unit as meaning: one person got a one-time benefit equal to 100% of her annual income (or consumption). We call this unit a person-year of income-equivalent (PYI). If 20 people each received a benefit equivalent to 5% of their annual consumption, that would also be equivalent to one PYI. Estimated monetised values of other kinds of benefits are slotted into the scale depending on their significance to an individual’s well-being. Are the benefits just barely perceptible? Significant? Transformative? Lifesaving?

Practical Impact sets weights on health, education, and financial outcomes. The method draws on long-established practice in policy analysis. Cost-benefit analysis, for instance, uses the concept of the ‘value of a statistical life’ (VSL) to assess investments in public health. VSL does not represent the inherent value of a life. Instead, it is based on the amount per person that society is willing to pay for a small reduction in the risk of death. When extrapolated to an entire population, this gives an average VSL. In Practical Impact (unlike VSL), the same value attaches to saving a life, regardless of income bracket.

Practical Impact bases its education weights on studies that causally relate earnings to education. These are applied regardless of whether the student expects to be in the paid workforce because education confers many non-financial benefits.

Examples of [Practical Impact weights](#):

- A one-year increase in income of 10% for one person = 0.1 PYI
- An additional year of good quality education = 1 PYI
- Improved health via a reduction of one disability-adjusted life-year (DALY) = 5 PYI
- A life saved = 50 PYI

A reasonable question is whether these weights are appropriate. To assess this, consider the findings of a recently commissioned survey (Redfern et al., 2019) of 1,800 low-income individuals in Ghana and Kenya commissioned by the non-profit evaluator [Givewell](#). The respondents' values are broadly consistent with the weight that Practical Impact attaches to saving a life.

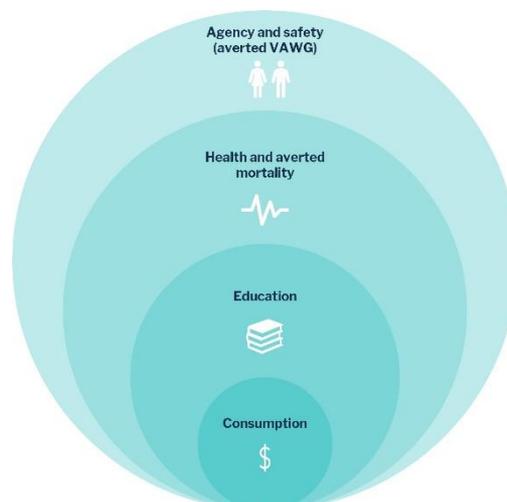
The challenge

GIF's portfolio contains numerous investments that benefit women and girls. These include innovations related to adoption of modern contraception, anaemia prevention, and time savings in water collection. GIF has applied the Practical Impact methodology to assess these innovations. GIF also invests in innovations that address a wider range of gender outcomes, such as the prevention of VAWG, greater agency for women in households and communities. These innovations may influence social power structures or social norms. Examples are shown in

Box 2.

Figure 2 shows the progress of Practical Impact in expanding the spheres of outcomes to which it attaches outcomes. In the innermost circles are standard measures of well-being: starting with consumption of food, housing, and other goods and services, and then expanding to include education and health as valued dimensions of well-being. This paper further expands the framework to encompass agency and safety as valued outcomes in themselves.

Figure 2 Expanding spheres of outcomes



Box 2 Diverse examples of innovations that aim to promote women's equality

Innovations that promote women's equality are diverse. They target different aspects of equality and use diverse approaches towards their goals.

- Option Kenya: communications campaigns to reduce female genital mutilation
- No Means No Worldwide: training programme for young girls and boys to avert sexual violence.
- Safetipin: a platform that allows women to report sexual harassment in urban areas.
- Empowerment and Livelihood for Adolescents: offering girls confidence-boosting training in vocational skills and life skills (including decision-making on sex and marriage).
- Breakthrough Taaron Ki Toli: a school-based curriculum to break gender stereotypes and shift gender attitudes in Indian government schools.
- doctHERS: a digital health platform that re-integrates excluded female healthcare providers back into the workforce via telemedicine.

Note: There is no implication of GIF consideration, endorsement, or funding of these examples and this is not an exhaustive list (No Means No Worldwide and Breakthrough are GIF investees.)

Why quantify gender equality impacts in an expanded Practical Impact framework?

Gender equality is both an important end in itself, and also a means to achieve other development outcomes. The direct and indirect benefits of gender equality may be undervalued if they are not quantified, leading to the misallocation of resources for development.

Quantification also supports a monitoring and evaluation strategy for ongoing learning about the impact and cost-effectiveness of different kinds of innovations. Yardsticks for impact help the wider community learn more about what kinds of innovations are most effective, in which contexts, with the potential to better understand the ways these investments contribute to positive change in complex social systems.

Is it feasible and acceptable to expand Practical Impact to cover gender equality approaches and outcomes?

The core of this proposal is to distil the complex, multifaceted nature of gender equality down to a single measure. Potential concerns are that the result would not be meaningful, could set up perverse incentives, and that it would, unacceptably, put a 'price' on equality. We acknowledge these concerns but think they can be addressed.

Can equality be distilled to a single measure?

The invention of the DALY indicator is an inspirational analogy that helps to answer this question. Public health officials have long grappled with the problem of setting priorities among different illnesses. The task is critical but daunting. Resources are limited, and there is a diverse range of pressing health issues, from mental health to malaria, to cancer to HIV, to diabetes. There is not an obvious way of comparing these conditions using a single yardstick.

Yet the public health community came up with a solution to the challenge of comparing the burden of illness across diseases and conditions. The burden of an illness is computed as the duration of the illness, weighted by its severity, summed over the number of people affected. Added to this is a standardised estimate of years of life lost by those with fatal conditions. The

community has standardised a severity (disability) weighting for all conditions. The total burden thus can be quantified in terms of DALYs. This allows the comparison of different health innovations in terms of impact (DALYs averted) or cost-effectiveness (DALYs averted per dollar). The DALY approach is now widely used in research, evaluation, and policymaking. The Practical Impact approach is a close analogue to a DALY, weighting life years by not only health status, but also economic and social measures.

Could an indicator result in perverse incentives?

Indicator systems can set up powerful incentives to pursue particular courses of action. Indeed, that is one of the purposes of policy-oriented indicators. If poorly constructed, indicators can create incentives to pursue ineffective or even counterproductive actions. Indicators need to be carefully assessed for this risk, in design and implementation. In the case of women's equality, however, the lack of an indicator already itself constitutes a perverse incentive. Without measurement, empowerment risks being undervalued relative to more measurable outcomes. Without a guiding methodology for measuring outcomes, it is more difficult to pursue cost-effectiveness or assess results.

Is it acceptable to put gender equality in an economic framework?

Advocates of improved health, education and environment have learned that attaching economic values to these outcomes helps to galvanise attention and shape policy. For instance, the widely used Human Development Index highlights that development is about more than just income. Under the index, a 10% increase in life expectancy is valued as much as a 10% increase in per capita income. The System of Environmental Economic Accounting expands Gross National Product (GNP) accounting to recognise the value of ecosystem services, and to reckon the economic costs of pollution, deforestation, and greenhouse gases (Hein et al., 2020).

