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Addressing global systemic concerns while implementing SDGs at country level

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Introduction

The ongoing debates in the context of globalisation and global governance systems implicitly recognise that global systemic concerns impact the delivery of the Sustainable Development Goals (SDGs) in the national context, including in their relation to accomplishing the objective to leave no one behind (LNOB). The debates recognise that global systemic concerns, for example, climate change, migration, and technological change, could pose challenges and opportunities. It is in this context that literature also recognises that global systemic concerns (GSCs) will have consequences for the 2030 Agenda. In this regard, the Southern Voice initiative tries to systematically navigate how selected GSCs could impact the attainment of SDGs.

For the purpose of our analysis, and ease of reader's understanding, we loosely define GSCs as changes of complex nature which could or could not be triggered by the act of a single country but has impacts (negative or positive) which could potentially impact several countries (e.g. conflict), regions (e.g. natural and man-made disasters), or the entire globe (e.g. climate change).

Efforts to deal with GSCs also need to go beyond national-level interventions. There needs to be regional and global efforts, particularly geared towards enhancing the capacities of national and subnational governments in developing countries to deal with or mitigate the impacts of such challenges.

The specific objectives of this chapter are to:

- provide an understanding of how systemic concerns may be regarded as cross-cutting issues while formulating policies for the SDGs;
- conceptualise and identify some key GSCs which could impact the factors of production in developing economies;
- understand how GSCs shape global partnerships—with the aim to combat any adversity (e.g. pollution) and harness opportunity (e.g. technology).

Context

In this section we present a case of three distinct challenges in the areas of technology, energy, and finance, and how these have triggered GSCs. Since the financial crisis of 2008, the emergence of systemic risks is now not thought to be limited to the domain of finance; it also includes a host of other risks, emanating from changes in climate, cybersecurity, technology, migration and so on (Renn, Lucas, Haas, & Jaeger, 2017). According to the World Economic Forum (2016), despite the positive impacts of several technological shifts, uneven access to technology could negatively affect existing jobs.

This also has implications for inequality. For instance, automation could remove the need for many forms of conventional labour; a relocation of jobs and industry could also occur (Schwab, 2016). According to a study by Dobbs, Madgavkar, Barton, Labaye, Manyika, Roxburgh, Lund and Madhav (2012), the world economy could witness a surplus of low-skilled workers along with a shortage of high-skilled workers.

In the energy sector, the appetite for clean and affordable energy has prompted governments to rethink decades-old structures of electricity generation and distribution. The growth of renewable energy, intuitively seen as a more sustainable way forward, seems to be driven by private financial gains. This could potentially pose an impediment to countries that are reluctant to invest or do not have resources to transition towards sustainable energy for all (Zeshan & Ahmed, 2013; Ahmed, 2017). The provision of energy to marginalised segments of the population remains a challenge for most developing economies (International Renewable Energy Agency, 2018).

It is important to understand here that changes in global finance, technology, and energy are not mutually exclusive. They can all occur in one time and space, and can also have an impact in one or more forms—often unanticipated by policymakers. In the sections that follow, we will make a case for improved national and global governance mechanisms to assess and respond to GSCs.

Methodological approach

Our approach to addressing the objectives involves an extensive literature review. Due to space constraints, not all strands of literature can be presented here. However, we provide a framework of analysis (based on the available literature) and highlight key gaps in the literature and how such gaps may be bridged through this work.

The debates recognise that global systemic issues, for example, climate change, migration, and technological change, could pose challenges and opportunities.

The team also presented a previous version of this paper at Southern Voice meetings to receive feedback. These meetings included two research workshops on the State of the Sustainable Development Goals (SVSS) hosted by Southern Voice. On the sidelines of these meetings, we had the opportunity to conduct 25 key informant interviews from experts from South Asia, Latin America, and Africa. The team also hosted a focus group discussion on this subject at the 21st Sustainable Development Conference in Islamabad.

Most importantly, we used the SVSS country case studies to look at how various GSCs could impact SDGs.

