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Reducing inequality in FEALAC member countries:

Innovative analysis to guide policymaking that leaves no one behind

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# 1.	Inequality in the context of the 2030 Agenda: a multidimensional perspective

The 2030 Agenda for Sustainable Development makes a call to "leave no one behind" and to "endeavour to reach the furthest behind first" on the path towards sustainable development. This Agenda reflects a consensus on the need to move towards more egalitarian, cohesive and solidarity-based societies, by promoting an inclusive development model leading to a sustainable future.

As emphasized in Sustainable Development Goal (SDG) 10, the 2030 Agenda aspires to reduce inequalities within and among countries. The subject of inequality, however, appears throughout the entire 2030 Agenda, under different perspectives, which include inequalities in opportunities and outcomes. For this reason, progress in Goal 10 is a fundamental component to reach almost all other Sustainable Development Goals (United Nations, 2015). High levels of inequality within countries stifle economic development by lowering growth rates and shortening the duration of growth spells. High levels of inequality also erode social cohesion and pose a barrier to the eradication of poverty, the expansion of citizenship, the exercise of rights and democratic governance. On the other hand, equality facilitates innovation, the absorption of technological advances and the dissemination of innovations in the productive structure. Sustainable development can therefore only occur in an inclusive and equal society.

The experience from recent decades has shown that economic progress alone will not reduce inequality. In the member countries of the Forum for East Asia-Latin America Cooperation (FEALAC), many people have been lifted out of poverty.[1] Yet others still live in chronic deprivation of resources and opportunities. Thus, equality-promoting policies implemented from a rights-based perspective - including universal policies for access to quality health services, education, social protection, basic services and complementary targeted measures to reach those that are being left behind - are urgently needed.

A critical first step in this direction is to identify population sub-groups that have limited access to opportunities and achieve worse outcomes in various domains, such as education, health, nutrition and basic infrastructure. Knowing who is being left behind can inform policy and guide the adoption of tailored response strategies.

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[1] FEALAC member countries include Australia, Brunei, Cambodia, China, Indonesia, Japan, Korea, Lao People's Democratic Republic, Malaysia, Mongolia, Myanmar, New Zealand, Philippines, Singapore, Thailand, and Viet Nam in East Asia; and Argentina, the Plurinational State of Bolivia, Brazil, Chile, Colombia, Costa Rica, Cuba, Dominican Republic, Ecuador, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Paraguay, Peru, Suriname, Uruguay, and the Bolivarian Republic of Venezuela in Latin America and the Caribbean.

Moreover, Sustainable Development Goal (SDG) 17 Target 18, underscores the need to disaggregate and analyse indicators, in order to reveal heterogeneity in progress towards the SDGs that might otherwise be concealed behind national averages.[2]

The regions and countries under consideration in this report are very diverse. As a result, cross-country comparisons across the various aspects of inequality can be complex. To begin with, FEALAC member countries have different initial levels of income and wealth distribution, as well as very different historical trajectories with respect to their institutions, and their economic and social public policies. The root causes of inequalities may also vary between countries. Often inequalities are shaped by social and power hierarchies, constructed and maintained through specific social, historical and cultural patterns, which are different in the Asia-Pacific region from those in Latin American and the Caribbean. The result, however, is commonly the same: discrimination against and exclusion of certain population sub-groups, such as those belonging to minority communities or women. Boxes 1 and 2 highlight the approaches to inequality in the two regions included in this report.

Shared challenges can be addressed by common approaches. The report transcends the typical comparative analysis based on relative measures of income inequality, such as the Gini coefficient. To assess multiple dimensions of inequality in FEALAC member countries, the report adopts a novel approach, by analysing household surveys to identify the groups of individuals with the lowest levels of access to health services, clean water and cooking fuels or worse outcomes in nutrition and education.

The document is structured in four chapters. This chapter has introduced the framework of inequality within the context of the 2030 Agenda from a multidimensional perspective. The second chapter presents the methodology that is applied and the data sources that are used to examine inequality in five selected indicators that are related to the Sustainable Development Goals. The third chapter analyses the results and shows relevant cases of comparison across FEALAC member countries. With a view to leaving no one behind, the conclusion proposes relevant policy recommendations aimed at addressing the gaps identified across distinct dimensions of sustainable development.

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[2] Target 17.18 of the Sustainable Development Goals calls on Members States to produce "data disaggregated by income, gender, age, race, ethnicity, migratory status, disability, geographic location and other characteristics relevant in national contexts".

Box 1.
Inequality: recent trends and approaches from Asia and the Pacific

Despite Asia and the Pacific's high and enduring economic growth and significant progress in poverty reduction, the gains have not always benefited those most in need. Disparities in income and wealth continue to persist and grow. The region's population-weighted income inequality, measured by the Gini coefficient, increased over 5 percentage points in the past 20 years, from 32.7 in the early 1990s to 38 in the mid-2010s. Furthermore, increases in income inequality have often coincided with an increased concentration of wealth. For instance, the wealth share held by the top 1 per cent doubled both in China and the Russian Federation between 1995 and 2015, from 15 per cent to 30 per cent and from 22 per cent to 43 per cent, respectively.

ESCAP has highlighted that inequality goes beyond the economic sphere of income and wealth by focusing on the lack of access to basic services and opportunities while underscoring the importance of guaranteeing a level playing field.

Access to fundamental services such as basic drinking water, electricity, basic sanitation, education, clean cooking fuels, financial inclusion and healthcare provide the basis for individuals to fulfil their potential, expand their capabilities and make strategic choices about their life and future. Inequality in access to opportunities not only undermines human development by entrenching poverty, perpetuating it over generations, but also constitutes a violation of human rights. Only by providing individuals with equal chances to improve their socioeconomic outcomes, can they realize their rights and improve their lives. Furthermore, if not tackled, inequality of opportunity exacerbates inequality of outcome and creates intergenerational inequality traps. An adult's outcomes in terms of education and wealth, for example, will likely become the children's predetermined circumstances shaping their socioeconomic outcomes.

In order to guarantee a level playing field, following the call of the 2030 Agenda to leave no one behind (LNOB), ESCAP has concentrated efforts on identifying the characteristics of those with least access to these basic services and opportunities.

Sources:
ESCAP, Inequality in Asia and the Pacific in the era of the 2030 Agenda for Sustainable Development (Bangkok, 2018).
ESCAP, Inequality of Opportunity in Asia and the Pacific. Children's Nutrition (Bangkok, 2018).
ESCAP, Closing the Gap: Empowerment and Inclusion in Asia and the Pacific (Bangkok, 2019).

Box 2.
Inequality: recent trends and approaches from Latin America and the Caribbean

Latin America and the Caribbean has made remarkable strides in reducing household and individual income inequality since the early 2000s. The simple average of the Gini index for 18 Latin American countries decreased from 0.54 in 2002 to 0.47 in 2018. Since 2005, the region has also succeeded in improving the functional distribution of income, increasing labour's share of GDP. However, both processes have decelerated since 2014 onward. The average annual pace of reduction in the Gini coefficient has slowed from 1.3 per cent between 2002 and 2008 to 0.8 per cent between 2008 and 2014, down to 0.3 per cent between 2014 and 2017. Furthermore, studies conducted in three Latin American countries (Chile, Mexico and Uruguay) show that inequality in the distribution of ownership of physical and financial assets is greater than in the distribution of current income.

The Economic Commission for Latin America and the Caribbean (ECLAC) has proposed that besides inequality of means (income or wealth), inequality includes the unequal access to opportunities, which entails all forms of discrimination in access to social, economic and political positions; the uneven exercise of rights, that impedes the full realization of economic, social and cultural rights; the unequal development of capacities, which refer to a set of abilities, knowledge and skills that individuals acquire and that allow them to pursue life plans they deem valuable, and finally unequal results in different aspects of life.

Building on this comprehensive view of inequality, in 2016 ECLAC advanced an understanding of inequality that serves as an operational framework to improve the design and implementation of pro-equality public policies, called "the matrix of social inequality". It highlights that inequality is a multidimensional phenomenon and that, in addition to the first and most basic axis of inequality (socioeconomic level), inequalities related to gender, ethnicity, race, territory, different stages of the life cycle, disability, migration status, as well as sexual orientation and gender identity are all axes that structure this matrix in the region. The inequalities relating to each of these axes intersect and exacerbate each other, and accumulate over the life cycle, creating a complex system of social relations in which multiple inequalities and the related discriminatory processes manifest themselves as disparities in autonomy, well-being and empowerment, as well as in unequal treatment and as pronounced differences in the exercise of rights, capacity and skills-building, and enjoyment of opportunities. This matrix is strongly conditioned by the production structure of the region, which is characterized by substantial heterogeneity and high levels of informality.

The structure of these intersecting axes of inequality is also permeated by deeply ingrained sociocultural patterns such as a culture of privilege that normalizes social hierarchies and highly unequal access to the fruits of progress, political deliberation and productive assets. It is a society which is nurtured by a violent patriarchal culture and is associated with racism and stereotypes based on social class, age, race and ethnicity and place of residence. A key element for perpetuating the culture of privilege is the concentration of decision-making power, which is closely linked to socioeconomic inequalities among citizens.

Sources:
ECLAC, The social inequality matrix in Latin America, Santiago (2016).
ECLAC, Towards a Regional Agenda for Inclusive Social Development, Santiago (2018).
ECLAC, The inefficiency of inequality, Santiago (2018).
ECLAC, Social Panorama of Latin America 2019, Santiago (2019a).

2.   Methodology

To illustrate gaps that exist among different population sub-groups in SDG-related targets, this report employs a Classification Tree Analysis (CTA) using R statistical software based on recent rounds of Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS) for FEALAC member countries with available data.

The CTA method is based on an algorithm that partitions the population group of interest in the survey sample into different sub-groups based on household- or individual-level predictor variables or determinant factors (see Annex 1). It creates a multi-level tree diagram with mutually exclusive sub-groups of individuals or households. In this way, it allows to examine how multiple factors, such as socioeconomic level, sex, place of residence and age, interact to create more acute exclusion among certain groups.

To illustrate the gaps, the analysis focuses on five indicators that reflect the economic, social and environmental dimensions of sustainable development, namely: access to adequate nutrition (stunting in children), assistance by a skilled birth attendant during childbirth, completion of secondary education, access to clean water and use of clean cooking fuels (see Table 1). These indicators are associated with specific SDGs and their established targets.

