Topic: Gender-based Innovations for Equitable SDG Outcomes

A framework for gender equality for localizing the SDGs: A first approach from policy to implementation

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ABSTRACT

Every region, culture, country and province express a patriarchal system differently. Based on the literature, we identify and evaluate six dimensions of gender equality: Workforce, Economics, Education, Health & Sexual Reproductive Rights, Empowerment, and Time.

Over these dimensions, some countries have made more progress in some of these dimensions than others. Yet, no country in the world has achieved gender equality, and the ways that countries achieve and don't achieve gender equality vary substantially within the same region. Moreover, gender equality is in some sense local and happens to individuals within their municipal settings. Evaluating national-level gender equality naturally neglects the lived experiences of women and girls at the local level. These continuing challenges demonstrate that attaining gender equality is a complex challenge that needs to incorporate the interrelation of these six dimensions.

The 2030 Agenda encourages the creation of policy frameworks based on pro-poor and gender-sensitive development strategies to support investments in poverty and leave no one behind. We present a set of gender equality performance measures and a theoretical framework to support decision-making and programming of projects and strategies. We propose a data management system in order to support this framework and outline the implementation at more granular levels of data to understand gender equality at the municipal and neighborhood level.

This framework supports Sustainable Development Goal 5, but because the SDGs intersect in important ways, also supports attainment of other SDGs. We identify a case study of Instituto Nacional de la Mujer (INAMU) in Costa Rica as a first implementation of the framework. Beyond this initial implementation, it is important to note that this framework is transferable for the Global North and South.

Keywords: Gender Equality Framework, social justice, Sustainable Development Goals (SDGs), performance management, performance measures, data management systems, localizing SDGs

1. INTRODUCTION

Achieving gender equality is a complex challenge that requires a systemic and strategic approach, which is particularly critical to implement at regional and local levels. Barriers to gender equality cross socio-economic boundaries.

Gender intersects with economic empowerment, especially through poverty, access to good work, education and the rights to safety and environmental sustainability. Here we present a highly abbreviated review of some important aspects of these intersections.

In addition, planned and unplanned pregnancy influences the available economic opportunities and employment available to women. Sexual reproductive health and education are key to support their economic development. Early age pregnancies disrupt women and girls' ability to finish high school or pursue a university education. These educational disruptions are often compounded by domestic violence. According to the World Health Organization, worldwide, 35% of women have experienced physical or sexual violence [1]

No country has achieved gender equality [2]. On average, countries across the world scored 65.7 on the gender-related SDGs. But it is important to note that countries encounter difficulties in achieving gender equality in different ways. For example, Costa Rica scores well on access to contraception, and on this measure surpasses Denmark and Canada (scoring #1 and #8 respectively in overall gender equality) and the US (scoring #28) [3][4] Overall, Costa Rica scores #44 in gender equality, highlighting the diverse challenges different nations face in achieving gender equality.

In this paper, we argue that just as national diversity points to different funding priorities and policies in addressing gaps in equality, regional diversity also requires different approaches and priorities.

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[1] World Health Organization, "Violence against Women," World Health Organization, November 2017, https://www.who.int/news-room/fact-sheets/detail/violence-against-women.

[2] IISD's SDG Knowledge Hub, "Global Index Finds No Country Is Gender Equal | News | SDG Knowledge Hub | IISD," June 6, 2019, https://sdg.iisd.org:443/news/global-index-finds-no-country-is-gender-equal/; Liz Ford, "Not One Single Country Set to Achieve Gender Equality by 2030," *The Guardian*, June 3, 2019, sec. Global development, https://www.theguardian.com/global-development/2019/jun/03/not-one-single-country-set-to-achieve-gender-equality-by-2030.

[3] IISD's SDG Knowledge Hub, "Global Index Finds No Country Is Gender Equal | News | SDG Knowledge Hub | IISD."

[4] Equal Measures 2030, "SDG Gender Index," Equal Measures 2030, accessed October 31, 2020, https://www.equalmeasures2030.org/products/sdg-gender-index/; Ford, "Not One Single Country Set to Achieve Gender Equality by 2030."

The objective of this paper is to create an initial Gender Equality Framework supported by performance measures that can be used to monitor progress and target interventions across time and space. This framework will be designed based on the SDGs and gender equality dimensions. To localize this framework, a case study based in Costa Rica will be used. We envision a continuous improvement process in which our initial findings will be used to strengthen our proposed framework through institutional integration at horizontal and vertical levels and improved data collection techniques to support decision-making.

2. POLICY CONTEXT FOR GENDER EQUALITY

Gender equality is sometimes narrowly defined, as equal pay, reproductive choice, or living without violence or harassment. In fact, gender equality intersects with a large number of other foundational concepts of social exclusion. In order to achieve equality, women must have basic freedoms met, such as the ability to direct their own lives and choices, the ability to access education and work, and the ability to access and direct their healthcare and reproductive choices. But these freedoms must be coupled with equitable opportunities, meaning freedom from discrimination, equal pay, and freedom from sexual violence both in and out of the workplace.

SDG 5 targets gender equality specifically. The stated goal of SDG 5 is to "Achieve gender equality and empower all women and girls" is an ambitious goal that no nation has yet achieved. 9 targets have been set to achieve this goal [5]. The first seven of these targets map directly to women's day-to-day challenges, including ending harassment, violence, early marriage and genital mutilation; highlighting and valuing unpaid labor; empowering women in leadership roles in all walks of life; and rights to reproductive health and economic resources. The last two targets, however, offer a vision of how gender equality can be achieved and maintained.

3. BARRIERS IN ACHIEVING GENDER EQUALITY

One policy tool that has been used to increase women's representation in politics are gender-based parity and quota policies. Latin American nations which have adopted these policies require anywhere from 30% to 50% of candidates are female [6]

These policies have been quite successful in increasing representation, particularly at the federal level [7]. However, even for countries which have been successful in increasing gender representation at the federal level, that gender progress does not necessarily extend to more local levels of government.

Often, the arguments made for increased gender representation are tied to representation and empowerment. Indeed, seeing women representatives at the parliamentary level is important representation for women, particularly when it comes to laws and regulations that disproportionately impact women. The most glaring example are reproductive rights, and

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[5] UN Women, "Sustainable Development Goal 5: Gender Equality," UN Women, 2020, https://www.unwomen.org/en/news/in-focus/women-and-the-sdgs/sdg-5-gender-equality.

[6] Alicia Bárcena et al., *Gender Equality Plans in Latin America and the Caribbean: Road Maps for Development*, 2017.