One way to put gender equality into an economic framework is by assessing the cost of inequality. For instance, the World Bank estimates the global cost of gender inequality in earnings to be \$160 trillion per year (Wodon & de la Brière, 2018). Many assessments of Sustainable Development Goal 5, achieve gender equality and empower all women and girls, quantify the economic costs of inequality (Wodon & de la Brière, 2018). Duvvury et al. (2020) posit that "Cost estimates of VAWG can be a powerful tool in achieving [the elimination of VAWG] by incentivizing countries to actively address violence, develop realizable strategies, and ensure allocation of adequate resources."

There is literature that estimates the economic costs of VAWG based on different methodologies (Duvvury et al., 2020; Morrison & Orlando, 2004; National Center for Injury Prevention and Control, 2003). These methodologies range from simple accounting of costs to individuals to estimating the impact on the overall economy. In all cases, authors acknowledge that the economic accounting of costs is not comprehensive, there are unquantified social and psychological costs. However, the magnitude of what is in fact measurable helps to draw attention to the burden of gender inequality and provides some indications for priority setting.

Adapting Practical Impact to cover gender equality approaches and outcomes

Influenced by Canada's Feminist International Assistance Policy, GIF seeks to promote equality through innovations that:

- Enhance **voice**, participation, and decision-making among women and girls.
- Increase control over **body**, health, and freedom from violence for women and girls.
- Provide women and girls access, control, and ownership of **assets**.

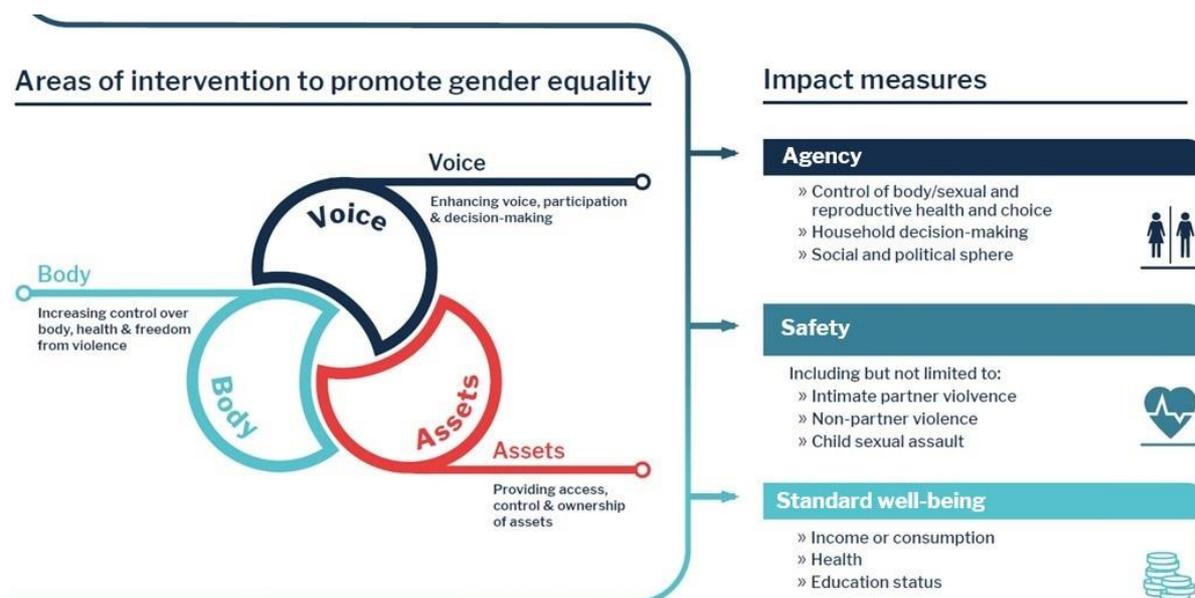
Figure 3 presents this in a framework that includes the measurement approach. Innovations operate through one or more of the areas of interventions to promote gender equality: voice, assets, and body, as described and situated on the left of the figure. These areas of innovation promote equality by supporting women's social and economic empowerment. 'Transformative' innovations do so by directly addressing structural barriers to gender equality¹.

Potential impacts of innovations are shown on the right of the figure. If successful, the innovations will impact one or more of the following:

- **'Standard' well-being**: measures of well-being that include income, consumption, health, and education.
- **Agency**: measures broadly understood to mean women's ability to formulate goals, make choices, and pursue those choices – there are different degrees of agency across different domains.
- **Safety**: measures include incidence and severity of VAWG.

We convert these impact measures into the Practical Impact methodology as part of the 'Depth' of impact of the innovation. Some of these impacts may arise quickly; others may take years to emerge. An important feature of this framework is that agency and safety are both means to achieve other benefits, and ends in themselves.

Figure 3 Framework linking areas of innovations and impact measures



¹ These 'transformative' innovations are distinct from GIF's many investments that may affect women and girls, but do not directly address structural barriers to gender equality.

Bridging rights-based and utilitarian approaches

Practical Impact is a utilitarian framework – it focuses on the well-being of individuals. In economists' parlance, higher income leads to more consumption, which results in higher utility. Practical Impact expands that framework by considering that health and education add utility both as ends in themselves and as a means to future income. Scores (in PYI units) are attached to changes in income, education, or health, on a scale from zero (no change) to 50 (a life saved)².

By expanding Practical Impact's scope to include agency and VAWG, we are translating a rights-based view of the world into a utilitarian one. In a rights-based framework, living in a community with enhanced agency, voice, or safety for women and girls provides benefits for all individuals, not only the women and girls directly impacted by changes in their personal circumstances. Including gender outcomes in Practical Impact requires accommodating the potential impacts that occur at the level of systems and social structures in an approach that assigns benefits to individual people 'reached'.

Systems change in Practical Impact

Gender-transformative innovations aim at systems change. They may seek, for instance, to bring about changes in legal rights or in social norms. How can impact at the systems level fit into the utilitarian framework?

Practical Impact registers systems change as a widespread, meaningful, and persistent improvement in the lives of those who inhabit the system. Systems change is evident when:

- A large proportion of the system's members have benefited (high breadth).
- The impact per person is meaningful (significant depth).
- The impact is persistent (high probability of long-term sustainability).

In practice, this encourages a bottom-up approach to understanding impact that helps in thinking through the theory of change and the timing and sustainability of impact.

For example, a one-time training in self-confidence that decays over time would not lead to enduring systems change or substantial Practical Impact. Likewise, a formal expansion of women's legal rights, while desirable, may or may not lead to significant or systems-level change, depending on the context. A legal change that is accompanied by enforcement mechanisms or political leadership is more likely to achieve breadth, depth and persistence.