Table 1: Socioeconomic indicators analysed

Indicator	Definition	Related Sustainable Development Goals and Targets
Stunting in children	Children under the age of 5 whose height-for-age is more than two standard deviations below the WHO Child Growth Standards median.	**SDG 2.2** By 2030, end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting and wasting in children under 5 years of age, and address the nutritional needs of adolescent girls, pregnant and lactating women and older persons.
Assistance by a skilled birth attendant in childbirth	Women between 15 and 49 years of age, married or in union, who have given birth in the last five years.	**SDG 3.1** By 2030, reduce the global maternal mortality ratio to less than 70 per 100,000 live births. **SDG 3.2** By 2030, end preventable deaths of newborns and children under 5 years of age, with all countries aiming to reduce neonatal mortality to at least as low as 12 per 1,000 live births and under-5 mortality to at least as low as 25 per 1,000 live births.
Completion of secondary education	Persons between the ages of 20 and 35 who have completed secondary education.	**SDG 4.1** By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes.

Indicator	Definition	Related Sustainable Development Goals and Targets
		SDG 4.5 By 2030, eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations.
Access to clean water	Households obtaining their drinking water from an improved source, provided collection time is not more than 30 minutes for a round trip, including queuing (see note 1).	**SDG 6.1** By 2030, achieve universal and equitable access to safe and affordable drinking water for all.
Use of clean cooking fuels	Households with primary reliance on clean fuels and technology (see note 2).	**SDG 7.1** By 2030, ensure universal access to affordable, reliable and modern energy services.

Source: Own elaboration.
Note 1: Basic drinking water sources include piped water, boreholes or tube wells, protected dug wells, protected springs, and packaged or delivered water.
Note 2: Clean fuels includes natural fuel (e.g. compressed natural gas or liquefied petroleum gas) or a blend (e.g. gasohol) used as substitutes for fossil fuels and which produce less pollution than the alternatives.

To identify the furthest behind groups, a set of predictor variables or determinant factors are selected based on data availability and their potential to illustrate gaps in each of the selected indicators. These are: household wealth (poorest 40 per cent and richest 60 per cent of the wealth distribution, based on a wealth index constructed considering the ownership of household goods and assets, housing quality, and access to basic services), place of residence (urban or rural), educational level (no education, primary, secondary or higher), sex (male or female), number of children under 5 years of age in the household (numerical variable), age group of the respondent (0-14 years of age, 15-24 years of age, 25-34, 35+) and marital status (single, currently in union, formerly in union).

The report uses the most recent rounds of Demographic and Health Surveys (DHS) and Multiple Indicator Cluster Surveys (MICS). These surveys are selected because of their comparability across countries, accessibility, and the rich set of questions on health, access to basic services, demographic and socioeconomic issues that refer both to the household and individual level. DHS and MICS data are publicly available for 23 FEALAC member countries: 8 countries in Asia and the Pacific, and 15 countries in Latin America and the Caribbean (see Annex 2). To illustrate key findings, this report summarizes results for all those countries and presents classification tree figures for: Cambodia 2014, Mongolia 2013, Myanmar 2016, Philippines 2016 and Viet Nam 2013 for Asia and the Pacific, and Plurinational State of Bolivia 2008, Colombia 2015, Guatemala 2014-2015, Honduras 2011-2012, and Peru 2012 for Latin America and the Caribbean.

3. Results: visualizing inequalities in FEALAC member countries

The inequality that affects people in FEALAC member countries manifests itself in different yet inter-related ways. This section presents data on the furthest behind, focusing on inequalities in access to adequate nutrition (stunting in children), assistance by a skilled birth attendant during childbirth, completion of secondary education, access to clean water and the use of clean cooking fuels.

3.1 Stunting in children

Approximately 5.6 million children under the age of five died in 2016 worldwide, out of which 3.1 million died because of hunger (UNICEF, 2018). Extreme hunger and malnutrition are strong barriers to sustainable development, infringing on the life prospects of millions of children. Hunger and malnutrition exacerbate chronic diseases and harm children's cognitive-, motor- and language development from an early age. These developmental disadvantages, in turn, affect their ability to stay in school and curtail their possibilities for social and economic inclusion in later stages of life (Adair et al., 2013; ESCAP, 2018).

Stunting (low height-for-age), which is a form of undernutrition, has profound consequences for the physical and cognitive development of children. Target 2.2 of the 2030 Agenda calls on governments to end all forms of malnutrition, including achieving, by 2025, the internationally agreed targets on stunting for children under the age of 5. However, as Figure 1 and Figure 2 illustrate, much remains to be done in parts of Asia and the Pacific and Latin America and the Caribbean to reach this goal.

To illustrate gaps in stunting among children in Latin America and the Caribbean, the example of Peru is presented (Figure 1). While Peru has made notable strides in reducing child stunting in recent years, stunting still affects close to 1 in 5 children under the age of 5 and there are marked disparities among different population sub-groups (Rubio, 2016). The classification tree produces a first split based on the socioeconomic level of the household in which the child lives: 30 percent of children in poorer households are stunted compared to 7 per cent in better off households. Among children in poorer households, the education level of the mother is highly relevant: while 19 per cent of children whose mothers completed secondary education are stunted, this figure increases to 37 per cent among children whose mothers have no or only primary education. This result is consistent with the literature that finds a strong association between maternal education and nutrition among children in Latin America, even when accounting for the household income level (Frost et al., 2005).

Another relevant factor in stunting prevalence among Peruvian children in poorer households with low-educated mothers is the number of young children in the household. A greater number of children under 5 in the family (two or more) is associated with greater stunting rates: 32 per cent of children in poorer households with mothers with lower levels of education and fewer young children are stunted, compared to 42per cent when there are more young children in the

household. The number of young children in the household is also a relevant factor for stunting in wealthier households, although with a narrower gap: 6.9 per cent versus 8.6 per cent. The lowest prevalence of stunting is observed among girls that live in wealthier households with fewer young children (6.2 per cent).

Figure 1: Classification tree highlighting inequalities in stunting among children under the age of five, Peru 2012
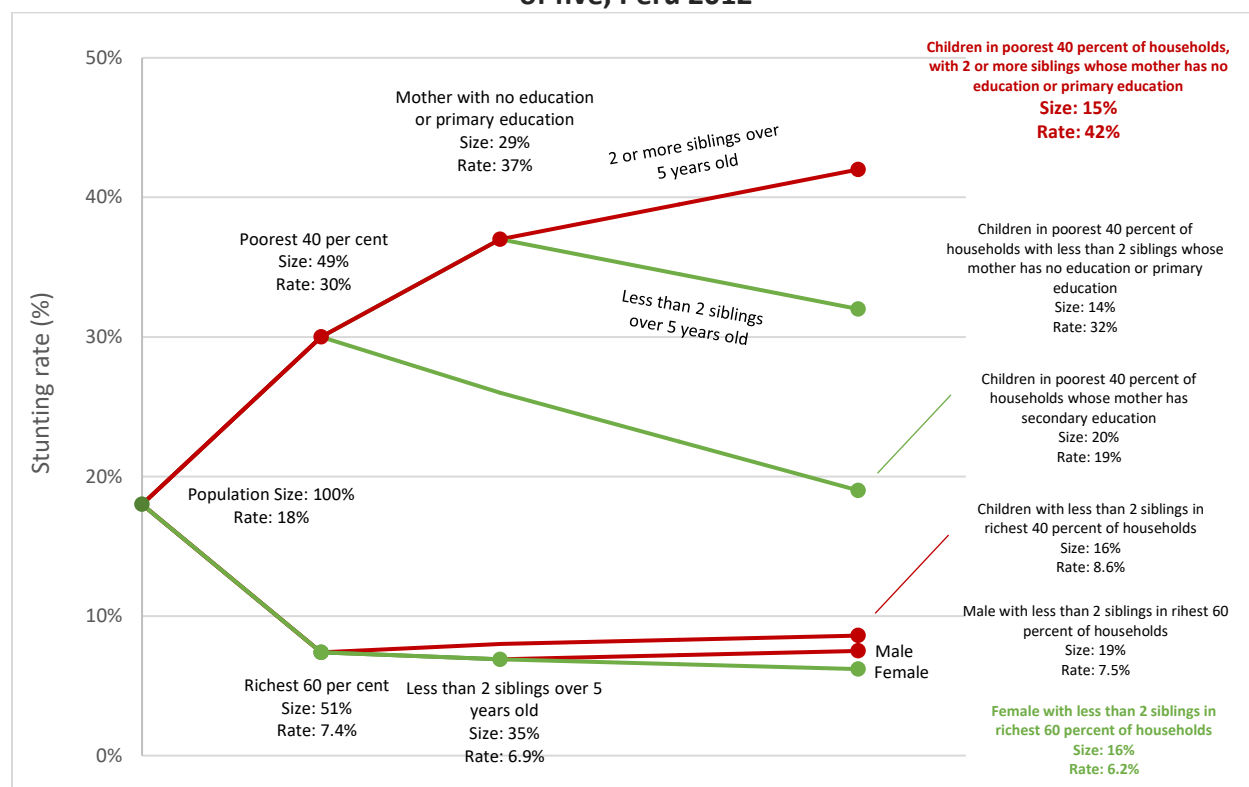
Source: Own calculation using data from the 2012 DHS survey for Peru.

Across Asia and the Pacific, stunting has also considerably decreased, from 41 per cent in 2000 to 29 per cent in 2016 (UNICEF et al, 2018). However, there are still marked disparities between countries and among population sub-groups within countries. To illustrate gaps in stunting among children in the region, the example of Myanmar is presented. As shown in Figure 2, 29 per cent of all children in the sample are stunted and are therefore deemed to lack access to adequate nutrition.

The first split of the classification tree is a result of household's wealth. In total, 36 per cent of children living in poorer households poorest per cent lack access to adequate nutrition, contrary to their counterparts in richer households, where only 23 per cent children are stunted. Among children in poorer households, gender plays a small but significant role as male children have a higher stunting rate when compared to female children.

Similar to the findings in Peru, the educational level of the mother is related to the stunting rate of children. The second tree partition among richer households is between children whose

mothers have only primary education and those whose mothers have secondary or higher education. While 27 per cent of children whose mothers completed primary education are stunted, this figure decreases to 18 per cent among children whose mothers have secondary or higher education.

Both in Peru and in Myanmar, the underlying pathways driving the results may include not only the capacity to purchase more food, but also the affordability of nutritious food and the knowledge on nutrition among more educated mothers. Moreover, other factors not shown in the tree, for example different health-care utilization behaviors when children have diarrhea and an enhanced ability to follow the guidance of health professionals regarding nutrition, may also play a role (Phyo, Keiwkarnka & Mongkolchati, 2014).