[7] World Economic Forum, *Global Gender Gap Report 2020* (Geneva: World Economic Forum, 2019).

particularly abortion rights. But the importance of women in powerful positions extends beyond parliament. Representation among judges, prosecutors and defence lawyers is critical in protecting women's parental and personal safety rights. At the local level this includes gender equality police departments and local government.

Equal representation matters beyond government. In Costa Rica, the majority of university graduates are now women. Yet, university boards of directors remain overwhelmingly male. The same holds true for boards of government crown corporations [8].

We analyze six dimensions of gender equality, as shown later in Table 1. These dimensions are workforce participation, economic power, education, health & sexual reproductive rights, and empowerment.

There are significant data gaps in the measurement of these dimensions. For example, women-owned businesses are important not just for economic power, but for empowerment.

Pay equity can be measured directly, or through adjusted data. When directly comparing median earnings between men and women, the gender gap for OECD countries is roughly 13%. However, Canada and the United States of America have much similar and higher gender income differences of 17.6% and 18.5%, respectively [9]

Work-life balance is often discussed as a gendered issue, in which women can optimize their work life and home life. In the popular media, women are given helpful tricks or "hacks" to make their lives work. In some workplaces, women's additional burdens for childcare and home-work responsibilities are formally recognized [10].

Moreover, we need to understand the barriers to women's participation in the workforce. This is particularly important in the Costa Rican context, where economic parity is limited by women's ability to access the labor market, rather than education or solely a wage gap. Costa Rica has significant programs to ensure access to childcare and schools, including free school lunches and subsidized or free childcare for mothers to access work and school [11]. Underlying this disparity is the disproportionate amount of homework and childcare that women take on, meaning that these barriers limit women's economic participation more substantially or solely.

This additional burden of home and child labor that women face challenges the ability to obtain work, good work, promotion, advancement, or participate in entrepreneurship or politics. When childcare is not available, or when a child is ill, the care burden falls on women rather than men. According with UN Department of Economics and Social Affairs

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[8] Saskia Salas Calderón et al., "Tercer Estado de los Derechos Humanos de las Mujeres en Costa Rica" (Instituto Nacional de las Mujeres, 2019), https://www.inamu.go.cr/documents/10179/275546/Tercer+Estado+de+los+Derechos+Humanos+de+las+Mujeres+en+Costa+Rica+%282019%29.pdf/f1affa72-985f-4489-bcf6-28206a661e4d.

[9] OECD, "Gender Wage Gap (Indicator)," OECD, 2020, http://data.oecd.org/earnwage/gender-wage-gap.htm.

[10] Martha M. Bakker and Maarten H. Jacobs, "Tenure Track Policy Increases Representation of Women in Senior Academic Positions, but Is Insufficient to Achieve Gender Balance," *PLOS ONE* 11, no. 9 (September 29, 2016): e0163376, https://doi.org/10.1371/journal.pone.0163376.

[11] Salas Calderón et al., "Tercer Estado de los Derechos Humanos de las Mujeres en Costa Rica."

(UNDESA), "On average, women spend approximately three times as many hours in unpaid domestic and care work as men, and significantly more if they have children" [12]

These additional burdens further relate to transportation and safety. When neighborhoods are not safe or accessible, women may be forced to reduce their travel in order to access work, childcare or education.

Single working mothers need to balance work and household responsibilities[13] Research in the United Kingdom has found that shorter travel distances are correlated with higher performance, while longer travel times lead to difficulties in sustaining jobs [15].

Social exclusion comes in many forms, but all involve an inability to participate in civil society[14]. For gender equality related to sustainable cities, we highlight exclusion in the form of time and fear.

Time-based exclusion refers to time available for travel, while balancing responsibilities between work and household. At the neighborhood-scale we consider fear-based exclusion: Fear for personal safety in transportation systems and public spaces [15]

4. TRENDS IN THE AMERICAS

Gender equality is multi-faceted. Here, we compare four aspects of gender equality: gendered violence, pay equity, equal representation, and home-work balance in an abbreviated review of gender equality in the Americas.

4.1 Gender equality in Canada

The Canadian Government aims to create federal policies and programs that are more responsive to the differential needs of diverse groups recognizing the intersectional nature of the SDGs. Federal policy specifically targets indigenous women and girls, migrant and refugee women and girls, women and girls in rural and remote communities, women and girls with disabilities and LGBTQ and non-binary persons.

Despite this federal focus on equality, Canada has ongoing challenges related to achieving gender equality. Harassment and sexual violence in federal workplaces are under-reported

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[12] UNDESA, "Gender Equality and Women's Empowerment in Numbers," March 1, 2019, https://www.un.org/development/desa/undesavoice/more-from-undesa/2019/03/44362.html.

[13] Evelyn Blumenberg and Michael Manville, "Beyond the Spatial Mismatch: Welfare Recipients and Transportation Policy:," *Journal of Planning Literature*, 2004, https://doi.org/10.1177/0885412204269103; Andrew Church, Martin Frost, and Karen Sullivan, "Transport and Social Exclusion in London," *Transport Policy* 7 (July 1, 2000): 195–205, https://doi.org/10.1016/S0967-070X(00)00024-X.

[14] John Preston and Fiona Rajé, "Accessibility, Mobility and Transport-Related Social Exclusion," *Journal of Transport Geography* 15, no. 3 (May 2007): 151–60, https://doi.org/10.1016/j.jtrangeo.2006.05.002; Janet Stanley and Karen Lucas, "Social Exclusion: What Can Public Transport Offer?," *Research in Transportation Economics* 22, no. 1 (January 2008): 36–40, https://doi.org/10.1016/j.retrec.2008.05.009.

[15] Church, Frost, and Sullivan, "Transport and Social Exclusion in London"; Karen Lucas, "Transport and Social Exclusion: Where Are We Now?," *Transport Policy*, URBAN TRANSPORT INITIATIVES, 20 (March 1, 2012): 105–13, https://doi.org/10.1016/j.tranpol.2012.01.013.

and ineffectively managed. Women in Canada remain under-represented in politics and leadership roles. Canadian women also earn less than men (Canadian women earned $0.87 for every dollar earned by men in 2017), and experience high rates of harassment and gender-based violence—nearly 1 in 3 women experienced sexual harassment in the workplace. Gendered violence also persists in Canada. While this exists in the majority population, there is an especially severe problem of violence towards indigenous women and girls [16]

4.2 Gender equality in the United States of America

The situation in the USA is largely similar to Canada. However, the government policy is not explicitly oriented toward promoting equality and inclusion for women or minority or oppressed communities. Evidence suggests that while significant advances toward gender equality occurred in the 1970s and 1980s, improvement has either slowed or stopped [17]. As of 2018, women earned $0.83 per dollar earned by a man [18]. Polls indicate that 42% of women experience gender discrimination at work [19] and depending on the source, anywhere from 25-85% of women experience sexual harassment at work [20]. While discussions of sexual harassment and violence have increased with the #MeToo movement, it remains to be seen whether or not this discussion will manifest lasting societal change.