Framework of analysis

Our framework of analysis (Figure 6.1) is grounded in the literature around global governance. We identify four levels of analysis to fully explore the possible impacts of GSCs. At the first level, we are particularly keen to make use of the approach provided in Thakur and Langenhove (2006) to understand global governance. However, the framework is not limited to one strand of debate and provides room to incorporate views from others cited in sub-sections below. Second, we refer to global policy problems that require agreement through global governance arrangements. At a third level, we explore the transmission mechanisms which could impact, both positively and negatively, the national pursuit of SDGs. We define the fourth level of analysis as any study around the national-level implementation framework of the 2030 Agenda.

Figure 6.1. Framework of analysis

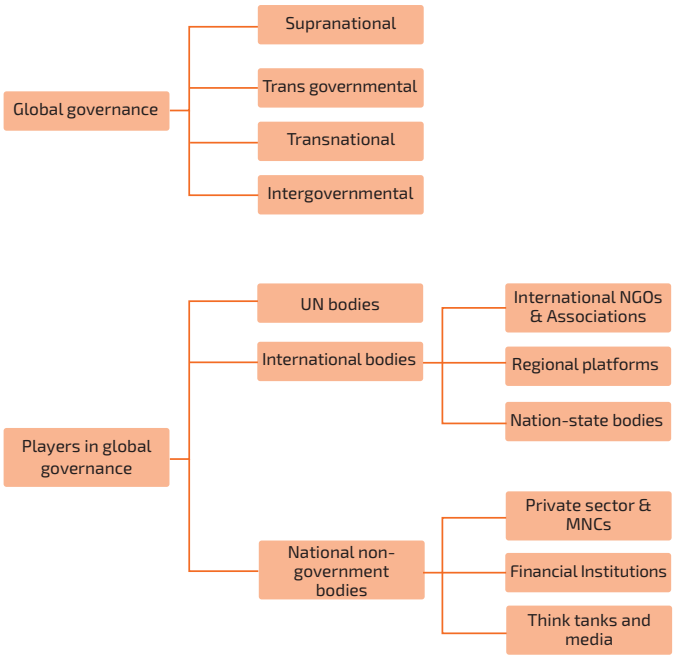
Elaborated by the authors.

Global governance

We take the lead from Thakur and Van Langenhove (2006) in explaining how innovative global governance arrangements can be put in place. They argue that collective interests can be articulated, rights and obligations established, and differences mediated between various countries and global actors through cooperative problem-solving approaches. They favour defining global governance as "governance for the world without world government" (Thakur & Van Langenhove, 2006).

The manifestation of global governance beyond immediate borders means that nation states entrusted with the responsibility of safeguarding their citizens from the harmful effects orchestrated by external entities and transnational flows, are now increasingly coming under pressure to adopt a defensive stance against 'outsiders'. Nation states face the inevitable task of forging collaboration and partnerships between diverse transnational players (Figure 6.2) (see Scholte, 2005).

Figure 6.2. Actors in global governance space



Note. CSOs=civil society organisations; MNCs=multinational corporations; International Associations could include platforms such as World Business Council
Source: Adapted from Klaus Dingwerth and Philipp Pattberg (2010).
Elaborated by the authors.

A related question is how to make these partnerships work for developing countries and remain strong over time. Likewise, do global governance arrangements understand the complexity of the challenges faced by developing countries—particularly in relation to barriers to achieving SDGs? For example, a key challenge that developing countries face includes embedding the LNOB notion into national plans and budgets. This pursuit can be either eased or made challenging by GSCs. In both scenarios, governance arrangements beyond national borders can help countries with constrained resources and knowledge.

Global governance arrangements for GSCs

In the context of this study, we define GSCs as global policy problems that require agreement through global governance mechanisms. For example, since the financial crisis of 2008, the emergence of systemic risks is now not thought to be limited to financial risks, but also includes a host of other risks, emanating from changes in technology, trade and tariff wars, cyber-attacks, and so on (Renn et al., 2017).