Figure 2: Classification tree highlighting inequalities in stunting among children under the age of five, Myanmar 2016
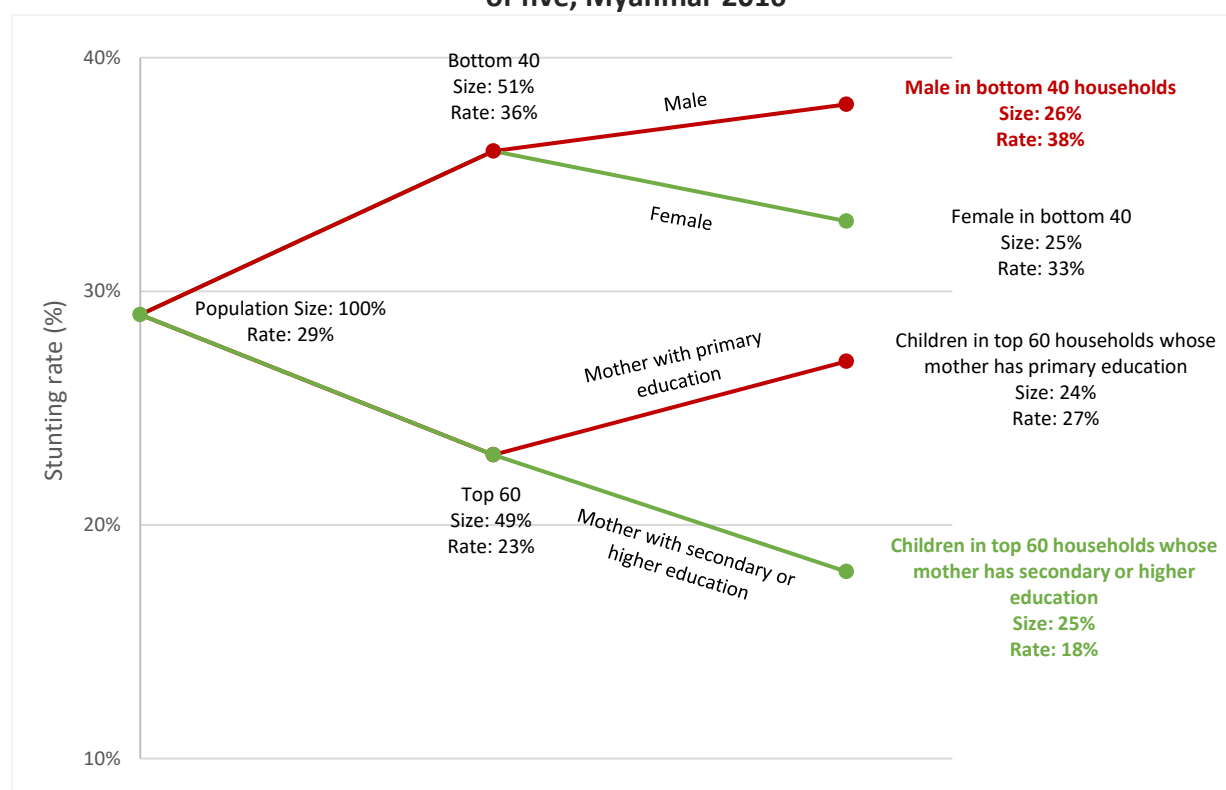
Source: Own calculation using data from the 2016 MICS survey for Myanmar.

Aggregating classification trees, in both Latin America and the Caribbean and Asia and the Pacific the main determinant for childhood stunting is the wealth status of the household. In Latin America and the Caribbean, this is followed by the number of children under 5 in the household, the sex of the child (being male) and the mother's level of education. In contrast, in Asia and the Pacific, the next most relevant factors are place of residence and mother's level of education (Table 2).

Table 2: Summary of results for access to adequate nutrition among children under the age of 5 in FEALAC countries with DHS or MICS surveys, latest available year

The furthest behind in access to adequate nutrition for children	Latin America and the Caribbean		Asia and the Pacific	
	Number of countries	Countries	Number of countries	Countries
Poorest 40 per cent	6	Peru, El Salvador, Guatemala, Honduras, Paraguay, Suriname	4	Cambodia, Lao PDR, Myanmar, Mongolia
Mother's lower education	2	Peru, Guatemala	3	Lao PDR, Thailand Viet Nam
Male	4	Cuba, Honduras, Paraguay, Suriname	1	Myanmar
Urban			1	Viet Nam
Children Under 5 in the household	4	Peru, El Salvador, Honduras, Paraguay	2	Lao PDR Thailand

Source: Own elaboration, on the basis of calculations on the latest DHS and MICS surveys.

Policy recommendations

Stunting is caused by an array of factors. The response to it must therefore tackle its different dimensions over the life cycle, with priority placed on interventions in the prenatal period and during the first thousand days of life. A wide range of issues could be included in strategies for preventing and eradicating stunting such as:

Strengthen or include non-contributory social protection programmes that are geared towards health and nutrition among poor and vulnerable pregnant women, lactating women and infants. These may include elements such as breastfeeding promotion, provision of supplementary food, including micronutrients and fortified foods to pregnant and lactating women and infants; promoting improved hygiene standards; training for parents and caregivers on nutrition and hygiene; timely and adequate access to health services to prevent and treat acute diarrheal disease (ADD) and acute respiratory infections (ARI); monitoring growth rates by health professionals; and monetary transfers to increase households' food purchasing capacities.

Invest in girls' education. Lower overall educational attainment of the mother is behind much of the inequality in stunting among children. This association underlines the importance of girls' education not only for their own empowerment and independence, but also for the next generation.

Inform about the long-term socioeconomic benefits of investing in child nutrition. There is a strong link between interventions increasing childhood access to nutrition and socioeconomic benefits. Every USD 1 invested in stunting reduction is estimated to bring approximately USD 16 in returns through gains in productivity (UNICEF, 2014). Relevant ministries should bolster awareness of these returns, by promoting nutrition education. Nutrition e-campaigns particularly for pregnant and nursing mothers. Learning about food nutrients and adequate WASH practices, for example, can help young parents.

3.2 Skilled birth attendance during childbirth

Health is not only an indispensable right, but a condition that enables the full enjoyment of other rights. Therefore, ensuring healthy lives and promoting the well-being at all ages is a cornerstone for sustainable development. The 2030 Agenda for Sustainable Development reflects this view by proposing a universal, integrated, and indivisible vision that clearly expresses the interlinked nature of human health and well-being with economic growth and environmental sustainability.

Through Sustainable Development Goal (SDG) 3, FEALAC member countries have pledged to ensure healthy lives and promote well-being for people at all ages, particularly emphasizing the compelling need to drastically reduce maternal mortality (Target 3.1) and ensure women's access to sexual and reproductive health-care services (Target 3.7). Furthermore, SDG 5.6 calls on Member States to ensure universal access to sexual and reproductive health and reproductive rights to achieve gender equality and women's empowerment (Target 5.6).

Despite these commitments, in 2015, 303,000 women worldwide died due to complications during pregnancy and childbirth, which amounts to over 800 women dying daily (Alkema et al., 2016). Ninety-nine per cent of these deaths occurred in developing countries. Moreover, the lifetime risk of maternal death – the probability that a 15-year-old woman will eventually die from a maternal cause – is 1 in 180, with pronounced differences between developed and developing countries (Alkema et al., 2016).

Urgent actions are needed in order to achieve the ambitious SDG 2030 targets, and ultimately, eliminate preventable maternal and infant mortality. Assistance by a skilled birth attendant during childbirth is among the factors that may reduce the risk of maternal mortality (WHO, 2004), while also reducing infant mortality (UNICEF, 2015). However, due to a series of barriers, not all women are able to count on the assistance of a skilled birth attendant during childbirth. For example, in rural areas there may be a lack of professionals. Access to health centers, clinics or hospitals may be restricted due to geographical or economic barriers. In Latin America and the Caribbean, deliveries assisted by qualified personnel have increased 11 per cent since 1990, and in 2014, 92 per cent of births in the region were assisted by a trained professional. However, the difference observed between high coverage of skilled delivery care and persistence of high rates of maternal mortality[3] in several countries suggests problems with the quality of the services provided (UNFPA et al., 2016).

In the Plurinational State of Bolivia, the 2008 DHS survey shows that 77 per cent of women had assistance from a skilled birth attendant at birth during the past five years (Figure 3). This percentage decreases to 58 per cent among women from poorer households, compared to 91 per cent among women in better-off ones. In both types of households, the educational level of the woman is the next dividing factor. Women with lower educational attainment – those with no education or primary education - have lower levels of assistance by skilled health personnel.

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[3] In 2016, the regional Maternal Mortality Ratio (MMR) stood at 60.8 deaths per 100,000 live births which is equivalent to a 56.6 per cent reduction in the value of that indicator in 1990 (140 per 100,000 live births), well below the 75 per cent proposed by the Millennium Development Goals (UNFPA et al., 2016).

An additional factor matters among women in poorer households with low levels of education – age. Younger women (those between the ages of 15 and 24) report more assistance by a skilled birth attendant, compared to older women (those 25-34 years of age and those 35 and over). This finding may reflect generational shifts and secular trends in practices surrounding childbirth, even among young women from disadvantaged contexts. It may also reflect expanded training among attendants who assist childbirth in non-institutional settings. Overall, the results indicate that while virtually all women in wealthier households with higher levels of educational attainment (secondary or higher) had assistance from a skilled birth attendant during childbirth, barely half of older women in poorer households with lower levels of education did.