4.3 Gender Equality in Costa Rica

Costa Rica has uneven performance in gender equality. Recent progress in the number of women in Parliament and high educational achievement, as well as access to health care and contraception all compare favorably to much of Latin America [21]. In addition to the programs ratified by Costa Rica, the country has added new rights to scale up gender equality [22] Costa Rica is ranked 61st out of 162 countries in the Gender Inequality Index (GII) conducted in 2018 [23]

The difference in higher educational achievement and participation in the labor market highlight this uneven performance. Between 2009 and 2016, the proportion of graduated

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[16] Justin Trudeau, *Canada's Implementation of the 2030 Agenda for Sustainable Development: Voluntary National Review*, 2018, https://www.deslibris.ca/ID/10097786.

[17] Paula England, Andrew Levine, and Emma Mishel, "Progress toward Gender Equality in the United States Has Slowed or Stalled," *Proceedings of the National Academy of Sciences* 117, no. 13 (March 31, 2020): 6990–97, https://doi.org/10.1073/pnas.1918891117.

[18] England, Levine, and Mishel.

[19] Kim Parker and Cary Funk, "42% of US Working Women Have Faced Gender Discrimination on the Job," *Pew Research Center* (blog), December 14, 2017, https://www.pewresearch.org/fact-tank/2017/12/14/gender-discrimination-comes-in-many-forms-for-todays-working-women/.

[20] Alieza Durana et al., "Sexual Harassment: A Severe and Pervasive Problem," 2018, http://newamerica.org/better-life-lab/reports/sexual-harassment-severe-and-pervasive-problem/.

[21] World Economic Forum, *The Global Gender Gap Report 2018* (Geneva: World Economic Forum, 2018).

[22] Salas Calderón et al., "Tercer Estado de los Derechos Humanos de las Mujeres en Costa Rica."

[23] United Nations Development Programme, "Gender Inequality Index (GII)," United Nations Development Programme Human Development Reports, 2020, http://hdr.undp.org/en/content/gender-inequality-index-gii.

women was 60% [24]. Yet, women experience disadvantages when it comes down to participation in the labor market and leadership positions.

Costa Rica's State of the Nation reveals a consistent difference on unemployment rate between men and women between 1990 to 2018 [25]. Figure 1 shows this trend as the percentage of the unemployed population with respect to the labor force (15 years or more).

Figure 1: Unemployment rate in Costa Rica
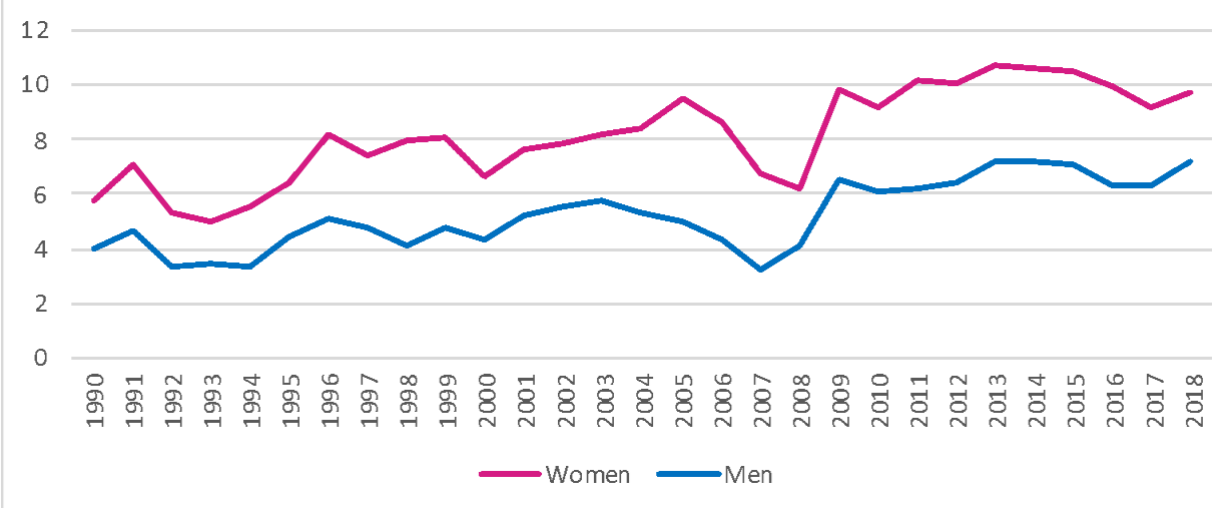
Source: Estado de la Nación [26], Instituto Nacional de Estadística (INEC) [27]

COVID-19 has led to rising levels of poverty with a direct impact on the most vulnerable and disadvantaged populations. Using data from Statistics National Institute of Costa Rica (INEC), Baiocchi, Troya-Rodríguez & Vaeza [28] highlighted that during the period of July and August 2020, poverty levels reached 26.2% of households, and extreme poverty increased by 8.5%, the highest values reported since 1992.

Covid-19's impact is also gendered; the latest unemployment rate is 30.4% for women and 20% for men. The most affected group are women with incomplete primary education, whose labor participation dropped 54% [29]

While data gaps prevent a full assessment of the gender pay gap, existing estimates vary wildly. OECD, for example, reports the Costa Rica wage gap is less than 4% [30]. Local

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[24] Salas Calderón et al., "Tercer Estado de los Derechos Humanos de las Mujeres en Costa Rica."
[25] Programa Estado de la Nación, "Estadisticas," Programa Estado Nación, 2020, https://estadonacion.or.cr/estadisticas/.
[26] Programa Estado de la Nación.
[27] INEC, "INSTITUTO NACIONAL DE ESTADISTICA Y CENSOS | INSTITUTO NACIONAL DE ESTADISTICA Y CENSOS," 2020, https://www.inec.cr/.
[28] Allegra Baiocchi, José Vicente Troya Rodríguez, and María Noel Vaeza, "Pobreza, COVID-19 y Su Impacto Diferenciado En Las Mujeres," October 23, 2020, https://delfino.cr/2020/10/pobreza-covid-19-y-su-impacto-diferenciado-en-las-mujeres.
[29] Baiocchi, Troya Rodríguez, and Vaeza.
[30] OECD, "Gender Wage Gap (Indicator)."

reporters estimate gender wage gap up to 27% [31]. The highest estimate found for the wage gap is 45%, meaning a woman makes $0.55 cents for every dollar earned by a man in Costa Rica [32]. Most likely, this discrepancy stems from both low participation in the labor market as well as an hourly wage gap.