Technological innovation around the world is redefining work practices. According to the World Economic Forum (2016), despite technological shifts bringing economic benefits, uneven access to technology could negatively affect existing jobs as many of them could become obsolete, yet it may also create new ones. In the future, technology would dominate production of new products, which itself requires upgrading of skill-sets so that the public and private sectors develop the capability of dealing with technological sophistication (World Economic Forum, 2016).[1] This is closely linked to how technology platforms could be cartelised by large private sector corporations. The debate around how to regulate the internet (or whether to regulate it at all) is inconclusive.

Technological sophistication coupled with trade liberalisation in the recent past has exerted pressure on firms to lower their production costs. The firms previously operating in major enclaves of populated cities have shifted employment to the periphery, a strategy adopted to lower production costs and become less dependent on traditional unskilled labour (Ulrichs, 2016). The diminished demand for unskilled labour has implications for the well-being of society (Benería, 2001; Chen, 2012).

The adoption of sophisticated and economic machines could, at least in a transitory sense, give rise to informality in the labour market. The transition phase, in the foreseeable future, may see an increase informal labour around the world, posing a challenge to the attainment of SDG 8 (decent work and economic growth). As pointed out by Schwab (2016), the new work environment may or may not be in line with the ambition of sustainable production or decent jobs. As technological change is an irrefutable reality, presenting business opportunities to advanced countries, and posing a risk to developing countries. Questions remain on whether existing global governance systems will be able to accommodate the desires of both developed and developing countries.

One could argue that technology's impact on developed economies also requires in-depth evaluation. For example, in recent years, inequality

1 There is a growing body of literature now on the need to improve public-private dialogue mechanisms at a national level to achieve such objectives. For example, see Nazir & Ahmed (2019).

and its consequences have received much attention in the literature. Several forms of inequalities can be exacerbated as a consequence of technological change (Schwab, 2016). According to McKinsey (2012, p. 2), "the global economy could face a potential surplus of 90 to 95 million in low-skill workers and a shortage of about 38 to 40 million high-skill workers by 2020". Moreover, there is a high probability that technological change will impact the poor and marginalised.

According to Díaz Langou, Caro Sachetti, Rivero, Beneke de Sanfeliú, Drakeman, Ochoa, Robino, Branisa and Sorgner (2018), "wide gender gaps persist; women participate less in labour markets, their employment conditions are worsening, they face glass walls and ceilings, and they are discriminated by the law" (p.2). The evolving pattern of production and the restructuring of work practices have an unequal transboundary effect as some countries may be more affected than others. The inevitability of interconnections across diverse domains of knowledge and technological advancements has implications for local people and nation states. The negative or spill-over effects of technology could engulf and affect women more than men (Benería, 2001; Kabeer, 2012; Salzinger 2003).

Several forms of inequalities can be exacerbated as a consequence of technological change.

According to Pyle and Ward (2003), the gendered effects under the globalisation of trade are more pronounced as they are seldom considered by trade organisations when crafting policies. In many African and Latin American countries, and certain regions of Asia, women who run small businesses in the agricultural sector become redundant due to cheaper imports under the regime of "unequal trade liberalization" (Pyle & Ward, 2003, p. 466).

Many have attempted to propose how some or most of the GSCs could be mitigated through global governance arrangements. The concept of global public goods (GPGs) has also received attention. We, however, note here that if any entitlement is recognised as a global public good then losing this could also be a global systemic issue.

Theoretically, GPGs are defined as "public goods whose benefits reach across borders, generations, and population groups" (Kaul, 2000). While recognising that basic education can be evaluated from different perspectives, such as public goods theory, a recent policy discourse makes reference to the conceptualisation of basic education from a 'western-centric' perspective (Menashy, 2009). Elsewhere, Kaul (2013) argues that the global aspect of public goods is primarily driven by globalisation. The theory of GPGs has several implications when viewed in terms of donors or internationally conceived definitions, thus implying a shift towards marketisation of education (or other social services).