The Practical Impact approach also helps us understand the dynamics and impact of innovations that aim to bring about transformative change by altering social norms. Such an innovation might work by changing women's and men's attitudes; their perception of their community's attitudes; and their beliefs about how others will enforce the norms. The innovation might not have a strong impact on agency, behaviour, or well-being until there is a tipping point in the proportion of the population that subscribes to the norm. At that point, the norm, and its impact, become self-reinforcing. This is a key marker of systems change. Practical Impact would accord a higher likelihood of long-term impact to this kind of innovation, as opposed to one that required indefinite funding to remain effective.

² Innovations that caused harm would incur a negative score.

Including impact on men and boys in Practical Impact

Often the pathway to enhancing women's and girls' agency, and to reduced VAWG, is through changing attitudes and behaviour of men and boys. This can determine whether social norms support or oppose women's equality.

In Practical Impact, this pathway is currently implemented as a means to an end – we treat it as enhancing women's agency and/or reducing the burden of VAWG. It does so in the short to medium run, as changed attitudes by men and boys result in increased agency for partners, sisters, and daughters. Longer-term, as the proportion of men with these attitudes increases, there could be a tipping point where social norms shift towards greater agency for women.

In principle, consistent with a rights-based approach, these innovations could also provide a direct benefit to men and boys. It could improve their own agency, in a personal and socially beneficial way, by releasing them from constraints imposed by traditional gender roles.

Measurement and scoring in Practical Impact

Part of what makes Practical Impact practical is that it does not dictate specific measurement methods. Practical Impact fits available measurements into a general framework. For instance, in forecasting the impact of an income-boosting agricultural innovation, GIF's analysts look to the literature to establish reasonable expectations for the potential gain in farm profits. GIF then works with the investee to measure achieved income gains. For a large investment where understanding the impact is crucial to scaling, this might involve a sophisticated Randomised Controlled Trial with an elaborate household survey questionnaire. In other cases, simple income proxies might be used with case-control comparisons.

Measurements, sophisticated or simple, are then translated into Practical Impact scores based on established weights. For instance, a one-time, 10% gain in a household's farm profits, in a household that derives half its income from farming, results in a gain of .05 PYI per person on average. The key parameters here – profit gain, total household income, and household size – may be known with more or less precision. Practical Impact practice would note the degree of uncertainty associated with a forecast or measurement.

Impacts

As described earlier, the gender elements of Practical Impact consist of three groups of impacts:

- 'Standard' well-being measures: consumption, education, health
- Agency
- VAWG

It is possible to choose to quantify any or all of these in terms of social value generated, depending on the appetite of the analyst/funder and the availability of data and plausible estimates of the value of the depth of impact at scale.

'Standard' well-being measures: consumption, education, health

Innovations that promote gender equality could improve many aspects of well-being. For example, initiatives that enhance rights by deterring child marriage are expected to result in

improved fertility outcomes, nutrition, health, education, labour, and earnings (Wodon et al., 2017).

There is immense and highly technical literature on the measurement of well-being. Practical Impact takes a simplified approach based on available information. Practical Impact is expressed relative to the beneficiary's consumption level. A 10% increase in a beneficiary's consumption level, for just one year, receives a Practical Impact score of 0.1 PYI. An innovation that results in a permanent 10% increase going forward, for example from training, or land improvement, would be recorded as conferring 1.0 PYI.

A relative yardstick is convenient for the analyst, who might have a better intuition about relative benefits than absolute dollar benefits. It might approximate the beneficiary's internal yardstick for gauging the size of the benefit. It deliberately focuses GIF's attention on the poorest, since a \$1 per day increase will register as more important for a beneficiary living on \$2 per day versus one living on \$5 per day.

Education has many benefits, but the most prominent is its impact on earnings. This provides a natural linkage to the Practical Impact scale, anchored as it is to consumption. Where there are important indirect effects of education, such as reduced fertility or child mortality, these can be reckoned in addition. This approach does not try to quantify the potentially important non-financial benefits of education including enhanced agency. A review of the literature suggests a value of 1 to 1.5 PYI for each additional year of education with higher values for girls and sub-Saharan Africa.

Based on a review of the health economics literature, Practical Impact assigns a value of 5 PYI for each DALY averted and 50 PYI for each death averted (regardless of the age of the beneficiary).

Agency measures

We use 'agency' in a broad sense as closely akin to empowerment. Most of the definitions of agency are derived from the work of Sen (1985) and Kabeer (1999) that describe agency as freedom of choice. Alsop et al. (2005) define agency as the existence of choice, use of choice and subsequent achievement of choice. More recently Donald et al. (2020) refine this as the ability to set goals based on one's own values, one's own perception of being able to achieve the goals, and the ability to act towards the goals. The ability to act, in turn, depends on one's ability to participate in decision-making.

Women exercise agency (or do not) over many kinds of decisions in many contexts, such as household business, child care, health care etc. For instance, the Women's Empowerment in Agriculture Index³ assesses women's decision-making authority over a wide range of different assets such as small and large livestock, poultry, mechanised and non-mechanised equipment, and so on. The challenge for Practical Impact is to set up a framework that would appropriately weight a small change in one aspect of decision-making versus a wider change in several aspects.

³ <http://weai.ifpri.info>

Domains of agency

The solution proposed here is to nominate the following domains of agency:

- *Control of body/sexual and reproductive health.*
- *Household decision-making.*
- *Social decision-making and political participation.*

Each of these domains represents an important aspect of life and empowerment. There is overlap between the domains, but they are relatively distinct and may align well with different types of innovations. For any of these domains, progression from no agency to full agency would be transformative. This leads to our general approach to placing value on a measured change of agency:

1. Find a locally appropriate scale for measuring agency along a targeted domain.
2. Normalise the scale so that 0 = no agency and 1 = full agency.
3. Forecast the measured change in agency due to the innovation.
4. Multiply by the value weight assigned to a change from no agency to full agency.

For instance, suppose an innovation boosted a woman's agency in household decision-making from an initial level of 0.50 to reach 0.75, on a scale where 0 means no agency whatsoever and 1 means full agency. Suppose the value weight attached to agency in this domain is 10 PYI. Then the innovation would have an imputed impact of 2.5 PYI.

Below we first discuss the general problem of finding agency measures and then discuss each of the three domains in more detail.

Agency measures

A great deal of thought has gone into devising survey instruments for measuring agency and participation in decision-making. The Evidence-based Measure of Empowerment for Research on Gender Equality (EMERGE) project⁴ has compiled an exhaustive, critically reviewed collection of these instruments. Yet these are mostly focused on specific aspects of agency or localised context. There is currently no accepted, comprehensive measurement approach. Therefore, we focus on developing instruments that can represent each of the domains noted above, relying, if possible, on those that have been more widely used.

For adult women, the Demographic and Health Survey (DHS) provides a well-tested, standardised set of questions across a range of topics. Because the survey has been widely deployed in developing countries over a long period of time, there is ample data to provide a baseline in most places. This approach makes extensive use of DHS data. We create indexes of a range of outcomes to capture the multiple facets that make up, or proxy for control of body, exercise of choice, decision-making, and participation. The extensive database also allows impact forecasts to put *ex-ante* bounds on expected impact, and sense check claims made about impact. For example, one might compare the value of variables in neighbouring countries. If the proportion of married women stating that they have equal or greater control

⁴ A collaborative project between the Centre on Gender Equity and Health and the University of California San Diego on gender equality and empowerment measures in multi-country settings: <http://emerge.ucsd.edu>

over household finance is 46% in Tanzania, it might be realistic to aspire to the level achieved in Uganda (64%) in the medium run, with levels above that as a stretch goal.