United Nations CEPAL (Economic Commission for Latin America and the Caribbean) collects data on ministerial positions by nation as a measure of gender equality, Costa Rica has a participation of more than 50% women in ministerial cabinets [33]. In Costa Rica, INAMU also includes data related to members of Parliament. We can see they are approaching gender parity with a ratio of 26 to 31 female to male members [34]. Municipal governance demonstrates a much different picture of gender equality than the national data. At the municipal level we see significant differences in the proportion of female and male mayors with a ratio of 12 to 69 [35].

4.4 Gender Equality in Latin America and the Caribbean

Taking a step back to consider regional gender equality, uneven advances toward gender equality are even more pronounced.

Figure 2 shows the rate of femicides in Latin America and the Caribbean. The existing data, shown in dark dots, shows radically different incidents of femicide. The absolute numbers shown below obscure the national rates. Mexico and Brazil's seemingly high numbers are more related to their higher population. The majority of countries for which data was available had femicide rates under 2 per 100,000. In contrast, El Salvador and Honduras had rates of 6.8 and 5.1 femicides per 100,000 women [36]. Perhaps most significant in this chart is the missing information, shown by pink bars. To be fair, data availability varies from year to year, and UN CEPAL often displays data from different years to paint a clearer picture of gender equality over time. Still, missing, up-to-date data on rates of femicides means that this information cannot be used to create evidence-based strategies for reduction.

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[31] L. Arias, "Is Costa Rica's Gender Wage Gap Really among the World's Lowest?," The Tico Times | Costa Rica News | Travel | Real Estate, April 6, 2017, https://ticotimes.net/2017/04/06/gender-wage-gap-costa-rica.

[32] Marina Pasquali, "Labor Market Gender Gap Index in Costa Rica by Area 2020," Statista, 2020, https://www.statista.com/statistics/803792/costa-rica-gender-gap-labor-market-category/.

[33] CEPALSTAT, "Executive Power: Percentage of Women in Ministerial Cabinet Positions," 2019, https://estadisticas.cepal.org/cepalstat/tabulador/ConsultaIntegrada.asp?idIndicador=1347&idioma=e.

[34] Salas Calderón et al., "Tercer Estado de los Derechos Humanos de las Mujeres en Costa Rica."

[35] Salas Calderón et al.

[36] CEPAL, Gender Equality Observatory for Latin America and the Carribean, "Femicide or Feminicide," Text, Gender Equality Observatory, 2020, https://oig.cepal.org/en/indicators/femicide-or-feminicide.

Figure 2: Femicides in Latin America 2018

Missing data ● Femicides in 2018
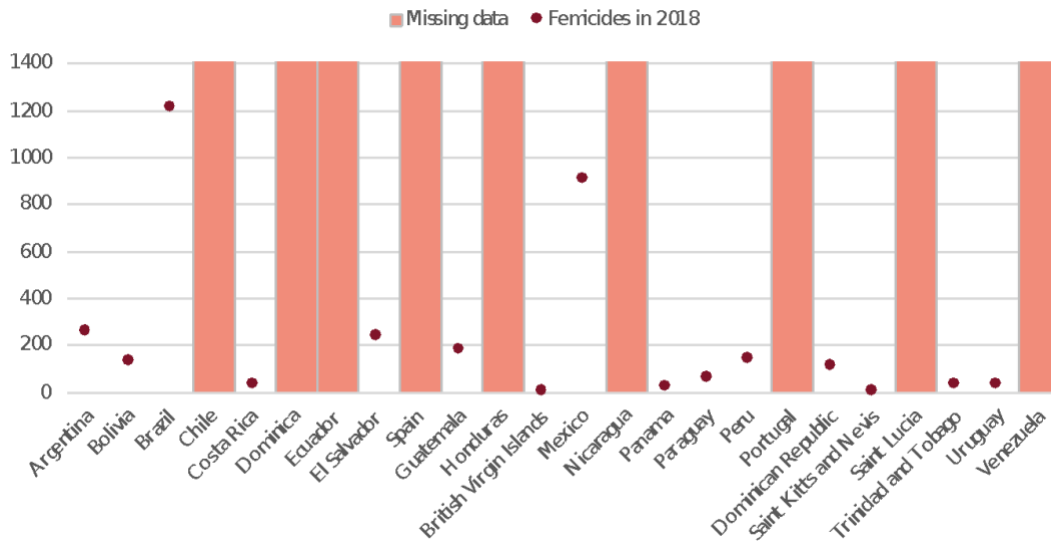
Source: [37]

When reviewing other information related to gender equality, such as the proportion of paid and unpaid work time, we see that data gaps are more severe. Across Latin America, UN CEPAL was only able to report the gender proportion of total and paid work time for Chile in 2015 [38]. For the most recent year available, UN CEPAL reported the proportion of paid and unpaid work time for only 5 of 16 countries. Within this very abbreviated dataset, women spent at least twice as much time on unpaid labour as men (Brazil) and as much as 4 times as men (Honduras) [39].

5. INTERNATIONAL GENDER EQUALITY INDICATORS

The Sustainable Development Goals (SDGs) set global policies with a core message of "leave no one behind". Literature shows that gender equality is measured by a combination of categories for work, education, economy, local politics, health, family, and businesses [40].

We identified three relevant indexes shown on Table 1, presented by the United Nations and an index from the European Institute for Gender Equality:

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[37] CEPAL, Gender Equality Observatory for Latin America and the Carribean, "Measuring Femicide: Challenges and Efforts to Bolster the Process in Latin America and the Caribbean," November 2019, https://oig.cepal.org/sites/default/files/femicide_web.pdf.

[38] UN CEPAL, "Gender Equality Observatory," Text, Gender Equality Observatory, 2020, https://oig.cepal.org/en.

[39] UN CEPAL.

[40] United Nations Development Programme, "Gender Inequality Index (GII)"; United Nations Development Programme, "Gender Development Index (GDI)," United Nations Development Programme Human Development Reports, 2020, http://hdr.undp.org/en/content/gender-development-index-gdi; Gunnel Forsberg and Susanne Stenbacka, "How to Improve Regional and Local Planning by Applying a Gender-Sensitive Analysis: Examples from Sweden," *Regional Studies* 52, no. 2 (February 1, 2018): 274–84, https://doi.org/10.1080/00343404.2017.1296942.