For instance, transnational flows may be aimed at directing incentives for domestic actors. However, the pay-offs may benefit the private sector at the cost of national public goods (World Bank, 2017). The global community is facing difficulties in the delivery of public goods because of multiple centres and decision-making processes (Cepparulo & Giuriato, 2016). For instance, education has been considered not only a public good but also a private good, making it excludable, and meaning that the provision of education is

not the sole responsibility of the public sector. Thus, the traditional sphere of governance has become 'multilayered and transboundary' (Figure 6.2).

Transmission mechanisms

Understanding the transmission mechanisms through which GSCs impact national-level outcomes is necessary to ultimately formulate a policy response. In this part of our framework of analysis, we describe the transmission mechanisms through which GSCs could impact the pursuit of SDGs at the national level. As part of this, teams studied GSCs specific to select economies. In Table 6.1, we show transmission channels through which GSCs impact socio-economic welfare, using examples from our country case studies.

This also draws from the transmission mechanisms identified by Nissanke and Thorbecke (2010). They split the channels into: growth, technological, institutional, informational and vulnerability channels.

There are instances where identification of transmission mechanisms may not be straightforward. For example, how could the global changes in oil and energy markets impact the pursuit of sustainable production in developing countries? There is a race to find cheaper and cleaner energy, however, developing economies may not have the finances or technical expertise to participate in this research and development. Eventually, being left behind also has implications for environment, health, and competitiveness of enterprises.

Table 6.1. Global systemic concerns and transmission mechanism

Country	Global systemic concern	Transmission mechanism	Impact on SDG implementation
Sri Lanka	Upgrading of a main value chain and automation of the apparel industry has implications for local workforce, in particular the female workforce.	-Growth channel -Technology channel	Automation influences Goal 8 and pursuit of productive and decent employment.[2] In the short term this could bring painful adjustment (with increased transitory unemployment). In the longer term, and if appropriate policy interventions are made in favour of upgrading human resource capacities, this could boost productivity and inclusive growth prospects.
India	Declining female labour force participation due to technology, automation of production processes.	-Growth channel -Technology channel	Pursuit of technology without skilling and capacity building leads to increase in gender gaps (seen in education, skills attainment, and formal employment) and also threatens Goal 4 outcomes; timely interventions will also help Goals 8 and 5.[3]
Bolivia	Technological and knowledge advancements leave Bolivia's students behind.	-Technological channel -Informational channel -Institutional channel	Current education attainment does not follow internationally recognised metrics; hence it is difficult to monitor Bolivia's progress towards Goal 4. This has implications for long-term learning outcomes and productivity. Greater online connectivity of schools could lead to faster spread of modern teaching methods and content, ultimately helping education goals.

2 Automation impacts poverty and welfare via channels of employment and migration (see Bughin et al., 2019).

3 The need for quick productivity gains in agriculture and industry are displacing the female workforce. Women remained overrepresented in clerical, service, sales work, and elementary occupations (Nair, Shah, & Sivaraman, 2019).

Nigeria	Changes in development priorities could affect education outcomes.	Institutional channel	Lack of concessionary financing can put pressure on scarce resources in developing countries.[4] There is a need to put concessionary financing for human resource development back on the global Agenda. Improving domestic resource mobilisation could also help.
	Lack of new and emerging technologies in global education and learning space could widen education and skills gaps and make catch-up difficult for developing countries.	-Technology channel -Information channel	Technology influences Goal 4 outcomes through e-learning tools; lack of access to information and communications technology (ICT) facilities could result in widening inequalities; will impact Goals 4 and 10, and indirectly other related Goals.
	Arms proliferation and illicit financial flows could affect education outcomes and other SDGs.	-Vulnerability channel -Institutional channel	Arms proliferation backed by private illicit financing could threaten education outcomes particularly for youth cohort; an institutional response backed by regional and global actors in this space will be required.
Peru	ICT advancements in the education sector unable to reach rural communities; education quality gap expected to expand.	-Technological channel -Institutional channel	GSCs impact youth in select regions through restricted access (or lack of) to ICT tools and necessary technology (e.g. internet) to access education resources. This has implications for Goals 4 and 10 and indirect impacts on other Goals. Appropriate policies to address this must augment interventions related to technical and vocational education training with appropriate ICT-related infrastructure.
Ghana	Weak access to cleaner forms of fuel and technology impacts Goal 7 outcomes.	-Technological channel -Institutional channel	Lack of access to clean energy will also impact Goal 3 outcomes. There is a case for building global partnerships to address this concern in developing economies; it will also have positive spillovers for Goals 12 and 13.