Figure 3: Classification tree highlighting inequalities in assistance by a skilled birth attendant in childbirth, Plurinational State of Bolivia 2008
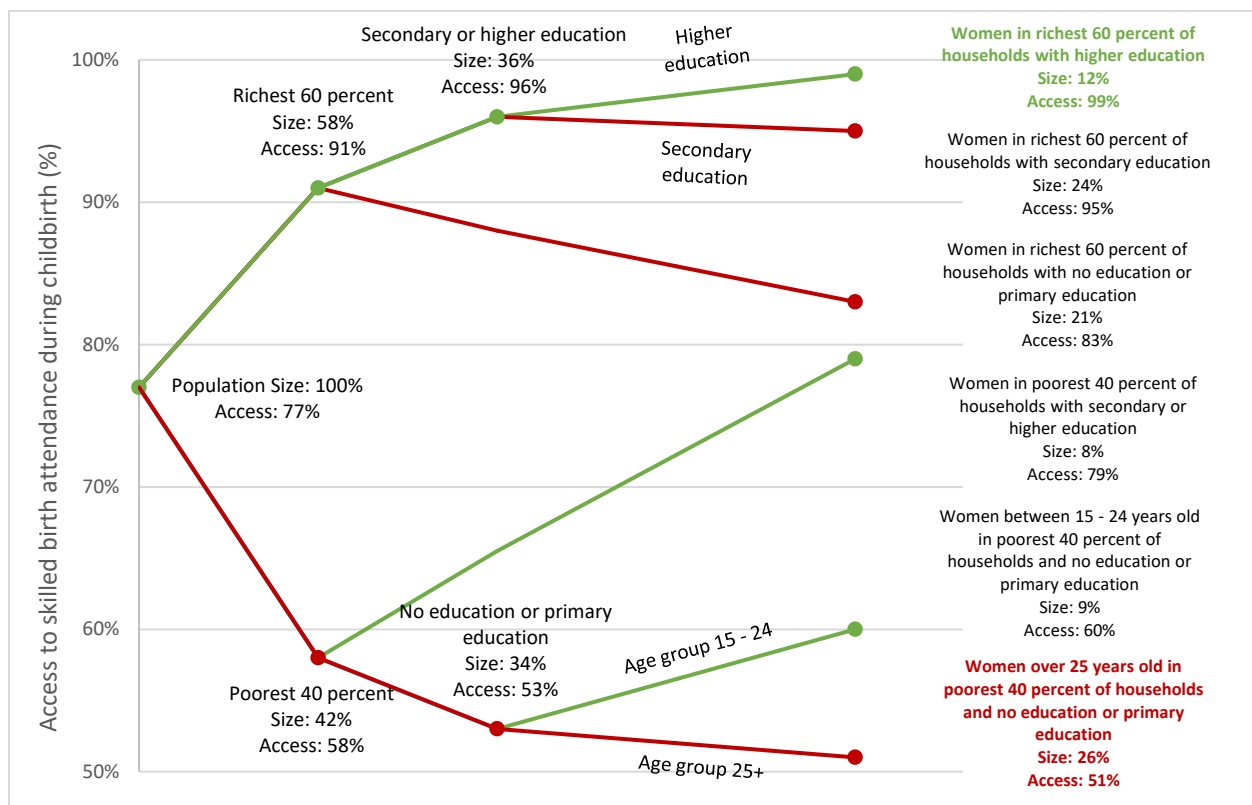
Source: Own calculation using data from the 2008 DHS survey for the Plurinational State of Bolivia.

In Asia and the Pacific, countries in Eastern Asia, South-Eastern Asia and South-Central Asia recorded an average rate of births attended by skilled health personnel of 84 per cent in 2017, up from 68 per cent in 2006. In line with this progress, the maternal mortality ratio (MMR) in these subregions fell from 316 per 1000,000 live births in 1995 to 127 in 2015 (UNESCAP, 2019).

However, progress has been uneven between subregions, country income groupings and along the rural/urban divide. In the Philippines, although average access to skilled birth attendance during childbirth among all women is 89 per cent, the furthest behind group had an access rate of 67 per cent (Figure 4). The first significant factor driving this gap in access is women's educational level. Women with secondary or higher education have an access rate of 94 per cent, while only 67 per cent of those with either no education or lower education have access. This latter group, representing 17 per cent of all women in Philippines, are considered the most marginalized overall in access to skilled birth attendance during childbirth. The finding may reflect cultural beliefs and traditional practices as many Filipino women rely on traditional birth attendants known as "hilots" which often lack any professional training (UNFPA, 2011).

Among women with secondary or higher education, household wealth (poorest 40 per cent and richest 60 per cent) emerges as the second factor driving inequality. Women belonging to better-off households have almost universal access to skilled birth attendance during childbirth, while women belonging to poorer households have a lower access rate.

Like in the Plurinational State of Bolivia, younger Filipina women between the ages of 15 and 24 report more access to a skilled birth attendant when compared to women over 25 years old. However, differences between groups are smaller than those generated by wealth and by women's educational level.

Figure 4: Classification tree highlighting inequalities in assistance by a skilled birth attendant in childbirth, Philippines 2016
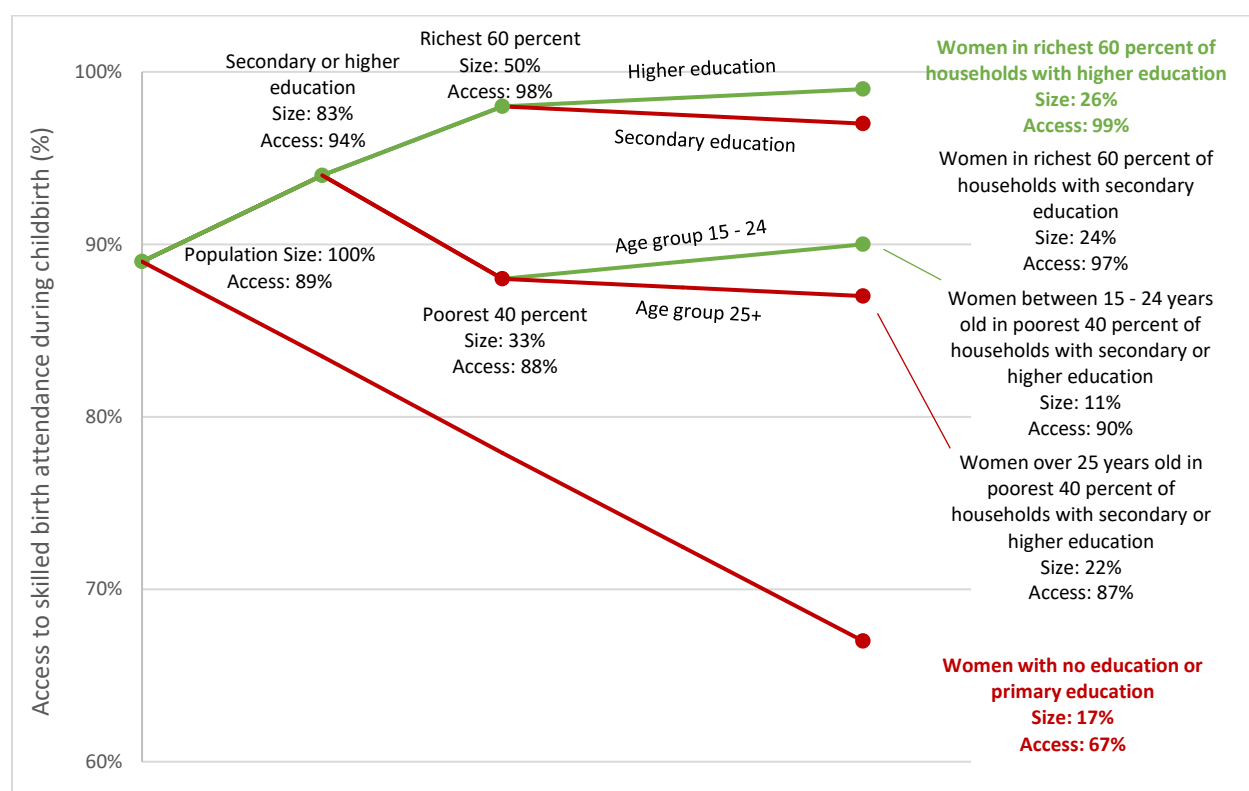
As shown in Table 3, when comparing results of the analysis for FEALAC countries, it emerges that in both regions the socioeconomic level of the household, the mother's level of education, the place of residence and the number of children under 5 in the household are the main drivers of inequalities in access to a skilled birth attendant during childbirth.

Table 3: Summary of results for assistance by a skilled birth attendant during childbirth in FEALAC countries with DHS or MICS surveys, latest available year

The furthest behind in access to a skilled birth attendant during childbirth	Latin America and the Caribbean		Asia and the Pacific	
	Number of countries	**Countries**	**Number of countries**	**Countries**
Poorest 40 per cent	5	Bolivia (Plurinational State of), El Salvador, Guatemala, Honduras, Paraguay,	4	Cambodia, Indonesia, Lao PDR, Myanmar
Mother's lower education	9	Bolivia (Plurinational State of), Colombia, Dominican Republic, El Salvador, Guatemala,Mexico, Panama, Paraguay, Peru,	7	Cambodia, Indonesia, Mongolia, Myanmar, Philippines, Thailand, Viet Nam
Rural	6	Colombia, Dominican Republic, El Salvador, Mexico, Paraguay, Peru	1	Lao PDR
Urban	1		1	Mongolia
Children under 5 in the household	2	El Salvador, Panama,	1	Mongolia
Age 15-24	1	Paraguay		
Age > 25	3	Bolivia (Plurinational State of), Costa Rica, Honduras,		
Richest 60 per cent	1	Costa Rica		

Policy recommendations

In line with the relevant international human rights instruments to which member States are party, governments need to eliminate discriminatory laws, policies and practices. They also need to address gender bias and discrimination against women in the design and delivery of basic services, including sexual and reproductive health-care services. This recommendation also reflects the universal call of SDG 10 aimed at reducing inequality of outcomes and at promoting the social, economic and political inclusion of all people.

Adopt universal health-care policies, inclusive of maternal, sexual and reproductive health services. As called by the ILO Recommendation 202 on Social Protection Floors, universal health coverage may represent the most effective measure countries can take to ensure all groups, without discrimination, have access to basic healthcare. These schemes can similarly ensure that women in all households, including the poorest ones, access essential care, avoiding prohibitive out-of-pocket costs.

Make healthcare services user-friendly across the lifecycle and available for women with different socio-economic and cultural backgrounds. Maternal, sexual and reproductive healthcare services should be accessible to women of all age, from older and married women to adolescent and young single women. Every woman has the right to adequate and accessible information in a user-friendly format and comprehensive sexuality education. In this regard, maternal, sexual and reproductive healthcare services should also be sensitive to cultural and linguistic differences.

Improve service delivery and coverage of skilled birth attendants in rural areas. Recruiting and retaining qualified health professionals to serve poor or rural communities through incentive structures is essential to overcome the geographic barriers experienced by women in remote areas. As many women in these areas still rely on traditional midwives, including them as part of the health team, and strengthening coordination of traditional midwives and health facilities as part of the health network is another promising strategy.

3.3 Completion of secondary education

Sustainable Development Goal 4 calls on Member States to ensure inclusive and equitable quality education and to promote lifelong learning opportunities for all. Education is not only a fundamental human right, but it is also a potent lever to reduce poverty and inequality: more and better education can lead to better job prospects, higher incomes and interrupt patterns of poverty and vulnerability. Moreover, in an increasingly complex and globalized society, greater skills are needed to achieve social and economic inclusion.