(1) the Gender inequality index (GII) that seeks to measure and reflect gender inequality and considers three dimensions: health, empowerment, and labor market. It also includes specific indicators relevant to each dimension such as maternal mortality ratio, female and male shares of parliamentary seats, female and male labor force participation rates, among others [41];

(2) the Gender Development Index (GDI) that looks at gender gaps and considers three basic dimensions of human development, healthy life, knowledge, and living standards [42]; and

(3) the Gender Equality Index (GEI) that measures the progress of gender equality in 28 EU countries using 31 indicators [43] this index considers 6 core domains (See Table 1)

Forsberg and Stenbacka [40] classified seven gender dimensions in order to evaluate municipal-level gender equality considering Work, Education, Economy, Local politics, Health, Family and Business. This corresponds well to the GEI index [44].

Table 1. *Dimensions of the indices in relation to the gender specific SDG goals*

Gender inequality index (GII) dimensions (1)	Gender Development Index (GDI) dimensions (2)	Gender Equality Index domains (3)
Health	Long and healthy life	Health
Empowerment	Knowledge	Knowledge
Labor market	Standard of living	Work
		Power
		Money
		Time
		Violence against women*
		Intersecting inequalities*

Source: (1) [45]; (2) [46]; (3) [47]
Notes: *Additional domains

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[41] United Nations Development Programme, "Gender Inequality Index (GII)."

[42] United Nations Development Programme, "Gender Development Index (GDI)."

[43] European Institute for Gender Equality, "Gender Equality Index 2019," European Institute for Gender Equality, 2019, https://eige.europa.eu/gender-equality-index/2019.

[44] European Institute for Gender Equality.

[45] United Nations Development Programme, "Gender Inequality Index (GII)."

[46] United Nations Development Programme, "Gender Development Index (GDI)."

[47] European Institute for Gender Equality, "Gender Equality Index 2019."

Localizing these international metrics for decision making to the municipal and provincial level and tying them to concrete actions presents a technical, logistic and political challenge. Geospatial data and indicators can identify, prioritize, and target interventions while identifying vulnerable populations that are most at-risk. Yet, one of the difficulties for localizing the SDGs is that data is often presented or collected in an aggregated level that limits any form of responsiveness to local needs. Other issues are data gaps for gender-sensitive analyses and a mismatch of references that limit data integration collected by a diversity of stakeholders.

6. LOCALIZING THE SDGs THROUGH THE LENS OF GENDER EQUALITY

UN Women stresses the importance of disaggregated data across gender dimensions, including income, sex, age, race, ethnicity, migration status, disability, geographic location. Data gaps can limit visibility of the most-at-risk populations. Data also needs to be of high-quality and timely in order to reflect the reality of the most disadvantaged groups. Accurate and reliable data systems can support efficient evidence-based decisions, strategies and resource allocation [48]

Federal and local governments need policies, programs, and allocation of resources to respond to differential needs, but they often lack sufficiently granular data to do so.

From a top-down approach, countries rely on international gender equality indicators to monitor progress on gender equality. These indicators are reported at a high-level with aggregated data. To achieve a level of disaggregation for data collection, we combined the top-down and bottom-up approach to create performance measures.

In accordance with existing gender indices we classified 6 dimensions (Workforce, Economics, Education, Health & Sexual Reproductive Rights, Empowerment, Time) based on the literature review and international indicators [49] and disaggregated data from the National Institute for Women of Costa Rica [50]. Table 2 presents a Gender Equality Performance Measures categorized under our six dimensions of gender equality and interrelated to the SDGs.

Performance measures allow organizations to achieve their goals by developing metrics and monitoring progress. These Performance Measures (PM) allow us to monitor progress over time towards achieving a specific target [51]

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[48] United Nations Entity for Gender Equality and the Empowerment of Women (UN Women) and Department of Economic and Social Affairs (DESA), "Progress on the Sustainable Development Goals: The Gender Snapshot 2019," 2019, https://www.unwomen.org/en/digital-library/publications/2019/09/progress-on-the-sustainable-development-goals-the-gender-snapshot-2019.

[49] United Nations Development Programme, "Gender Inequality Index (GII)"; United Nations Development Programme, "Gender Development Index (GDI)"; European Institute for Gender Equality, "Gender Equality Index 2019."

[50] Salas Calderón et al., "Tercer Estado de los Derechos Humanos de las Mujeres en Costa Rica."

[51] Michael Grant et al., "Performance Based Planning and Programming Guidebook," 2013, 146.

Performance-based decision making relies on a set of goals, objectives and targets tied to measurable metrics, and quantifies the impact of policies, programs, and projects [52]. Some properties of a good performance measure are [53]:

- **Appropriateness** – PM should be an adequate reflection of at least one goal
- **Measurability** - Measure PM in an objective manner, with an acceptable degree of accuracy and reliability
- **Dimensionality** – Comparable across time periods or geographic regions
- **Realistic** – It should be possible to collect, generate, or extract reliable data
- **Defensible** – Clear and concise. It can be communicated effectively within a circle of decision makers, stakeholders and general public
- **Forecastable** – For planning purposes, it should be able to use existing forecasting tools

Figure 3 illustrates the bottom-up process to identify data and performance measures in alignment with the SDGs. Geolocated datasets allow the most vulnerable and marginalized households to be located which in turns allows us to localize the SDGs and implement strategies in communities or districts in need.

The goals and objectives are tied to these metrics. Countries or agencies might not be collecting all data that support fully a comprehensive gender equality program. Creating a performance-based management system to introduce a data management module allows both data collection and iterative updating. As the agency matures, it will rely on more accurate information, update targets and strengthen programs[54].

Figure 3. Bottom-up process for disaggregated data to generate performance measures
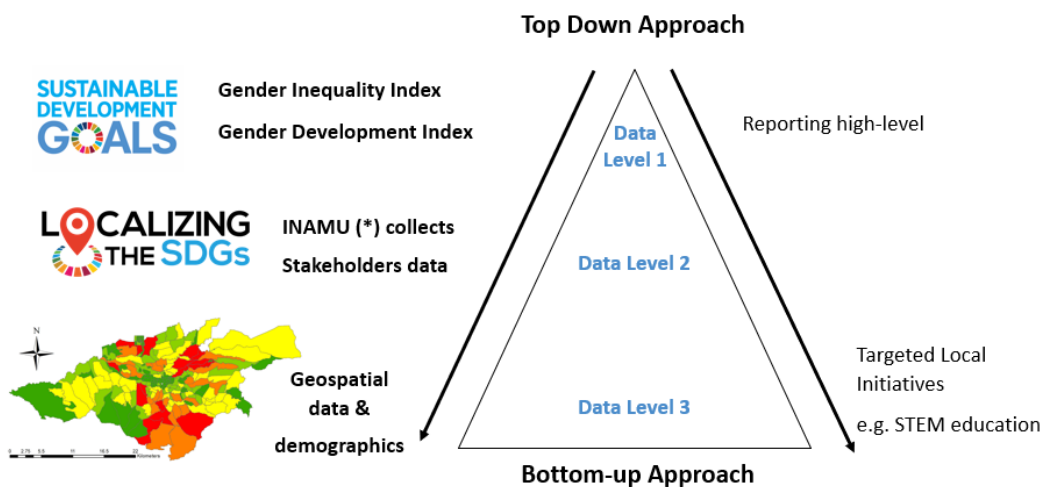
INAMU: Instituto Nacional de la Mujer (National Institute for Women, Government of Costa Rica)

[52] AASHTO, "Transportation Asset Management Guide-A Focus on Implementation," 2013, https://www.fhwa.dot.gov/asset/pubs/hif13047.pdf; Grant et al., "Performance Based Planning and Programming Guidebook."