The following examples are cases of well-tested instruments relevant to these domains. These may be used directly in the course of implementation, or they may serve as examples of the kind of customised instruments that an investee might deploy. We stress that all instruments will have weaknesses and omissions. For instance, a measure of women's decision-making authority over certain household matters might fail to flag women who are happy to delegate that aspect of decision-making. Glennerster et al. (2018) stress the desirability of customising a measurement instrument to a specific context.

Control of body/sexual and reproductive health and choice

This is defined as choice and autonomy in the following decisions related to women's bodies:

- Contraception
- Sexual activity and partners
- Fertility (number and spacing of children)
- Menstrual management and hygiene
- Healthcare

As an example of how an index could be constructed, consider the DHS data that is available. There is cross-country panel data on topics such as:

- Ability to refuse sex from husband/partner; and/or ability to ask him to use a condom.
- Contraceptive decision making.
- Unmet need for contraception (based on whether the woman desires to contracept but is not using contraception).
- Menstrual collection method, and privacy.

A different instrument is required for adolescents. Options for this include measures of early marriage and fertility as there is substantial literature indicating that early marriage and early childbearing have enduring impacts on women's agency and well-being.

Household decision-making

This is defined as choice and autonomy in the following, related to women's household decisions:

- Childcare, including health and education.
- Household expenditure.
- Decision-making in business and farming.
- Control/decision-making over a bank account.
- Freedom of movement.
- Choice in partnership, including choices related to getting married and/or divorced.
- Ability to choose whether or not to engage in employment/self-employment.

There are a few standard measures that try to capture decision-making choices. Again, the DHS provides a battery of well-tested and widely used questions from which an index can be constructed. However, there may be instruments that are well-suited for particular contexts or places. The Women's Empowerment in Agriculture Index is an example of a detailed and comprehensive instrument that addresses empowerment in a specific context.

Social and political participation and civil rights

This domain includes:

- Participation and decision-making at the community level.
- Participation and decision-making in elected office.
- Scope and exercise of legal rights (land rights, family law, inheritance).

There are psychometric instruments that assess women's self-perceived agency to participate in community and civic affairs. These can be complemented, or substituted, by measures of actual civic participation. This includes political leadership and participation in elected office. This domain of agency also relates to the role of social and community participation as collective action and agency for women (Evans & Nambiar, 2013).

In addition, we interpret critical legal rights through the lens of expanding women's ability to make decisions and influence outcomes. These include the ability to access justice, and the ability to make choices about divorce, childcare, land, and inheritance. Conferral of formal rights is one step towards these abilities. For the purposes of Practical Impact, what counts is the extent to which these formal rights are exercised in practice (or are forecast to be).

Unlike widely used DHS instruments on decision-making, political, legal and community level agency measures are less investigated. There are a few examples, including OECD's Social Institutions and Gender Index (2020) which has country-level questions on women's political action and access to justice. An example at the individual level is the World Values Survey (2014) that has a question on political action and for the African context, Afrobarometer (2018) also has a question on women's political participation. For Practical Impact, we will have to review available measures on a case by case basis.

Generalised self-efficacy

Agency enters into every sphere of life. For innovations that aim to boost efficacy in general, rather than in a particular sphere, it may be appropriate to forecast and measure the impact on a generalised measure of efficacy. The generalised self-efficacy scale of Schwarzer and Jerusalem⁵ is a widely used instrument (with approximately 6,000 citations in Google Scholar) that captures self-confidence in problem-solving. This may be complemented with measures of locus of control (am I in control of my outcomes?) of autonomy (whether a woman's actions arise from her intrinsic values or are motivated instead by a desire to avoid punishment or seek a reward)⁶. In addition, a plausible correlate of self-efficacy is the rejection of restrictive norms on gender roles.

For Practical Impact, generalised self-efficacy can be a proxy of agency measures across the three domains, particularly when there is a lack of domain-specific measures. Self-efficacy may be taken as a proxy of one (or all) of the domains.

⁵ <http://emerge.ucsd.edu/measure-gses/>

⁶ See the Relative Autonomy Index <http://emerge.ucsd.edu/measure-rai/> However Donald et al (2017) suggest that autonomy is better measured when respondents are presented with vignettes, rather than with abstract questions. This makes for a longer, more complex survey. A deeper problem is that 'intrinsic' values are shaped by social norms. However, some social norms disempower women. GIF has been challenged to support innovations that reshape those norms.

Lifecycle approach to innovations that promote gender equality

Agency is supported differently at different ages for women. Innovations aimed at girls can lay the foundation for the expression of agency as adults. For these innovations, we need to use proxies that relate measured changes in children’s knowledge, attitudes, or behaviour to predicted future impacts on their agency. Table 1 outlines a few examples of how different innovations at different ages throughout the lifecycle of women and girls can be captured in Practical Impact’s agency measures.

Table 1 *Lifecycle approach to gender innovations*

Lifecycle phase:	Type(s) of innovations:	Type(s) of short-term impact:	Measurement proxies
Early Childhood	Edutainment (media designed to educate through entertainment)	Early formation of gender attitudes and roles	Use early gender attitudes as a proxy for long term agency outcome gains based on local/external evidence
Primary/Upper primary school	School-based innovations	Pre-adolescent formation of gender attitudes	Use early gender attitudes as a proxy for long term agency outcome gains based on local/external evidence
Secondary school	Adolescent innovations (school-based or community based)	Early pregnancy, early childbearing, education, attitude, VAWG outcomes	Use intermediary outcomes of marriage, childbearing
Post-education	Adult women’s empowerment programmes	Agency, community participation, income, VAWG and other well-being outcomes	Use specific agency outcomes as a proxy for agency domains

Safety measures of reduction in exposure to violence

The United Nations Declaration on the Elimination of Violence against Women defines violence against women as “any act of gender-based violence that results in, or is likely to result in, physical, sexual or psychological harm or suffering to women, including threats of such acts, coercion or arbitrary deprivation of liberty, whether occurring in public or in private life”(United Nations Statistics Division, Demographic and Social Statistics, 2014).

Practical Impact attaches a large value to a reduction in VAWG, encompassing all aspects of enhanced safety, including economic, health-related and psychological. As in the case of agency, this involved measurement (or forecast) of VAWG reductions and assignment of Practical Impact value weights to those quantified outcomes.

Instruments for quantifying VAWG

Surveying women on VAWG is a sensitive task, but researchers have developed instruments and appropriately sensitive techniques for eliciting responses. The DHS has a comprehensive

module on intimate partner violence as well as other VAWG modules, including Female Genital Mutilation (FGM). In addition to the DHS, there are a few surveys that specifically focus on VAWG.