Without sustained human capacity development, including lifelong learning opportunities, labour market productivity suffers, and economic growth is hampered. Therefore, inequalities in education not only jeopardize the potential of those furthest behind, but they also compromise any prospective benefits that would have accrued to society, in terms of productivity. Education also generates paths for social mobility. The close link between education and present and future opportunities for access to decent work and improvement in economic and labour conditions makes education one of the main critical areas for reducing inequalities and progressing towards sustainable development.

Access to high quality education also has impacts beyond the productive sphere. For example, better educated populations also tend to have better health outcomes, possessing critical knowledge on health and nutrition and better healthcare utilization behaviours. As noted above, maternal education in particular is linked to better nutritional and health outcomes among children.

Moreover, education contributes to the strengthening of democracy, good governance and the rule of law at all levels, the realization of human rights, and the fostering of greater understanding among peoples (United Nations, 2016). A high-quality education is also the steppingstone towards achieving equality and providing a level playing field for those most marginalized. More and better education for women can contribute to breaking traditional gender roles and creating opportunities for women outside the household.

Despite the importance of inclusive, equitable and high-quality education, some groups are left behind, as can be seen in Figures 5 and 6, particularly in completion of secondary education.

Latin America and the Caribbean has witnessed notable progress in the past decade and a half, and during the first decade of the 21st century, with respect to primary and secondary education completion (ECLAC, 2019b). In 2016, 94 per cent of youth 15 to 19 years of age had completed primary school and just under 60 per cent of youth 20 to 24 had completed secondary school. However, important gaps in the coverage and quality persist. Despite the advances in assistance and completion rates in secondary education, there are deep and persistent socioeconomic gaps in relation to these indicators. The gaps in the right to quality education mean that the region is ill prepared to face technological changes affecting the labour market and that the difficulties associated with the transition from the education system to the labour market can worsen (ECLAC, 2019b).

In Honduras, the 2011-2012 DHS survey shows that just over 1 in 4 persons between 20 and 35 years of age have completed secondary education (Figure 5). The socioeconomic level of the household produces the first split, and a notable gap appears – fewer than 5 per cent of those in the poorest households complete secondary education, compared to almost 40 per cent in better off households. For poorer households, the second split is associated with sex: only 4 per cent of males in poorer households complete secondary education, compared to 5 per cent of women in those households. For better-off households, instead, the place of residence plays a role: those in rural areas are less likely to complete secondary education than their urban counterparts. This finding may reflect a lack of secondary school establishments in rural areas or the early entry among rural youth into the labour force. For young adults in wealthier households in urban areas, a final split exists based on sex. As in poorer households, men are at a disadvantage. While 40 per cent of men in wealthier urban households complete secondary education, 44 per cent of young women in those households do so. Ultimately, young men from poor households in Honduras are being left behind with respect to access and completion of secondary education.

Figure 5: Classification tree highlighting inequalities in completion of secondary education, Honduras 2011-2012
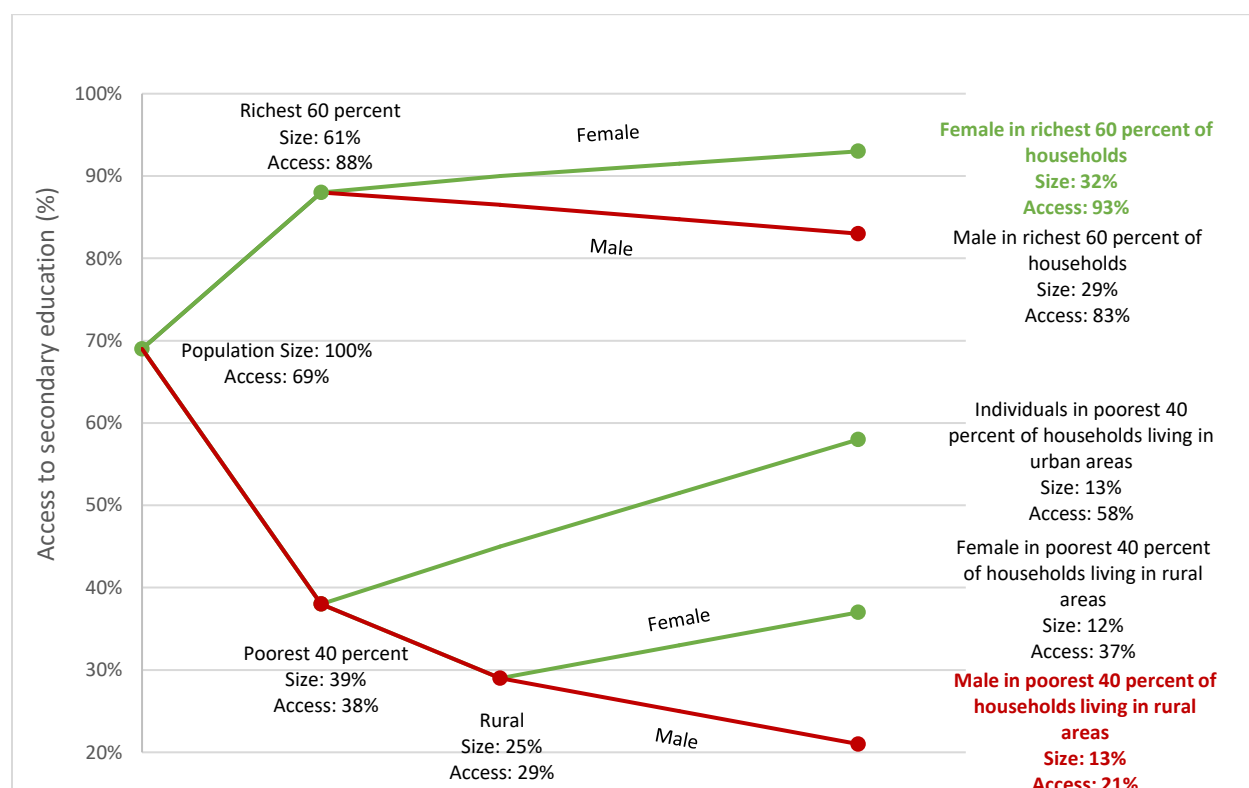

Source: Own calculation using data from the 2011-2012 DHS survey for Honduras.

In Asia and the Pacific, rates of completion of secondary education also vary widely among and within countries (UNESCAP, 2018). To illustrate gaps within countries, the example of Mongolia

is used. Figure 6 shows that 69 per cent of Mongolians between 20 and 35 years of age have completed secondary education. However, 88 per cent of individuals from the richest households have completed secondary, while only 38 per cent in the poorest households have. The second partition comes from gender (male or female) for individuals living in the richest 60 per cent of households, while residence (rural or urban) plays a role when considering those in the poorest 40 per cent. The third partition is only significant when analyzing those poor individuals living in rural areas, with men having lower rates of completion than women.

Overall, the best-off group are women belonging to the richest 60 per cent of households with a completion rate of 93 per cent. At the bottom of the tree, the furthest behind group are males in the poorest 40 per cent of households living in rural areas. This group represents 13 per cent of the population. Results are in line with research showing that this marginalized group is disproportionally affected by low school enrollment and high school dropout rates. In Mongolia, most male and poor children in rural areas work in animal husbandry or agriculture due to the need to contribute to household income and well-being (Steiner-Khamsi & Amgaabazar, 2008).

Figure 6: Classification tree highlighting inequalities in completion of secondary education, Mongolia 2013

Source: Own calculation using data from the 2013 MICS survey for Mongolia.

Comparing results of the analysis for FEALAC countries (Table 4), it emerges that belonging to the poorest 40 per cent of the wealth distribution is the most frequent factor characterising those with the lowest completion of secondary education in Asia and the Pacific and in Latin America and the Caribbean. In both regions, rural residence and being a woman also constitute important determinants for completing secondary education.

Table 4: Summary of results for completion of secondary school in FEALAC countries with DHS or MICS surveys, latest available year

The furthest behind in completion of secondary education	Latin America and the Caribbean		Asia and the Pacific	
	Number of countries	Countries	Number of countries	Countries
Poorest 40 per cent	12	Bolivia (Plurinational State of), Colombia, Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Panama, Paraguay, Peru, Suriname	8	Cambodia, Indonesia, Lao PDR, Myanmar, Mongolia, Philippines, Thailand, Viet Nam
Female	5	Bolivia (Plurinational State of), Guatemala, Mexico, Paraguay, Peru	4	Cambodia, Indonesia, Lao PDR, Viet Nam
Rural	8	Colombia, Costa Rica, El Salvador, Mexico, Panama, Paraguay, Suriname, Uruguay	4	Cambodia, Indonesia, Myanmar, Mongolia
Male	3	Dominican Republic, Honduras, Panama	3	Mongolia, Philippines, Thailand

Source: Own elaboration, on the basis of calculations on the latest DHS and MICS surveys.

Policy recommendations

Create education incentives for poorer households. Consider introducing or strengthening social protection programmes that support households in times of need. Certain schemes provide a guaranteed minimum income to help poorer families send their children to school. Grants for educational materials (books, uniforms) and transportation costs for school-age children and youth, as well as incentives to encourage staying in the education system can also help. These incentives need to be especially considered for rural areas, where poverty may draw many young people into the labour market prematurely.

Invest in new education infrastructure and support initiatives to promote school continuance among youth, especially in rural areas. Good school infrastructure, indeed, allows children and youths that live in remote areas to study, deterring their entrance in the labour market. In addition, better infrastructure tends to improve attendance and interest of students and teachers in learning.

Ensure a good foundation for learning through high-quality universal primary and secondary education, as well as quality early childhood education and care services. Although primary education has become near universal across FEALAC countries, the issue of quality remains. For instance, often schools in rural areas are poorly resourced with less experienced or qualified teachers and worse infrastructure, affecting the children's learning. In order to ensure all learners, regardless of their socio-economic backgrounds, develop readiness for further education, learning at earlier levels of education must be prioritized.