Source: Adeniran, Onyekwena, Onubedo, Ishaku, & Ekeruche (2020); Nair, Shah, & Sivaraman (2020); Crentsil, Fenny, Ackah, Asuman, & Otieku (2020); Andersen, Medinaceli, Maldonado, & Hernani-Limarino (2020); Alcázar, Bullard, & Balarin (2020); Fernando, Arambepola, Niles, & Ranawana (2020).
Elaborated by the authors.

The bulk of renewable energy investment is led by the private sector, globally accounting for more than 90% in 2016 (International Renewable Energy Agency & Climate Policy Initiative, 2018). The growth of renewable energy driven by financial private gains could potentially pose an impediment to those countries that are reluctant to invest or do not have resources to transition towards sustainable energy for all (Khan & Ahmed, 2015).

A key question remains that once more efficient forms of energy have been introduced in advanced economies, what will be the fate of inefficient production processes in the developing world? There are multiple transmission mechanisms at play here, many of which have not yet been anticipated.

4 Institutional channels and weak availability of concessionary financing could slow down or halt progress towards Goal 4.

National implementation of 2030 Agenda

It is essential to have an adequate level of understanding about GSCs and the channels through which they impact the national implementation of the 2030 Agenda (Table 5.1); particularly in the ability to fulfil the promise of 'leaving no one behind'. Continuing with the renewable energy example discussed above, we understand that the attainment of SDG 7 is subject to ensuring that countries that heavily rely on fossil fuels meet domestic energy consumption, by providing affordable and reliable modern energy to those who are left behind. However, developing countries, heavily dependent on fossil fuels, are struggling to acquire access to sustainable energy (Burke & Stephens, 2017).

Most of these countries realise that nation-state involvement in the provision of energy to the marginalised segments of society is important (International Renewable Energy Agency, 2018), and that for an equitable spread of clean energy, technically diverse, locally appropriate, and low-cost renewable technologies may be the way forward. However, there is a weak understanding across the developing world regarding: i) how volatile energy markets could weaken their drive towards SDG 7, and ii) what the implications for local production and output would be once advanced economies configure their industry using more efficient energy inputs thereby becoming vastly more competitive.

The development partner organisations, particularly those under the umbrella of the United Nations, are perhaps best placed to help in this context. Through various mechanisms and channels, international actors may have an indirect effect on domestic policies (World Bank, 2017). For instance, international actors can influence or change the incentives of domestic actors through aid conditionalities. Similarly, a government, by adhering to international treaties or development benchmarks, may be forced to adopt suboptimal policies, such as abandoning progressive taxation (Tanzi, 1995, as cited in Scholte, 2005). Compliance with fiscal austerity to reduce external debts could potentially mean compromising on the quality of state-provided services, such as "education, healthcare, nutrition and unemployment insurance" (Scholte, 2005, p. 324).

Similarly, for SDG 1, Lustig (2018) argues that advanced countries and multilateral systems need to protect the poor through aid and flow of capital reaching the poorest of the poor. Likewise, in the case of SDG 10, inequalities can be mitigated if donor programmes support redistributive fiscal policies in developing countries that are part of the programme aid.

How country case studies illustrate transmission channels

In this section, we will analyse the findings from the SVSS country case studies. We will show in detail how the various transmission channels are at play in each of the countries. While the technology appears to be a more commonly cited channel in our case studies, we argue here that technology is at play in tandem with other channels. This understanding

of the interaction of two or more channels becomes essential for policymakers and those who wish to design and implement a response.