VAWG measures can capture the incidence of violence in a population; the duration, frequency, nature and exposure to violence for victims, as well as their characteristics (for example, adolescent versus adult); and the outcomes experienced. Based on these considerations we can assess the severity of violence and relate it to impact. The UN guidelines for statistics on VAWG advocate measuring severity and outline the definition of moderate to severe episodes of violence (See Table 2). A survey of intimate partner violence (IPV) in Ghana (Asante et al., 2019) distinguished low, medium, and high severity based on the frequency of physical, economic, sexual, and psychological abuse.

Table 2 Definition based on UN for Statistics on Violence against Women (2014)

Severity	Definition
Moderate	<ul style="list-style-type: none"> • Acts that did not result in bruises, cuts, broken bones, miscarriage, and/or a need for medical treatment or hospitalisation. • Acts that did not cause the woman to be afraid of her partner or to fear for her life.
Severe	<ul style="list-style-type: none"> • Acts that did result in bruises, cuts, broken bones, miscarriage and/or need for medical treatment or hospitalisation. • Acts that did cause the woman to be afraid of her partner and/or to fear for her life. • Acts that did take place when the woman was pregnant.

Assessing the impact associated with VAWG

The What Works project⁷ has developed and applied methods for assessing the costs of VAWG. Duvvury et al. (2020) distinguish psychological, physical, sexual and economic dimensions of harm, via IPV and non-partner violence and associated costs. These include:

- Economic costs, including women’s lost income due to absence from work; medical costs for treatment of harm due to violence (borne by the woman and by the state); lost productivity for the economy; lasting impacts on children and their productivity.
- Mortality and morbidity.
- Social costs, including diminished quality of life and eroded social capital.

Quantification of economic costs has attracted the most attention because it is easiest to measure and thought to be salient to policymakers. But economic costs are an underestimate of the total burden. Although difficult to quantify, the burden of pain and suffering, emotional and psychological costs and loss of quality of life looms large.

A study in Ghana(Asante et al., 2019) found that one fifth of women reporting IPV had had suicidal thoughts, and nearly two-thirds of those women attempted suicide. A statistical study in Pakistan(Ghaus et al., 2019) found that women experiencing IPV reported higher levels of depression (.587 on a scale of 0 to 8) and higher reports of suicidal thoughts (9.4 percentage points higher) and suicide attempts (3.4 percentage points higher), compared to otherwise similar women. In Practical Impact terms, avoiding a year of severe depression would be reckoned as a benefit of approximately 2.5 to 3 PYI – this is equivalent to 250% to 300% of annual per capita consumption.⁸ Avoiding a year of mild depression would be reckoned at

⁷ What Works to Prevent Violence <https://www.whatworks.co.za>

⁸ In the Global Burden of Disease framework, the DALY associated with a year of severe anxiety or depression associated with suicidal thought ranges from 0.52 to 0.66. The Practical Impact framework gives a weight of 5 to each DALY avoided.

70% of annual per capita consumption. Preventing a suicide would be reckoned as a benefit of 5,000% of annual per capita consumption. So, in the Practical Impact framework, the mental health benefits of reducing VAWG by themselves dwarf the economic benefits, which are already large.

Assigning Practical Impact weights to reducing harm from VAWG

Whether (or how) to assign weights to VAWG outcomes is the most difficult challenge of this exercise. It revolves around the question of whether (or how) to distinguish among different types, severities, and frequencies of violence. There is substantial variation in women's experience of VAWG along these dimensions, but there does not appear to be a standard index for weighting severity or frequency. However, there is evidence that more severe and chronic experience of VAWG is correlated with worse outcomes. For instance, Heise et al. (2019) categorise exposure to psychological abuse as 'none', 'moderate' and 'high' based on frequency, and find that more frequent abuse is associated with much higher odds of suicidal ideation, mental distress, and difficulties with daily activities (see appendix). According to Heise and Hossain (2017), "Research from multiple settings confirm that, on average, women who have experienced only acts of moderate physical violence experience fewer long-term health consequences and less injury than those who experience at least one of the severe acts."

The above review of VAWG impacts points to a way to assign weights to VAWG prevention in Practical Impact. The approach is based on a simple typology: FGM, IPV, and non-partner violence. The latter two categories are subdivided into moderate and high severity considering the nature and frequency of the violence. Weights would be increased for the prevention of violence against children. The weights take into account the broad range of benefits from preventing VAWG, across mental and physical health, and inter-generationally.

We express reductions in VAWG as increases in 'safe life-years', building on a concept introduced by Every Woman Treaty. We extend the concept by adjusting safe life-years gained by the severity of violence averted. A severity measure can be based on the definitions of moderate and severe VAWG recommended by the UN Statistics Division (2014). Analogous to the way that DALYs are defined, severity can be defined as ranging from 0 = no violence; no physical, emotional or psychological harm to 1 = severe violence; leading to physical harm (injuries and hospitalisation), violence leading to fear for life and causes risk of death. Severity-adjusted safe life years are then converted to PYI based on a value weight.

An important special case is the prevention of child marriage. This can be viewed as severe and extended VAWG. In addition, child marriage is a risk factor for an enduring restriction on agency. For this reason, a large, fixed weight is assigned to each case of child marriage averted.

Putting it together – applying the Practical Impact framework

In summary, the proposed procedure for predicting the impact of an innovation promoting gender equality is as follows:

Breadth:

For each area of measurement, we predict the breadth of impact: the number of women who experience a benefit in that area of measurement due to the innovation (compared to a counterfactual without the innovation).

Depth:

1. Identify the channels by which the innovation would affect three areas of measurement: agency, safety, and 'standard' measures well-being.
2. For each area of measurement, forecast the depth of impact per person according to an innovation-specific meaningful and relevant measurement instrument. For instance: what is the expected change in a measure of generalised self-efficacy, or years of education? In Practical Impact this is done with evidence at hand. In some cases, there is good-quality prior evidence, from the innovator's own experience or systematic evidence reviews. In other cases, the forecast is judgmental, intending to eventually generate evidence that will validate or revise the forecast.
3. Apply a conversion factor (value weight) that relates forecast or measured impact (in consumption, agency measure, VAWG frequency, etc.) into PYI units. These ultimately reflect value judgments.

Probability of success:

Estimate what is the likelihood of the innovation succeeding to have the estimated 'depth' impact for the estimated 'breadth' of beneficiaries impacted.

The procedure is detailed in Table 3.

Dealing with multiple categories and measures of impact

A key feature of this framework is its recognition of agency as a valuable end in itself. It directs attention to innovations that result in both income and agency gains, as opposed to those that only boost income. But, as the preceding discussion makes clear, both the concept and measurement of agency are multi-faceted and complex. Agency can be a means as well as an end. Some measures can be viewed as leading indicators of other outcomes.

The following rules are adopted:

- The weights attached to avoided VAWG are viewed as encompassing health effects. That is, direct health benefits of avoiding injury are not also counted separately.
- Education is not a proxy for agency but may be used *ex-ante* as a predictor of agency benefits. For instance, an investment that intends to boost girls' secondary school attendance might be predicted to reduce early marriage. Those predictions would be translated into forecast impact in PYI terms. *Ex post*, the achieved levels of education and early marriage reduction would be measured and translated to PYI terms.