Explore the social, economic and cultural reasons for localized disparities in education. In communities with poor educational outcomes, multi-stakeholder consultations are necessary for understanding household motivations and decisions. Research demonstrates that one household may stop sending children to school after secondary level, while a neighboring family, perhaps from a different ethnic group, instead invests in longer periods of education. Hence, it is important to understand the nuances restricting some households from making 'better' choices.
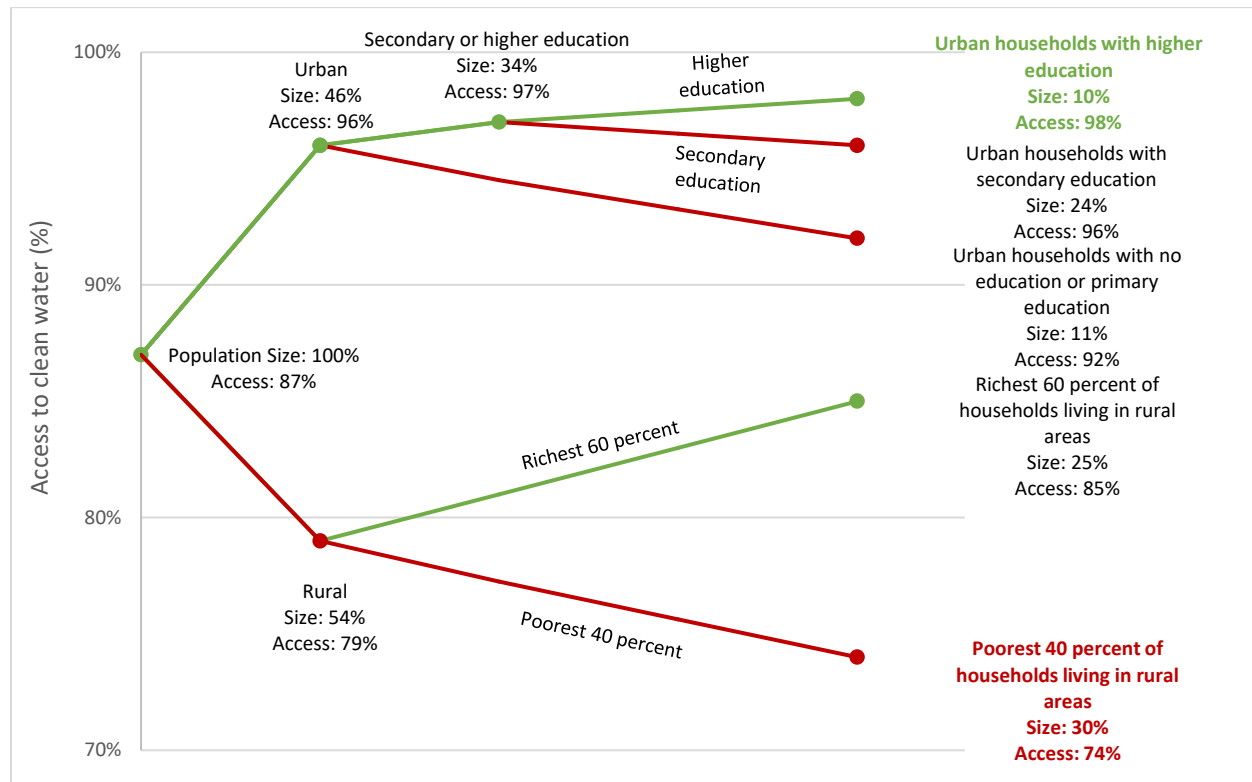
3.4 Access to clean water

Access to clean water is a fundamental aspect of human capacity development insofar as it promotes health and nutrition, which in turn can have positive impacts on school attendance among children, and higher productivity among adults. Thus, disparities in access to clean water can exacerbate income inequalities, gaps between rural and urban areas, and gender-based inequalities. There can also be gaps in the quality of water supply, even among those households considered to have basic access. If they do not have piped access to water at home, many lower-income households instead rely on poorly maintained or unregulated public water sources and delivery trucks. Low quality access to water clearly has consequences for the health of the population, in particular for the healthy development of children.

Despite progress made since the turn of the millennium with respect to access to clean water, much remains to be done. Recent evidence suggests that, if the current pace of progress remains unchanged, the world will not achieve SDG 6 by 2030 (United Nations, 2019). Moreover, that progress in access to clean water has not necessarily benefitted those who are most in need of these services, notably, the poorest people living in informal settlements and girls and women (UN Water, 2015).

Recent evidence in Latin America and the Caribbean shows that, between 1990 and 2015, the population with access to improved sanitation increased from 67 per cent to 83 per cent, and that access to improved sources of drinking water likewise increased, from 85 per cent to 95 per cent (UNICEF and WHO, 2015). Even so, this would mean that millions of people in the region still lack access to improved water sources and sanitation facilities. In Guatemala, for instance, the 2015 DHS survey shows that only 87 per cent of households have access to clean water at the national level (Figure 7). Nonetheless, rural households are at a disadvantage compared to urban ones, as under 80 per cent of rural households have access to clean water, 17 percentage points lower than urban households. This result points to the gaps in basic infrastructure between rural and urban areas that persist in Latin American countries.

The next split for rural households relates to the socioeconomic level – poorer households have less access to clean water, compared to wealthier rural households, with a difference of 11 percentage points – 74 per cent versus 85 per cent. This result reveals that even in areas that are underserved by public services, wealthier households still manage to have greater access to clean water. Finally, among urban households, the education level of the household head is a characteristic that shapes access to clean water, although the gaps observed are quite small. The households with greatest access to clean water are urban households whose household heads have the highest levels of education (post-secondary) – access to clean water among these households reaches almost 100 per cent, while only 74 per cent of rural poor households have access to clean water.

Figure 7: Classification tree highlighting inequalities in access to clean water, Guatemala 2014-2015
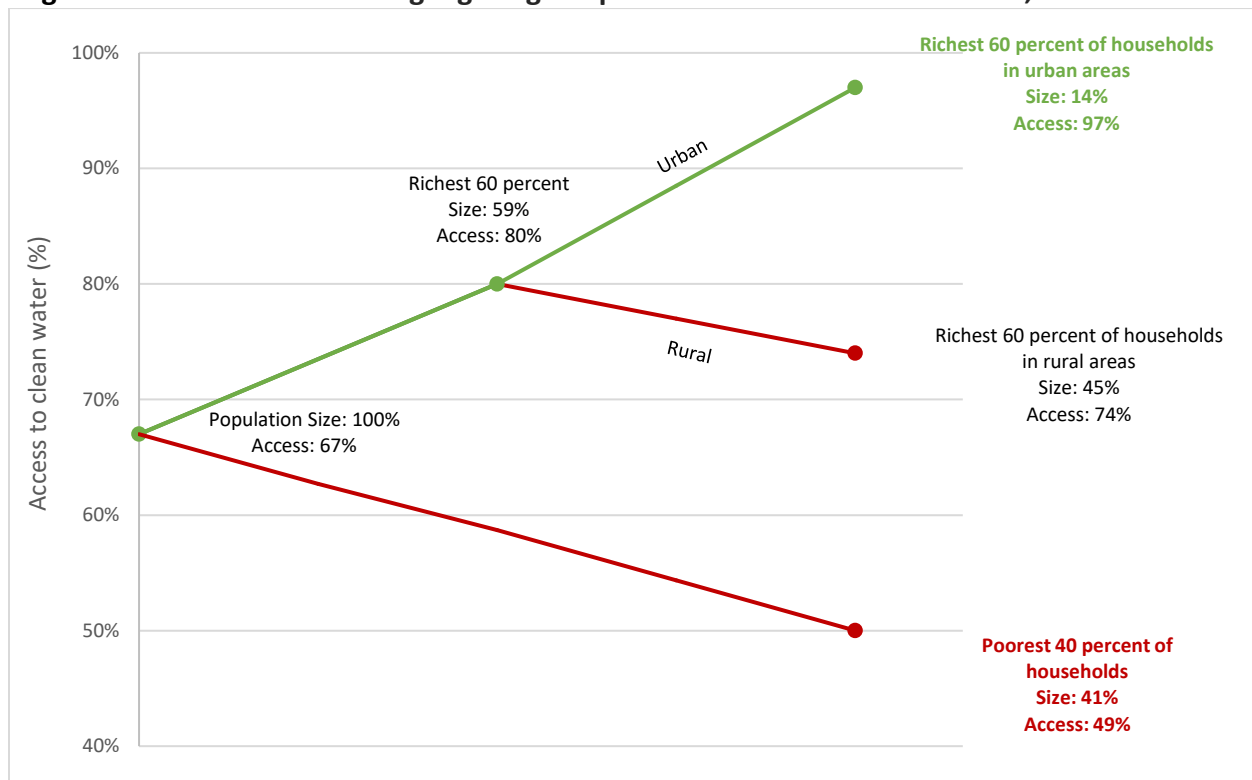

Source: Own calculation using data from the 2014-2015 DHS survey for Guatemala.

In Asia and the Pacific, although average access to clean water is high, reaching around 90 per cent of the population, it is estimated that some 260 million people still used an unimproved water source (unprotected dug well or unprotected spring) in 2015 (UNESCAP, 2018). For example, in Cambodia, the 2014 DHS survey highlights that only 67 per cent of all households had access to clean water. Wealth is the main factor shaping inequality; the poorest 40 per cent are the worst-off group, with only half of the households accessing clean water. On the contrary, their counterparts belonging to the richest 60 per cent of the wealth distribution reports 80 per cent access.

The second split in determining access is residence, but it is only significant when analyzing the better-off households. In this case, households living in urban areas have almost universal access to clean water, contrary to those living in rural areas who had an access rate of 74 per cent.

Figure 8: Classification tree highlighting inequalities in access to clean water, Cambodia 2014

Source: Own calculation using data from the 2104 DHS survey for Cambodia.

Extending the analysis of household access to clean water across FEALAC countries (Table 5), it emerges that belonging to the poorest 40 per cent of households and living in rural areas are the most common circumstances characterising the furthest behind households in both Asia and the Pacific and Latin America and the Caribbean.

Table 5: Summary of results for access to clean water in FEALAC countries with DHS or MICS surveys, latest available year

The furthest behind in access to clean water	Latin America and the Caribbean		Asia and the Pacific	
	Number of countries	Countries	Number of countries	Countries
Poorest 40 per cent	6	Bolivia (Plurinational State of), Costa Rica, Guatemala, Honduras, Mexico, Paraguay,	8	Cambodia, Indonesia, Lao PDR, Myanmar, Mongolia, Philippines, Thailand, Viet Nam
At most primary education	3	Bolivia (Plurinational State of), Costa Rica, Honduras	3	Indonesia, Mongolia, Philippines
At most higher education			2	Cambodia, Myanmar
Rural	4	Cuba, Guatemala, Mexico, Paraguay	3	Indonesia, Lao PDR, Thailand

Source: Own elaboration, on the basis of calculations on the latest DHS and MICS surveys.

Policy recommendations

Improve access to clean water in rural areas, by reducing collection times of water, a burden that falls mainly on women and girls. Increasing the number of people who have water sources within their home and equipping rural educational facilities with adequate access to clean water also help. These measures also contribute to achieving other poverty related goals such as health, education and gender equality.[4]

Ensure that all households, notwithstanding of their income level, can rely on clean water. The investment in quality and affordable infrastructure and services can play a pivotal role for all households' members, contributing to long-term human capital accumulation. Healthier children have more chances to complete education and succeed in the labour market. Ensuring these services are affordable for all not only benefits households but have economy-wide impacts.