[53] Kumares C. Sinha and Samuel Labi, *Transportation Decision Making: Principles of Project Evaluation and Programming*, 2007, https://www.wiley.com/en-us/Transportation+Decision+Making%3A+Principles+of+Project+Evaluation+and+Programming-p-9780471747321.

[54] AASHTO, "Transportation Asset Management Guide-A Focus on Implementation."

Table 2. Gender equality performance measures from a bottom-up (local data) and top-down (international metrics) approach

Gender Equality Dimensions	Workforce	Economics	Education	Health & Sexual Reproductive Rights	Empowerment	Time	Metrics from literature
Sustainable Development Goals	SDGs 1, 8	SDG 1	SDG 4	SDGs 3, 5, 16	SDGs: 5, 9, 16	-	Top-down & Bottom-Up Data
GENDER EQUALITY PERFORMANCE MEASURES							
- Participation to the workforce (gender gap)	X						UN Women
- Accessibility to childcare (government services)	X						IMAS
- Women/men owning a business	X				X		(Forsberg & Stenbacka, 2018)
- Unemployment for women/men having disabilities	X				X		INEC
- Pay gap for men and women under the same role	X						Canada National Voluntary Review (2019)
- Proportion of total adult population with secure tenure rights to land		X			X		UN
- Women/men living in poverty or extreme poverty		X					UN Women, INEC
- Single mothers living in poverty or extreme poverty		X					INEC
- Women/men older than 15-years without income		X					INEC-ENAHO
- School dropout (boys/girls) per population			X				
- Mothers under legal age (18) per female population			X	X			UN Women, MEP
- Boys & Girls under informal education per population			X				MEP
- Registration (women/men) at technical college per population			X				INA
- University degree (women/men) per population			X				CONARE
- University degree on STEM: Science, Technology, Engineering, and Mathematics disciplines			X				Canada Global Affairs
- Medical insurance for men and women		X		X			INEC-ENAHO
- Reported sexual harassment per population				X			INAMU
- Court cases for rape per population				X			Defensoría Habitantes

Table 2 (cont). Gender equality performance measures from a bottom-up (local data) and top-down (international metrics) approach

Gender Equality Dimensions	Workforce	Economics	Education	Health & Sexual Reproductive Rights	Empowerment	Time	Metrics from literature
Sustainable Development Goals	SDGs 8, 10	SDG 8	SDG	SDGs 3, 5, 16	SDGs 5	SDGs 5, 6,7,11	Top-down & Bottom-Up Data
GENDER EQUALITY PERFORMANCE MEASURES							
- Marriage or union for 12-14 years old per population				X			INAMU-Poder Judicial
- Marriage or union for 15-17 years per population				X			INAMU-INEC-ENAHO
- Death from complications to pregnancy and childbirth				X			INAMU-INEC-ENAHO
- Accessibility to health services for births							UN Women
- Reported women/girls experiencing physical or sexual violence by an intimate partner							UN CEPAL
- Number of femicides per population				X	X		UN Women
- Unpaid care and domestic work		X				X	INAMU – UNDESA
- Households with access to clean water						X	UN Women
- Households with access to clean cooking fuels						X	UN Women
- Hours of domestic-work spent in the household after work by women/men (home-work balance)						X	INAMU
- Transport time-based inclusion (home-work balance)						X	Church, Frost, and Sullivan
- Management positions in the workforce	X				X		
- Women/men leading research positions in industry, innovation, and infrastructure	X				X		UN Women
- Government ministers (women/men)	X				X		INAMU – TSE
- Government CEOs for crown corporations (women/men)	X				X		INAMU – TSE
- Board of directors for crown corporations (women/men)	X				X		INAMU – TSE
- Elected city majors (women/men) – municipalities	X				X		INAMU – TSE
- Board of directors – indigenous associations (women/men)	X				X		INAMU – TSE
- Board of directors on public universities (women/men)	X				X		INAMU - CONARE

7. BUILDING A GENDER EQUALITY FRAMEWORK

The 2030 Agenda encourages the creation of "sound policy frameworks at the national, regional and international levels, based on pro-poor and gender-sensitive development strategies, to support accelerated investment in poverty eradication actions" [55]

Lack of integration across sectors in terms of strategies, policies and implementation has long been perceived as a major obstacle to achieving sustainable development [56].

A framework organizes information in accordance with a purpose to assist both technical and policy decision-making by presenting trade-offs in terms of benefits and costs to achieve strategic goals [57]. It should assist policies and decision-making by relying on evidence and economic evaluations.

In a structured framework under performance management principles: (1) goals are transformed into performance measures or indicators; (2) a systematic data collection program supports these performance measures for planning and monitoring; (3) modeling and analytical tools are developed to support investment programming; and (4) the system is monitored to determine if the targets are being met and provide feedback [58].

Figure 4 provides the key elements to design a framework under performance management principles [59]. This paper aims to design the Strategic Direction component as the first Stage of Gender Equality Framework. The Strategic Direction will lead to the Analysis Stage that involves the incorporation of analytical tools. The next Stage is the Programming, where projects, strategies and resources can strategically be allocated to attain the targets. A Monitoring Stage is set in place based on a systematic data collection to generate Performance Measures and monitor progress. A framework should be iterative, dynamic and have the ability mature to tackle complex problems.