Agency in the wider context

This note has argued for the importance of recognising agency as an important benefit for women. But women are not the only group facing restrictions on agency. Marginalised groups, the disabled, ethnic minorities, and the ultra-poor face similar challenges. The procedures outlined here will help to elevate attention to investments that improve agency for these groups.

A detailed exposition of the methodology

This note is accompanied by a detailed technical annexe on how the expansion of well-being measures can be incorporated into Practical Impact methodology. The technical annexe provides an in-depth description of both the methodological steps, as well as the value weights used for agency and safety.

Methodology for calculating Practical Impact

The following table outlines the gender-inclusive approach towards Practical Impact calculations for the different impact outcomes of innovations that GIF funds

Table 3 Tentative methodology

Impact area	Sub-area	Breadth of impact Blue denotes breadth of impact	Depth of impact per person measurement Red denotes depth of impact	PYI calculation of impact incorporating value weight (note: Δ denotes the change due to the innovation) Bold denotes a value weight parameter	Value weight parameters (PYI)
'Standard' measures of well-being	Income or consumption	Number of people with increased income or consumption	Δ Consumption/Total Initial consumption	$PYI = \text{people} * \Delta \text{ Consumption/Total Initial consumption}$	Consumption measured in \$ or equivalent
	Education	Number of children with increased education	Δ years of schooling	$PYI = \text{children} * \Delta \text{ years of schooling} * \text{education value weight}$	Additional year of education weight = 1
	Health	Number of people experiencing improved health	Δ (DALYs/person) (morbidity) or Death averted (yes/no) (mortality)	$PYI = \text{people} * \Delta \text{ (DALYs/person with improved health)} * \text{DALY weight}$ $PYI = \text{people with averted death} * \text{life saved weight}$	DALY weight = 5; Life saved weight = 50
Agency	Control of body/sexual and reproductive health (women)	Number of women experiencing enhanced agency	Δ Normalised agency index See note on normalization Each domain will have its own index	$PYI = \text{women} * \text{Normalised agency index} * \text{Agency weight}$	Agency weight = 10; Agency weights could differ by domain
	Household decision-making	Number of women benefiting	Δ Normalised agency index See note on normalization Each domain will have its own index	$PYI = \text{women} * \text{Normalised agency index} * \text{Agency weight}$	
	Community and political participation and exercise of rights	Number of women benefiting	Δ Normalised agency index See note on normalization Each domain will have its own index	$PYI = \text{women} * \text{Normalized agency index} * \text{Agency weight}$	
Delay in child marriage	N/A	Number of adolescent girls who delay marriage or childbearing	Marriage delayed (yes/no)	$PYI = \text{girls with delayed marriage} * \text{delayed marriage weight}$ Or $PYI = \text{girls with delayed childbearing} * \text{delayed childbearing weight}$	Delayed marriage weight = 15
Safety	N/A	Number of women who avoid VAWG per year or number of VAWG survivors receiving assistance that mitigates impact of violence	severity index of averted violence	$PYI = \text{Number women who avoid VAWG per year} * \text{severity index} * \text{safe life year weight}$	Safe life year weight = 10

Conclusion

GIF's Practical Impact aims to ensure that gains in women's and girls' agency, and reductions in VAWG, are appropriately recognised and accounted as impacts of gender-transformative investments. We hope that this tool will allow GIF and others to direct more resources to the most impactful ways to promote gender equality.

Abbreviations

DALY	disability adjusted life year
DHS	Demographic and Health Surveys
FGM	female genital mutilation
IPV	intimate partner violence
PYI	person-years of income equivalent
SIGI	social institutions and gender index
VAWG	violence against women and girls
VSL	value of a statistical life

Definitions

Gender equality: Gender equality is the state in which rights, responsibilities and opportunities for people are unaffected by gender (UN Women Gender Equality Glossary)(Raj et al., 2017). This is the outcome of agency and empowerment gains amongst women. Determination of inequality is not based on the preference of the individual assessed, but objective assessment of objective researcher, if the situation is better for both men and women and if the situation is more just or moral (Sen, 2002) (Sen, 2002).

Empowerment: Empowerment is most notably defined by Kabeer (1999) as "the process by which those who have been denied the ability to make strategic life choices acquire such an ability". There is a wide range of components of empowerment. Kabeer (1999) encompasses resources, agency and achievements. King & Mason (2001) includes rights, resources and voice as three components related to gender equality. Hence, there is variability in what is included within the broader concept of empowerment. EMERGE defines gender empowerment as a " process (that) is based in a means of change that alters the positioning of those in a lesser position due to their gender (including women and transgender individuals) to allow for autonomy and self-determination".

Agency: Agency of course is at the heart of conceptualising empowerment, where we assume empowerment subsumes agency. Yet, many researchers define agency as akin to empowerment. For instance, Ibrahim and Alkire (2007) outline measurements of agency as also indicators of empowerment. This is because the two terms are quite closely related and that "expansion of agency" is the definition of the process of empowerment. If "institutional" factors that might be barriers to "realise" agency are removed from the definition of empowerment, empowerment becomes closely akin to individual or collective agency (Samman & Santos, 2009). Particularly, when we expand the concept of agency to incorporate, ability to choose, to set goals and to act on choices.

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Technical Note

Incorporating gender equality into GIF's Practical Impact Methodology

Introduction

The following technical note provides a detailed exposition on how the expansion of well-being can be incorporated into the Practical Impact methodology. This is an accompanying annexe to the main paper that outlines theoretical underpinnings as well as GIF's framework to expand Practical Impact to incorporate gender equality outcomes. This note provides an in-depth description of the methodological steps, and the value weights used for agency and safety.

Methodology for calculating Practical Impact

The following table outlines the gender-inclusive approach towards Practical Impact calculations for the different impact outcomes of innovations that GIF funds.