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[4] Examples that might be highlighted for the case of Latin America are: *Agua Más* (More Water) which aims to reduce the qualitative deficit of water facilities to access safe water for poor and extreme poor populations in rural areas in Peru and *Água Para Todos* (Water for All) in Brazil, which guarantees access to water for consumption and agricultural production for poor families living in the semi-arid region, mainly through cisterns for the collection of rain water.

Support initiatives aimed at changing the hygiene culture and proper access to clean water disposal across different societal agents. With a special emphasis on girls, women, and their sanitation needs, increased awareness of good practices can widely reduce health disparities between groups. Sanitation policies also need to be gender-sensitive, ensuring that women and girls have good and safe access to basic sanitation facilities dedicated to them, particularly in schools.

3.5 Access to clean fuels

Closing the household energy access gap, which includes access and use of clean cooking fuels, is now a priority on the global sustainable development agenda, expressed in Sustainable Development Goal 7, which seeks to ensure access to affordable, reliable, sustainable and modern energy for all (United Nations, 2018).

Lack of access to reliable, clean, modern cooking energy prevents people from living to their full potential. Household and ambient air pollution is a serious threat to human and environmental health. Addressing this challenge requires significant progress in access to clean and modern cooking fuels. Exposure to household air pollution (HAP) contributes to many diseases including acute lower respiratory infections in young children and lung cancer, ischemic heart disease, chronic obstructive pulmonary disease, and stroke in adults; with these effects disproportionately affecting women, infants and children (WHO et al., 2018). Ensuring that all households have access to clean cooking fuels not only improves human health; it also reduces emissions of climate-affecting greenhouse gases.

Recent analyses on the use of clean fuels are a cause for concern, as the progress towards the goal of universal access remains far too slow: more than three billion people still rely on polluting, inefficient energy systems to meet their daily cooking needs. Similarly, polluting fuels and devices are often used for heating and lighting (IEA, 2017). Women and children are most severely affected, as they spend more time inside the household, preparing food.

Evidence suggests that a majority of households in Latin America and the Caribbean – 82 per cent employ clean fuels. This is the case in Colombia, for example, where 87 per cent of households use clean fuels for cooking (Figure 9). However, there are sharp contrasts between rural and urban areas. Among households in rural areas, the use of clean fuels for cooking decreases to 50 per cent. By contrast, in urban areas the use of clean cooking fuels is almost universal, although there are some socioeconomic disparities among households: poorer urban households have lower use of clean cooking fuels compared to their wealthier counterparts – 91 per cent compared to 100 per cent. Additionally, for poorer urban households, the level of education of the household head is also a relevant factor: households whose heads have higher levels of education have greater use of clean cooking fuels compared to those with heads that have lower levels of education. Nevertheless, gaps between the groups are small.

These results suggest that in Colombia the use of cooking fuels that are not considered clean is fundamentally a rural issue, and that a high percentage of households in these areas use such fuels, highlighting the need to direct actions in these contexts to increase the use of clean cooking fuels, in line with SDG 7.1. These disparities in access to clean cooking fuels thus result in an unequal exposure to the health hazards posed by unclean fuels, exacerbating health inequalities in rural, poorer households.

**Figure 9:** Classification tree highlighting inequalities in use of clean cooking fuels, Colombia 2015
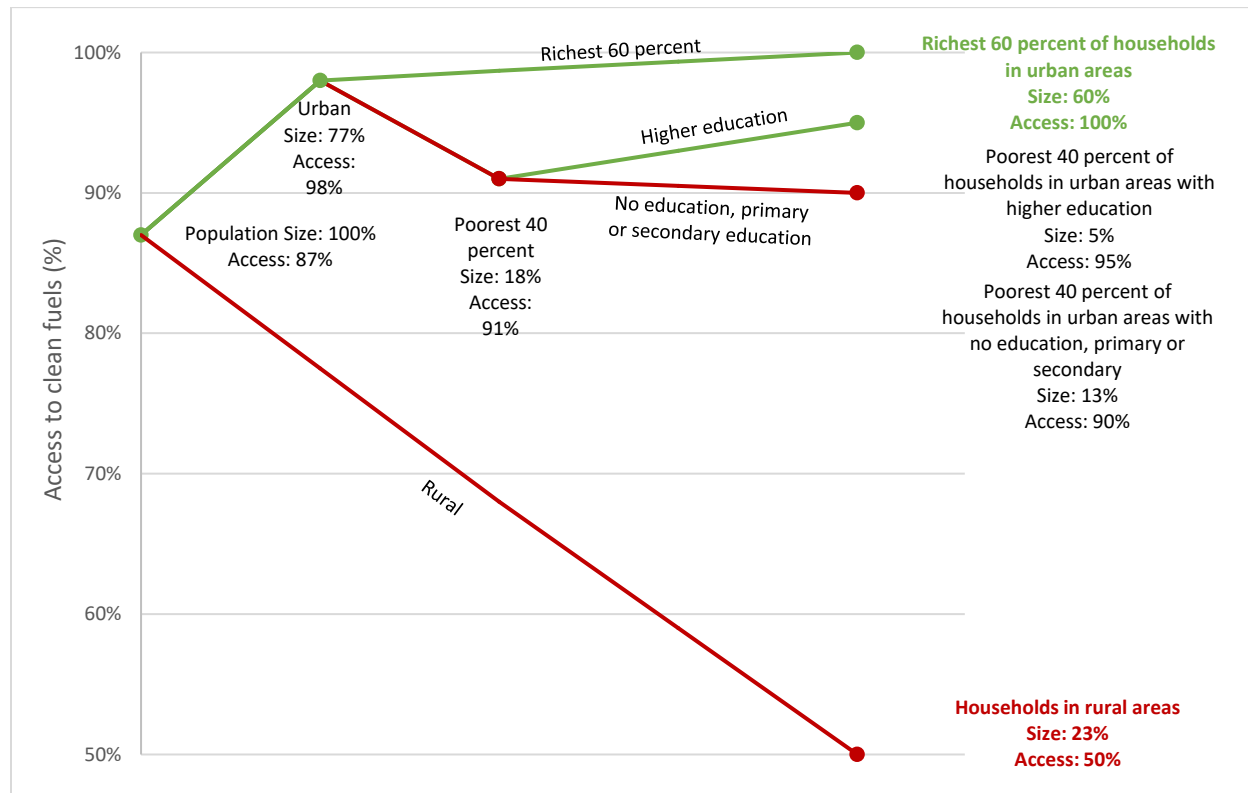
Source: Own calculation using data from the 2015 DHS survey for Colombia.

In the Asia and the Pacific region, despite economic progress in recent decades, close to half of the population still rely on traditional and inefficient fuels for cooking and heating (UNESCAP, 2018). To illustrate gaps in access to clean fuels in the region, Viet Nam is presented as an example, where on average 58 per cent of all households have access to clean cooking fuels. However, Figure 10 shows that households belonging to the poorest 40 per cent of the wealth distribution are the furthest behind group, where less than 20 per cent have access to clean cooking fuels. On the contrary, 88 per cent of households have access among the richest 60 per cent of households. The second split is residence. Households living in urban areas report access to clean cooking fuels 4 percentage points higher than their rural counterparts.

Higher level of education among household heads constitutes the last partition for those households in the richest 60 per cent of the wealth distribution living in urban areas.

Figure 10: Classification tree highlighting inequalities in use of clean cooking fuels, Viet Nam 2013
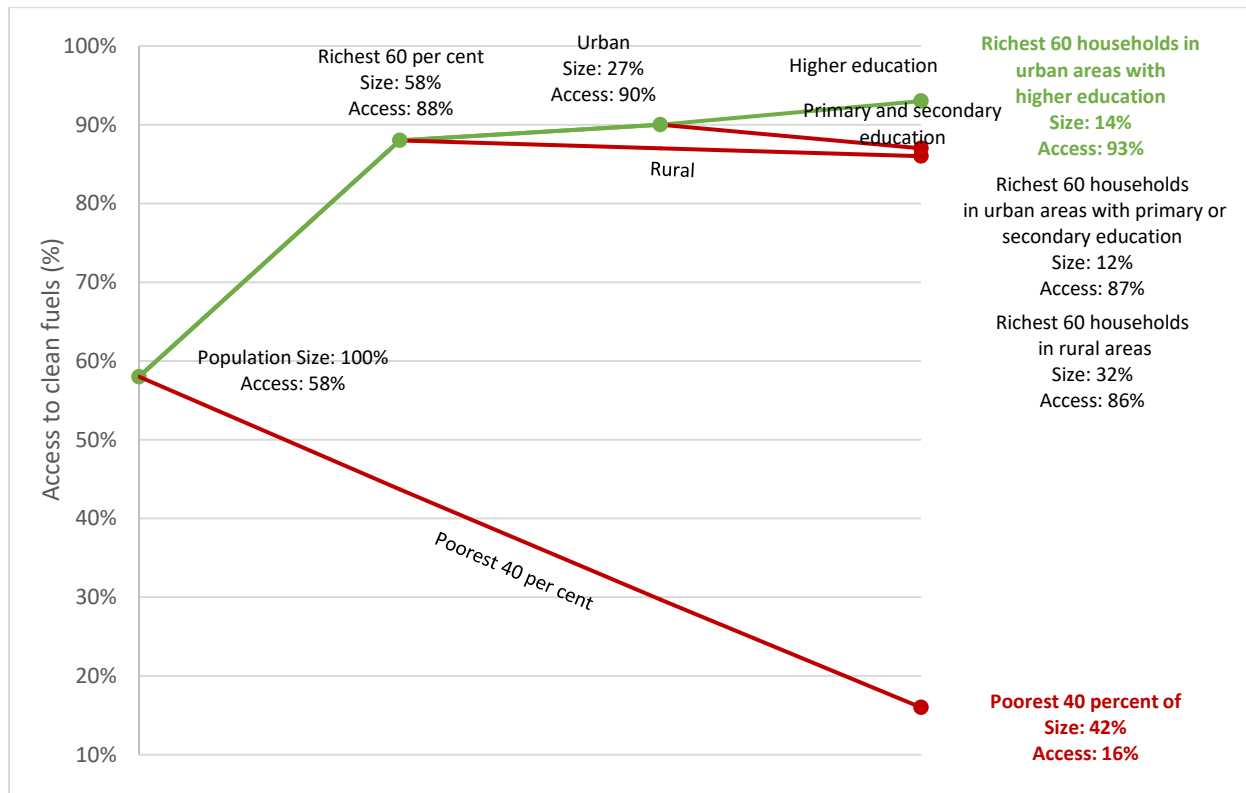
Source: Own calculation using data from the 2013 MICS survey for Viet Nam.