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[55] United Nations, "Report of the Open Working Group of the General Assembly on Sustainable Development Goals," 2014.
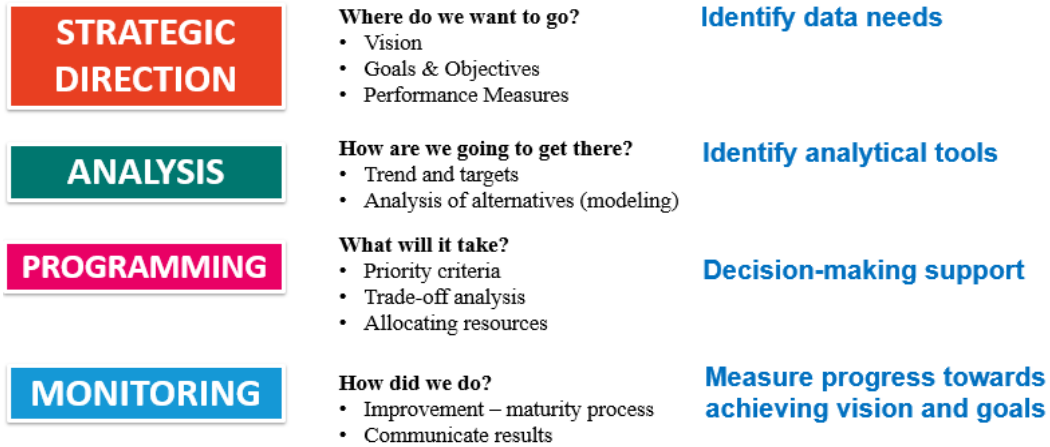[56] United Nations, "Report of the Secretary-General A/70/75–E/2015/55. Mainstreaming of the Three Dimensions of Sustainable Development throughout the United Nations System," 2015.
[57] Henrik Gudmundsson et al., *Sustainable Transportation: Indicators, Frameworks, and Performance Management*, Springer Texts in Business and Economics (Berlin Heidelberg: Springer-Verlag, 2016), https://doi.org/10.1007/978-3-662-46924-8; Waheed Uddin, W. Ronald Hudson, and Ralph Haas, *Public Infrastructure Asset Management, Second Edition* (McGraw-Hill Education, 2013), https://www.accessengineeringlibrary.com/content/book/9780071820110.
[58] Grant et al., "Performance Based Planning and Programming Guidebook."
[59] Grant et al.

Figure 4. Components to design a framework under performance management principles

STRATEGIC DIRECTION	**Where do we want to go?** • Vision • Goals & Objectives • Performance Measures	**Identify data needs**
ANALYSIS	**How are we going to get there?** • Trend and targets • Analysis of alternatives (modeling)	**Identify analytical tools**
PROGRAMMING	**What will it take?** • Priority criteria • Trade-off analysis • Allocating resources	**Decision-making support**
MONITORING	**How did we do?** • Improvement – maturity process • Communicate results	**Measure progress towards achieving vision and goals**

(Grant et al. 2013)

This section presents the design of the Strategic Direction. This theoretical framework requires establishing a Vision. This Vision was developed based on the Gender Equality Public Policy and Sustainable Development Goals. The Vision is a statement of desired outcomes, linked to goals and objectives. Based on these goals, performance measures are developed along with the identification of data needs. Figure 5 shows the sequence of the design of this framework, while Figure 6 shows the proposed Gender Equality Framework.

Figure 5. Design of gender equality framework

Gender equality dimensions
↓
Goals & Objectives: SDGs
↓
Performance Measures: Top Down & Bottom Up
↓
Vision Statement
↓
Gender equality goals linked to objectives and performance measures
↓
Gender Equality Framework
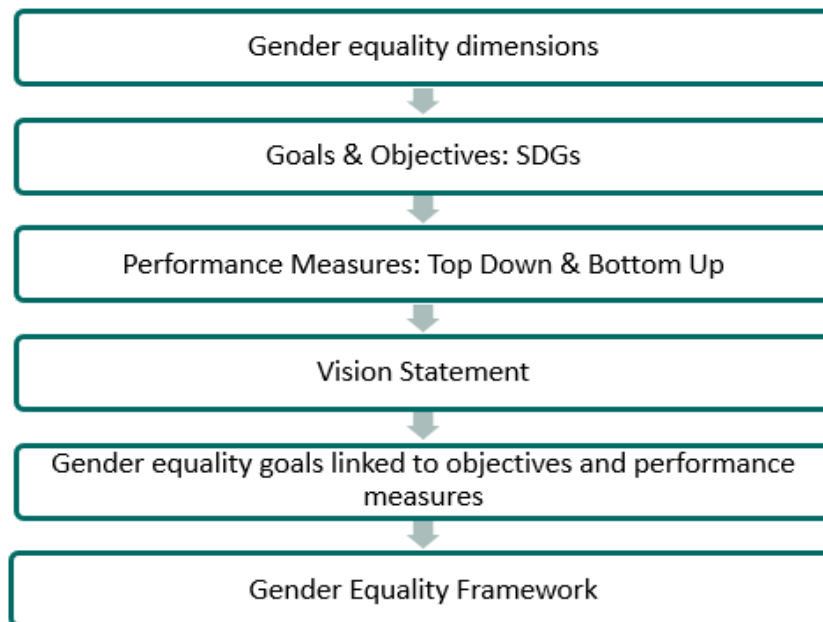
VISION STATEMENT

By 2030, create a world having gender equality and empowerment for all women and girls, with special attention to the most-at risk populations; generating equal opportunities and accessibility to the workforce, economic empowerment, education, sexual and reproductive health, leadership and decision-making, and home-work balance.

STRATEGIC DIRECTION

Figure 6. Gender Equality Framework

Framework adapted from Grant et al. 2013

The Gender Equality Framework shown in Figure 6 is based on the Sustainable Development Goals, and it can be transferred to any government agency from the Global North or the Global South. Table 3 describes the connection between the SDGs as goals to define the Performance Measures through the lens of gender equality.

Table 3. Strategic Direction for Gender Equality: linking the SDGs to Performance Measures

Overall goal	Goal	Objectives	Performance measures
Workforce	Equal access to decent work and entrepreneurship	By 2030, ensure equal access to employment and decent work, entrepreneurship, innovation, including access to childcare and financial access for micro-small-medium enterprises	- Participation to the workforce (gender gap) - Accessibility to childcare (government services) - Women/men owning a business - Unemployment for women/men having disabilities - Pay gap for men and women under the same role
Economics	Eradicate poverty and reduce inequality	By 2030, eradicate extreme poverty, reduce inequality, and provide equal rights to economic resources	- Women/men living in poverty or extreme poverty - Single mothers living in poverty or extreme poverty - Women/men older than 15-years without income - Proportion of total adult population with secure tenure rights to land
Education	Equal access to education for all	By 2030, provide equal access and opportunities to education for all, with special attention to low-income households, girls with early pregnancies, people´s with disabilities, immigrants, and diversity (ethnicity and sexual orientation)	- School dropout (boys/girls) per population - Mothers under legal age (18) per female population - Boys & Girls under informal education per population - Registration (women/men) at technical college per population - University degree (women/men) per population - University degree on STEM: Science, Technology, Engineering, and Mathematics disciplines
Health & Sexual Reproductive Rights	Healthy lives, well-being, and safe & accountable institutions	By 2030, provide universal access to health services and coverage, eliminate all forms of violence against all women and girls, and ensure safe and accountable systems for reported sexual harassment and femicides in all institutions	- Medical insurance for men and women - Reported sexual harassment per population - Court cases for rape per population - Marriage or union for 12-14 years old per population - Marriage or union for 15-17 years per population - Death from complications to pregnancy and childbirth - Accessibility to health services for births - Reported women/girls experiencing physical or sexual violence by an intimate partner - Number of femicides per population