Table 1 Tentative methodology

Impact area	Sub-area	Breadth of impact Blue denotes breadth of impact	Depth of impact per person measurement Red denotes depth of impact	PYI calculation of impact incorporating value weight (note: Δ denotes the change due to the innovation) Bold denotes a value weight parameter	Value weight parameters (PYI)
'Standard' measures of well-being	Income or consumption	Number of people with increased income or consumption	Δ Consumption/Total Initial consumption	$PYI = \text{people} * \Delta \text{ Consumption/Total Initial consumption}$	Consumption measured in \$ or equivalent
	Education	Number of children with increased education	Δ years of schooling	$PYI = \text{children} * \Delta \text{ years of schooling} * \text{education value weight}$	Additional year of education weight = 1
	Health	Number of people experiencing improved health	Δ (DALYs/person) (morbidity) or Death averted (yes/no) (mortality)	$PYI = \text{people} * \Delta \text{ (DALYs/person with improved health)} * \text{DALY weight}$ $PYI = \text{people with averted death} * \text{life saved weight}$	DALY weight = 5; Life saved weight = 50
Agency	Control of body/sexual and reproductive health (women)	Number of women experiencing enhanced agency	Δ Normalised agency index See note on normalisation Each domain will have its own index	$PYI = \text{women} * \text{Normalised agency index} * \text{Agency weight}$	Agency weight = 10; Agency weights could differ by domain
	Household decision-making	Number of women benefiting	Δ Normalised agency index See note on normalisation Each domain will have its own index	$PYI = \text{women} * \text{Normalised agency index} * \text{Agency weight}$	
	Community and political participation and exercise of rights	Number of women benefiting	Δ Normalised agency index See note on normalisation Each domain will have its own index	$PYI = \text{women} * \text{Normalised agency index} * \text{Agency weight}$	
Delay in child marriage	N/A	Number of adolescent girls who delay marriage or childbearing	Marriage delayed (yes/no)	$PYI = \text{girls with delayed marriage} * \text{delayed marriage weight}$ Or $PYI = \text{girls with delayed childbearing} * \text{delayed childbearing weight}$	Delayed marriage weight = 15
Safety	N/A	Number of women who avoid VAWG per year or number of VAWG survivors receiving assistance that mitigates impact of violence	severity index of averted violence	$PYI = \text{Number women who avoid VAWG per year} * \text{severity index} * \text{safe life year weight}$	Safe life year weight = 10

Agency metrics

Tentative agency weights

As noted in the main report, value weights are value judgments. We make the following tentative assignments. They will be re-evaluated over time based on feedback and experience.

Domain	Sub-domain	Value weight for conversion to PYI
<i>Control of body/sexual and reproductive health - decisions about and actions on</i>	<ul style="list-style-type: none"> • Contraception • Sexual activity and partners • Fertility (number and spacing of children) • Menstrual management and hygiene 	Agency weight _{body} = 10 PYI
<i>Household decision-making</i>	<ul style="list-style-type: none"> • Childcare including health and education • Household expenditure • Decision-making in business and farming • Control/decision-making over a bank account • Mobility • Choice in partnership – marriage and divorce • Ability to choose whether or not to engage in employment/self-employment 	Agency weight _{household} = 10 PYI
<i>Social decision-making, political participation, and civil rights</i>	<ul style="list-style-type: none"> • Participation and decision-making at the community level, including self-help groups, community financial services. • Participation and decision-making in elected office • Scope and exercise of legal rights (land rights, family law, inheritance) 	Agency weight _{social} = 10 PYI
<i>Delayed marriage</i>	<ul style="list-style-type: none"> • Delayed marriage provides agency benefits among all the above domains. See discussion below. 	Delayed marriage weight = 15 PYI

Normalisation of agency indexes

For each of the agency sub-domains, we assign a value weight (conversion factor) that is interpreted as the full shift in agency from no agency in the domain to full agency in the domain. Agency weight value represents the lifetime gain in impact.

To normalise an agency index, we consider the lowest possible value of the index to correspond to complete lack of agency and assign a normalised value of 0. We consider the highest possible value to correspond to full agency and assign a normalised value of 1. For any intermediate value of the raw index:

Normalised value = raw value/(max possible value- min possible value)

However, many studies don't report the change in actual raw score. Instead, they report the change in standard deviation units. Very roughly speaking, 4 standard deviations cover most of the range between the observed minimum and observed maximum in a population. Depending on the distribution, 4 standard deviations could be more or less than the difference between the theoretical minimum and maximum; and the size of a standard deviation (in points) would differ between populations. But a four standard deviation change in any index would, by local norms, inarguably be transformative. So as a rough rule of thumb we can equate:

Index max- index min = 4 standard deviations

and use this quantity to normalise the index.

Weighting of agency sub-domains

Within each agency domain, we have identified sub-domains. Some of these sub-domains (within each domain) may be distinct from each other. For example, contraceptive choice may be distinct from menstrual management or sex by choice. In this case, we scale down the agency weight for a specific sub-domain of impact.

Ideally, we would consult with members of the target population to get a sense of the relative importance they place on the sub-domains. If that is not feasible, we assign reasonable weights to the subdomains. For example, the agency weight of the sub-domain *contraceptive choice* can be a proportion of the full domain (say, 1/3rd agency weight or 33%*10PYI/3.3 PYI). We may also postulate that the sub-domains are highly correlated. In this case, if an index impacts 3 or more of the sub-domains, then it represents the full domain. For example, if the impact of an innovation improves choice of employment, decision on household expenditure and mobility, full agency weight (of 10 PYI) can be attributed.

Self-efficacy as an alternative to the domains

In some cases, the innovation may not be focused on one of the domains, or we may lack domain-specific measures. Instead, there may be self-reported efficacy indicators, such as self-confidence, grit, locus of control etc. A single generalised measure could be taken as a proxy for one (or all) of these domains.

Reduction in child marriage

Child marriage is a transformative life event. It raises life-long risks of discontinuation of education, income loss, loss of agency, fertility impacts, as well as inter-generational impacts (Wodon et al. 2017; Parsons et al. 2015). Child marriage:

- Increases fertility by 17%-26%
- Decreases 4-6 percentage point probability of secondary school completion
- Reduces earnings in adulthood by 9%
- Increases risk of child mortality by 3.5%

Child marriage is sometimes also viewed as a form of VAWG⁹, given its potentially non-consensual nature.

We define child marriage averted as a reduction in marriage before the age of 18. We understand that the earlier the age of the deferred marriage, the potential for greater impacts. To simplify, we assume the same transformational impact.

Because of the life-long impact we attach a high weight, 15 PYI, to each child marriage averted. This is viewed as encompassing all the benefits of delayed marriage: agency, health, education, and safety.

Putting it together: Practical Impact equation for agency

To forecast impact in Practical Impact units (PYI), we use the equation below:

$PYI = \text{Number of women impacted} * \text{Normalised agency index} * \text{Agency weight}$

In other terms, when we have raw scores:

$PYI = \text{Number of women impacted} * \Delta \text{ Index} / (\text{Index max} - \text{Index min}) * \text{Agency weight per domain}$

In other terms, when we have scores in standard deviation:

$PYI = \text{Number of women impacted} * \Delta \text{ Index} / 4 * (\text{std. dev. of Index}) * \text{Agency weight per domain}$

⁹ <https://www.unwomen.org/en/what-we-do/ending-violence-against-women/faqs/types-of-violence>

Safety metrics (reduction in VAWG)

We propose to measure impact as an increase in safe life years, or equivalently a reduction in violence-adjusted life years. This is analogous to the way that health benefits are conventionally measured as reductions in disability-weighted life years (DALYs). DALYs attach different severities to different kinds of conditions, with high disability weights for depression, for instance, and lower weights for less serious conditions.

The impact of an innovation on promoting safety (protecting against violence) is assessed as follows:

- What is the nature of the violence that is reduced and who benefits? Here, we use a simple typology (Table 4) based on experience of violence among women globally.
- What is the reduction in incidence of violence?
- What is the severity assigned to the violence that is reduced?
- What is the duration of the reduction for each annual cohort exposed to the innovation?
- How do we bring this information together to calculate safety or 'safe life year(s)' gained due to the innovation's impact?