Expanding the analysis of household access to clean fuel to all the countries in the FEALAC region, results show that people belonging to poorer households and living in rural areas are often the furthest behind in accessing clean fuels. In Latin America, low educational attainment is an important additional factor (see Table 6).

Table 6: Summary of results for access to clean cooking fuels in FEALAC countries with DHS or MICS surveys, latest available year

The furthest behind in access to clean fuel	Latin America and the Caribbean		Asia and the Pacific	
	Number of countries	Countries	Number of countries	Countries
Poorest 40 per cent	8	Bolivia (Plurinational State of), Costa Rica, Dominican Republic, El Salvador, Guatemala, Honduras, Mexico, Peru	8	Cambodia, Indonesia, Lao PDR, Myanmar, Mongolia, Philippines, Thailand, Viet Nam
At most primary education	6	Bolivia (Plurinational State of), Costa Rica, Dominican Republic, El Salvador, Honduras, Peru,	3	IndonesiaI, Philippines, Thailand
Rural	6	Colombia, Costa Rica, El Salvador, Mexico, Peru, Uruguay	6	Cambodia, Indonesia, Lao PDR, Mongolia, Myanmar, Thailand

Source: Own elaboration, on the basis of calculations on the latest DHS and MICS surveys.

Policy recommendations

Promote awareness among people with low levels of education on the importance of using clean fuels, **and increase the affordability and availability of cleaner and better cooking alternatives** to encourage a transition away from the use of solid fuels, like fuelwood, burnt especially in traditional stoves in poor rural households (ECLAC, 2007). This can be achieved, for example, by providing economic incentives for the use of clean fuels, which may have important economic, environmental and health benefits.

Provide public regulatory structures and monitoring bodies with the resources and skills necessary for assessing and addressing household access gaps. Reliable access to clean cooking fuels for poorer households and for families living in rural areas highly depends on the availability of affordable clean cooking and heating solutions.

Incentivize service providers to meet the specific energy needs of household's members, especially women. Information campaigns and targeted marketing strategies could help influence both men's and women's choices towards cleaner fuels, while also reversing traditional gender stereotypes.

4. A policy agenda to address inequality in the context of the Sustainable Development Goals

In both regions analysed in this report, certain population groups have been systematically excluded from development. Even against a backdrop of rapid poverty reduction and economic development, the fruits of economic and social progress have been unevenly distributed. The classification tree analysis conducted across several economic, social and environmental dimensions of sustainable development allows to identify the furthest behind. If embedded in public policies, these findings can contribute to the reduction of inequality across FEALAC counties.

Universal access to social protection, health, education, basic services and other public and social services are fundamental to reducing inequalities. In addition to striving for the principle of universality, policies must actively aim to overcome existing gaps and inequalities, to "leave no one behind'. To this end, affirmative action is needed to break down access barriers for individuals and groups experiencing different forms of inequality, discrimination and exclusion.

Pro-equality policies need to be understood in light of the rights-based approach, with its principles of non-discrimination and equality, participation and empowerment, and accountability and transparency. The rights-based approach lies at the core of the 2030 Agenda for Sustainable Development. Public policies should be gauged in terms of entitlement to rights. From this perspective, pro-equality social protection, labour, health and education policies need to be geared towards the effective exercise of economic, social and environmental rights.

Identify the shared common characteristics shaping household levels of access and outcomes. The classification tree analysis conducted across FEALAC countries shows that inequality in access to adequate nutrition (stunting in children), assistance by a skilled birth attendant during childbirth, completion of secondary education, access to clean water and the use of clean cooking fuels are not just strongly linked to household wealth, but also to education level and place of residence, among others. Understanding the key characteristics shaping household levels of access and outcomes is therefore paramount to addressing these inequalities, as well as to providing the ground for breaking intergenerational poverty.

Understand the multidimensional aspects of inequality and its interlinkages to implement coherent policies. Even though the indicators in this report have been analyzed separately, they are interdependent: progress in any one of these areas can have positive impacts on the progress towards others, thus underscoring the integrated nature of the SDGs and the 2030 Agenda. For example, unequal nutrition outcomes, by affecting children's cognitive capacity, perpetrate inequality in accessing and completing education. Similarly, unequal education opportunities are strongly linked, among others, to lower access to decent employment. Due to these interlinkages, cross-sectoral coordination is crucial to systematically address inequality. Education, particularly women's education, is the common thread linking many of these outcomes together.

Address the multiple dimensions of inequality by closing key gaps of sustainable development:

    a. **Reduce income and wealth inequality** by broadening social protection coverage and supporting low-income families through cash transfers and other income-support mechanisms, linking social protection mechanisms to labour and productive inclusion initiatives, and by strengthening progressive taxation.

    b. **Make education affordable, accessible and relevant for all.** National education systems should encourage and facilitate higher education attainment and at the minimum improve secondary completion rates for all population groups. The quality of education also needs to be strengthened so that young people are acquiring the skills, including socioemotional and technical skills, which will be required in a rapidly changing labour market.

    c. **Close rural-urban gaps in public service delivery**. Physical access and mobility constraints compound inequality. For example, access to education, clean water and clean cooking fuels in rural areas are often constrained by a lack of adequate infrastructure, including transport connections.

    d. **Protect and promote the right of girls and women** to attain adequate education level and freely access health-care services, including sexual and reproductive health. Investment in enhancing access to family planning the youth and expanding their education and labour opportunities so that they have incentives to use them are also crucial.

Encourage cross-sectoral and inter-ministerial collaboration to strengthen integrated policies and improve equality across the economic, social and environmental dimensions. To reach population groups at the highest risk of being left behind, policy reforms need to be underpinned by multisectoral and multi-stakeholder involvement at all stages, from development and design to implementation and monitoring. Given the diversity of living conditions impacting individuals and households' levels of access and outcomes, such involvement and coordination are imperative for creating improved levels of access to fundamental services.

Strengthen data collection efforts and statistical visibility of vulnerable groups to understand how inequalities related to the economic, social and environmental dimensions of sustainable development impact households and communities. To identify, design and implement equally - oriented policies specific empirical evidence is required to improve economic and social policies in different country contexts. The classification tree analysis across FEALAC countries presented here is an effort to accumulate specific comparative empirical evidence that contributes to the analysis of public policies and their linkages to inequality. To identify those at risk of being left behind and to direct policymaking at certain population groups, national data collection needs to allow for better disaggregation. Indeed, existing data used in this study does not allow for a full understanding of household behaviours or subsequent inequalities arising among and within households.

Make public services and levels of access more inclusive through stronger institutions. Strong political commitment, active participation by the implicated communities, broad public support

as well as capable and accountable institutions governed by transparent regulatory frameworks are prerequisites for inclusive and effective service delivery. Ineffective administration, weak rule of law, corruption, and lack of regulatory frameworks influence operational capacity to generate change and disproportionally harm the poorest and most vulnerable segments of society.

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Annex 1: Methodology for identifying gaps in access to opportunities

The tree method starts by searching for the first split (or branch) of the tree. It does so by looking at each predictor or determinant factor and separating the sample in two groups, so that it achieves the most "information gain". This information metric can be defined in a few ways; the most common one – and the one used in this analysis – is "entropy".[5] The tree algorithm partitions the sample into different groups based on the household or individual predictor variables or determinant factors that are chosen for the analysis.

$$p(Y_i = 1 || X_{1i}, X_{2i}, \ldots, X_{li}) = \sum_{j=1}^{m} p_j \times I((X_{1i}, X_{i2}, \ldots, X_{li}) \in A_j)$$

Where:

- Y_i is the observed access (outcome indicator) for the i-th household or individual in the sample;
- X_{1i}, ..., X_{li} are the predictor variables (determinant factors) for the household or individual.
- A1, A2, ... Am are the different partitions of the sample, also called end nodes, where:

$$A_i \cap A_j = \emptyset \text{ (1) and}$$

$$\cup_{i=1}^{m} A_i = \Omega. \text{ (2)}$$

These end node conditions mean that the end nodes are mutually exclusive and complementary (1), and that every household or individual belongs to one and only one of the end nodes (2).

- I is the function that determines the partitions. I () only takes value 1 when the i-th household or individual belongs to j-th end node, otherwise, I () takes value 0. The tree algorithm generates the end nodes, according to metrics that measure the effectiveness of the partition.

Information theory and entropy is a very common choice for the metrics. Entropy for j-th end node can be calculated according to the definition:

$$I_E(p_j) = -(p_j \times log_2 p_j + (1 - p_j) \times log_2(1 - p_j))$$

The aggregated entropy for the tree is calculated by:

$$H(T) = \sum_{j=1}^{m} q_j \times I_E(p_j)$$

Where qj is the sample proportion of node Aj. The actual algorithm that generates the end-nodes works step-by-step, starting from the entire sample. Each time the sample is partitioned, new end-nodes are generated, and the entropy is calculated and compared to the entropy before the new partition. Each partition (and hence the new end nodes) is kept when the addition of the new circumstance decreases the entropy when compared to the entropy of a pre-set threshold. The algorithm stops when no more "information gain" can be made by a new partition, or a set of pre-set conditions can't be satisfied. The most significant of these conditions is that each group should have enough group members. To avoid a too small sub-sample size, the analysis has set the tree nodes to have a minimum size of at least 10 per cent of the total population and the split of tree is only made when an "information gain" criterion is satisfied.

Annex 2: DHS and MICS availability in Latin America and the Caribbean and Asia and the Pacific

Latin America and the Caribbean

Country	Most recent year available	Survey
Argentina	2012	MICS
Bolivia (Plurinational State of)	2008	DHS
Colombia	2015	DHS
Costa Rica	2011	MICS
Cuba	2014	MICS
Dominican Republic	2013	DHS
El Salvador	2014	MICS
Guatemala	2014-2015	DHS
Honduras	2011-2012	DHS
Mexico	2015	MICS
Panama	2013	MICS
Paraguay	2016	MICS
Peru	2012	DHS
Suriname	2010	MICS
Uruguay	2013	MICS

Asia and the Pacific

Country	Most recent year available	Survey
Cambodia	2014	DHS
Indonesia	2017	DHS
Lao People's Democratic Republic	2017	MICS
Mongolia	2013	MICS
Myanmar	2016	DHS
Philippines	2016	DHS
Thailand	2015	MICS
Viet Nam	2013	MICS