Table 3 (cont). Strategic Direction for Gender Equality: linking the SDGs to Performance Measures

Overall goal	Goal	Objectives	Performance measures
Empowerment	Inclusive leadership and decision-making	By 2030, ensure responsive, inclusive, participatory and representative decision-making at all levels	- Management positions in the workforce - Women/men leading research positions in industry, innovation, and infrastructure - Government ministers (women/men) - Government CEOs for crown corporations (women/men) - Board of directors for crown corporations (women/men) - Elected city majors (women/men) – municipalities - Board of directors – indigenous associations (women/men) - Board of directors on public universities (women/men)
Time	Ensure availability of decent housing, safe cities, home-work balance	By 2030, ensure availability of decent housing, and safe, efficient and reliable sustainable transportation, safe public spaces By 2030, implement social protection policies and strategies, and design communication strategies for the promotion of shared responsibility within the household	- Unpaid care and domestic work - Households with access to clean water - Households with access to clean cooking fuels - Hours of domestic-work spent in the household after work by women/men (home-work balance) - Transport time-based inclusion (home-work balance)

7.1 Building a data management system for decision-making and comprehensive solutions

The United Nations ECLAC (Economic Commission for Latin America and the Caribbean) has created a Gender Equality Observatory for Latin America and the Caribbean [60]. In 2018, the Government of Canada announced the creation of a Centre for Gender, Diversity and Inclusion Statistics [61]

The National Institute for Women (INAMU: Instituto Nacional de la Mujer) from the government of Costa Rica collects data from government stakeholders in the most disaggregated form [62]. However, many of the datasets that come from different government agencies lack geographic coordinates to spatially localize the information for further strategic interventions. Integration of all the identified gender dimensions can be challenging, thus limiting interventions.

From the gender equality lens, government institutions work in silos. An alignment of these agencies is necessary to create a robust data management system to strengthen strategies and allocation of resources. A Gender Equality Framework can bring a systemic approach for monitoring the 2030 Agenda´s progress and programing of projects.

Good governance is fundamental for the implementation of the 2030 Agenda of Sustainable Development. Achieving sustainable development requires the participation of all stakeholders, from government institutions, academia, private sector, civil society, and international organizations. To implement our proposed framework, it is necessary to involve the participation of stakeholders and design a roadmap for implementation.

Consultation of stakeholders and expert advice is important to create consensus, identify gaps, identify key technical and institutional barriers and strategies to overcome them, determine priorities and assign tasks. Workshops should gather experts in technology, policy, economics, finance, social sciences and other relevant disciplines. These consultations should be supported by evidence-based and sound data to establish the current baseline conditions [63]

8. CONCLUSION

Women's social and economic empowerment depend on the ability to attain gender equality, where men and women, boys and girls have equal rights and opportunities. This is not just an issue for women and girls, but an issue for humanity. Inequality directly impacts households, economies, child development, cities, and communities.

Worldwide, gender inequality has been acknowledged by international organizations and governments. International gender equality indicators have been developed to measure progress. These metrics demonstrate that no country has achieved gender equality. Yet,

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[60] Bárcena et al., *Gender Equality Plans in Latin America and the Caribbean*.
[61] Trudeau, *Canada's Implementation of the 2030 Agenda for Sustainable Development*.
[62] Salas Calderón et al., "Tercer Estado de los Derechos Humanos de las Mujeres en Costa Rica."
[63] OECD/IEA, "Energy Technology Roadmaps a Guide to Development and Implementation," 2014.

these metrics and data collection are reported in an aggregated form. To localize the SDGs and target specific interventions, more granular data is needed. This will allow identification of the most-at-risk populations in a geospatial setting.

Resources are always scarce to address such complex problems. Addressing such complex problems requires these scarce resources be paired with good governance to achieve sustainable development, but sound strategy is also needed to ensure progress and adapt to the dynamics of society, while optimizing resources. These strategies should be evidence-based, and projects and interventions should not depend on electoral political cycles. Moreover, actions involve a series of stakeholders and agencies with their own specific mandates and budgets that need to be aligned.

To address this challenge, we propose a Gender Equality Framework. In this framework, we identified the barriers that women and girls experience, and categorized six dimensions of gender equality. We incorporated the Sustainable Development Goals (SDGs) to set a blueprint to achieve equality. This framework presents different modules that lead to a decision-making support process for allocating resources and monitoring progress.

In this framework, a data management system module is critical to allocate actions to a neighborhood and household level. Under our six dimensions of gender equality: Workforce, Economics, Education, Health & Sexual Reproductive Rights, Empowerment, and Time; we created a set of detailed indicators in the form of performance measures. We found that it is necessary to integrate these datasets among stakeholders. For this, breaking down silos in government administration is necessary.

We found that significant data gaps exist in developing reliable measures of gender equality, and particularly in achieving gender equality worldwide. Femicides, the murder of women for gendered reasons, usually by romantic partners or family, are not separated out and reported as gendered data in the International Gender Equality Indexes. This metric can help to understand sub-national conditions for women.

Sexual assault and harassment rates, for example, can be more reflective of the ability of a victim to report, be believed and for that data to be accurately counted. Limits on reporting from social or family pressure, law enforcement or prosecutors can depress reporting and lead to lower reported counts of crime.

Continuing to base evaluations of gender equality on national-level data obscures ongoing gender differences in municipal and provincial levels. For example, UN CEPAL collects data on ministerial and cabinet positions by nation as a measure of gender equality. In Costa Rica, the National Institute for Women (INAMU) includes data on boards of directors as well as local elected officials (mayors) by gender. As the INAMU data shows, municipal governance demonstrates a radically different picture of gender equality than the national data.

In a structured Gender Equality Framework, different social-economic realities, ethnic backgrounds, and geographic locations can highlight the most vulnerable populations and specific barriers. Allocating actions, while having a comprehensive approach for the six dimensions of gender equality can unlock the development of the fullest potential of women and girls and transform societies.

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