Typology of violence

Table 4: Typology of violence against women and girls¹⁰

Typology	Description (Source: UNWomen)
(1) Sexual violence	"Sexual act committed against the will of another person, either when this person does not give consent or when consent cannot be given because the person is a child, has a mental disability, or is severely intoxicated or unconscious as a result of alcohol or drugs."
(2) Emotional/psychological violence	"Violence causing fear by intimidation; threatening physical harm to self; "mind games"; or forcing isolation from friends, family, school and/or work. This also includes undermining a person's sense of self-worth through constant criticism; belittling one's abilities; name-calling or other verbal abuse; or not letting a partner see friends and family."
(3) Physical violence	"Physical violence involves hurting or trying to hurt a partner by hitting, kicking, burning, grabbing, pinching, shoving, slapping, hair-pulling, biting, denying medical care or forcing alcohol and/or drug use, or using other physical force. It may include property damage."
(4) Digital violence	"Act of violence that is committed, assisted or aggravated by the use of information and communication technology (mobile phones, the Internet, social media, computer games, text messaging, email, etc) against a woman because she is a woman."

Incidence of violence

Incidence of VAWG is the number of new cases reported to experience violence during a given period of time (for our model per year¹¹). The impact of any innovation will be recorded as the incidence reduction for any VAWG.

For Practical Impact, we need two other parameters to calculate the reduction in incidence due to the innovation. First, population reached. Population reached is the total number of women or girls who are

¹⁰ <https://www.unwomen.org/en/what-we-do/ending-violence-against-women/faqs/types-of-violence>

¹¹ Some impact estimates *may* be in terms of prevalence rate (proportion of population that has experienced violence in a given period of time) rather than incidence rate. We can adjust the model based on data available.

reached through the innovation. For instance, the number of girls in schools where the programme may run or in communities where the innovation is scaled up. Second, programme effectiveness. Programme effectiveness is the percentage reduction of incidents due to the innovation. By multiplying these three parameters, we arrive at the breadth of impact or the number of women who avoid VAWG due to the innovation.

Duration of effectiveness

For different innovations, we also assess the duration of the violence averted to help get an understanding of the number of 'violent-free' or 'safe years'. Duration is captured in terms of number of years. The duration is interpreted as the 'duration of impact of the innovation' or the duration of the innovation effectiveness. This is estimated based on how long we assume the impacts of the innovation will last in girls' and women's lives.

Based on these parameters, we calculate the total number of women who avoid VAWG due to the innovation. This is also the **Breadth** of the innovation.

Number of women who avoid VAWG (#) = Population reached (#) * Annual Incidence (#/year) * Program effectiveness (#) * Duration of effectiveness (year)

For example, suppose a child rape-prevention programme operating in a population setting where each year rape incidence is usually 15%, trains 100,000 girls, results in a 50% decrease in rape and the duration of innovation effectiveness is 3 years. The following will yield the number of women who avert violence due to the innovation:

Number of girls who avoid VAWG = Population reached (100,000) * Incidence (15%) * Programme effectiveness (50%) * Duration (3) = 22,500

Severity of violence

We further define the severity *range* for the type of violence that the innovation addresses to prevent. Severity weights are assigned to the incidence of violence. Analogous to the way that DALYs are defined, severity can be defined as ranging from 0 = No harm due to violence; to 1 = Severe violence; harm leading to lasting impact, fear for life and results in risk of death. It is important to note here that the range of severity would capture all associated 'loss' due to the incidence - including physical, social, psychological, economic and other loss. For example, when reviewing the severity of workplace sexual harassment, it includes the severity of violence in terms of physical and/or mental trauma, as well as psychological impact or stress, lower productivity etc. For intimate partner violence, severity includes the same dimensions but may manifest itself to be more severe, including social exclusion, impact on mental health etc.

We assign a range of severity from 0 to 1 based on [Table 5](#) and building on UN guidelines on measurement of gender-based violence¹² ;

0 = No violence; no harm due to violence.

0.5 = Moderate violence; harm due to violence with no lasting impact, fear for life or risk of death.

1 = Severe violence; harm leading to lasting impact, fear for life and causes risk of death.

Table 5: VAWG typology and associated severity

Typology	Severity weight
(1) Sexual violence	Severity = 1 (includes rape, child sexual assault) Moderate = 0.5 (includes street harassment, workplace harassment)
(2) Emotional/psychological violence	Severity = 1 (includes domestic/partner abuse/control that causes threat to life or fear of partner)

¹² https://unstats.un.org/unsd/gender/docs/Guidelines_Statistics_VAW.pdf, page 20, distinguishes between moderate and severe violence against women

	Moderate = 0.5 (includes domestic/partner abuse/control that did not cause threat to life or fear of partner)
(3) Physical violence	Severity = 1 (includes abuse that causes physical harm) Moderate = 0.5 (includes abuse that does not cause any physical harm)
(4) Digital violence	Moderate = 0.5 (includes cyber stalking, cyber bullying, doxing ¹³)
(5) Any combination of multiple/concurrent violence from (1) to (4)	Severity = 1 (includes domestic violence or intimate partner violence)

Violence-adjusted life Years

The following formula outlines how we calculate reduction in Violence-adjusted life Years (VALYs) (or equivalently, increase in safe-life years')

$$\text{Violence-adjusted life year(s) (person- years) reduced} = \text{Safe life-years gained} = \text{Number of women who avoid VAWG (\#)} * \text{Severity of violence (person-year)}^{14}$$

Continuing the example above, suppose that the innovation reduces severe violence of child sexual assault. Hence, we assign a severity value of 1. Therefore, we calculate VALY as:

$$\text{VALY} = \text{Number of women who avoid VAWG (22,500)} * \text{Severity (1)} = 22,500 \text{ VALYs}$$

Tentative safety weights

Similar to agency weights, we make the following tentative assignments to 'safe-life year' weights. They will be re-evaluated over time based on feedback and experience. For this, we determine value weights for 1 VALY. This is similar to the PYI equivalencies for DALY, which is equivalent to 5 PYI, and 1 life saved which is equal to 50 PYI.

$$\text{VALY weight: 1 VALY averted (=one safe life year gained) is equivalent to 10 PYI}$$

Putting it together: Practical Impact equation for safety

To forecast the impact in Practical Impact units (PYI), we use the equation below.

$$\text{PYI} = \text{Violence-adjusted life year(s)} * \text{VALY weight}$$

In other terms,

$$\text{PYI} = \text{VALYs} * 10$$

Hence, to calculate PYI for the child rape prevention programme, we use the following equation:

$$\text{PYI} = \text{VALYs (22,500)} * 10 = 225,000 \text{ PYI}$$

¹³ form of cyberbullying that uses private information for the harassment, exposure or other exploitation of the intended victim

¹⁴ This is equivalent to DALY calculation of YLD (Years lost to disability), where $\text{YLD} = I (\text{incidents}) * DW (\text{disability weight}) * L (\text{average duration until death})$.