How do technology and growth priorities accentuate GSCs?

Technology will continue to define future forms of growth, which, in turn, has a bearing on who is left behind. We see in Sri Lanka that upgrading a main value chain and automation of the apparel industry has implications for the local workforce, in particular the female workforce (Fernando, et al., 2020). The industry is already struggling to cope with fast-changing global product standards. A greater integration of Sri Lanka into global value chains implies a faster shift towards automation, accompanied by the apparel sector becoming more sophisticated, thus the replacement of routine cognitive work by machines.

Sri Lanka will not have much choice on production processes. The competitors will start moving towards more automated systems which will transform the apparel industry globally. The routine manual work will be taken over by other sophisticated means. Sri Lanka is not new to these challenges, as other industries had started to face the negative effects of automation much earlier (Fernando et al., 2020). Gradually, workers in the manufacturing industry are being displaced by the diffusion of automation technology.

It is expected that a vast majority of workers who lose their jobs may not have access to social security. Several of them may not even have formal contracts (Khan, Javed, Batool, Hussain, Mahmood, & Ahmed, 2016; Ishfaq, Ahmed, Hassan, & Javed, 2017). Migrant workers, especially female workers, working in small factories across Sri Lanka which are outside the designated industrial zones, work for longer hours, are not paid on time, and have to cope with the stigma of being 'outsiders' (Fernando et al., 2020). Similarly, female migrant workers in the apparel industry are unable to secure decent working conditions. More recently, there is a higher tendency of women migrating to urban centres in search of better job opportunities.

Employers will continue to be hard-pressed to adopt better technologies to remain competitive in the medium to longer term. This is apparent in India, where the declining female labour force participation rate could, among other reasons, be attributed to fast-changing desires to automate existing production processes. Evidence shows severe gender disparities across most employment categories in India. While female labour force participation, especially in rural areas, drastically declined, the number of male entrants in the labour force increased over time (Nair et al., 2020). An alarming reality is that the 15 to 24-year age group constitutes the majority who have dropped out. India's study makes reference to how GSCs influence the restriction of women's access to and participation in the labour market (Nair et al., 2020).

In view of this, women are overrepresented in the informal labour market, including in the domestic help sector. This might imply less bargaining power of women in general, which keeps them under informal contracts. Part of the issue is due to social norms and structures; the way women have been perceived to take on a certain

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role in society restricts their preferences for mobility across skills attainment and occupations. A negative implication of this is reduced or low female participation, in turn having implications for long-term growth and productivity.[5]

The country study argues that women's lack of access to technology, especially those who are predominantly employed in the informal sector, also needs careful analysis (Nair et al., 2020). The majority of women are excluded from digitisation, which highlights the global effect of the industrial revolution in furthering the marginalisation of women. It has been noted that women would likely be affected by automation and digitisation of the workforce, thus outstripping demand for traditional labour and skills. As sectors, such as agriculture, become more sophisticated over time, it will negatively affect the demand for a female workforce. It is further argued that women who do not have skills commensurate with automation would be more vulnerable. The combined effect of global systemic concerns related to globalisation of technology and the digitisation of industry would lead to displacement of women and reduction in their employment. Moreover, due to climatic changes affecting agricultural produce, 56% of women employed in the agriculture sector would be at risk of losing their livelihood (World Bank, 2018a).

This argument is also endorsed in Gent (2017), which takes the lead from the World Bank Group's assessments and argues that automation threatens 69% of existing jobs in India. Between 1991 and 2013, India's working-age population rose by 300 million, whereas the economy could only absorb an additional 140 million. This is not encouraging from the viewpoint of the young and unemployed, especially at a time when leading enterprises in India are cutting costs and jobs. Such job cuts have been announced in textiles, the automotive sector, and even in services sectors such as banking and finance. The recommendations here include (among others broadly shown in Figure 6.3) identification of future jobs which grow with automation and require human creativity, and training a greater number of people in such jobs and as quickly as possible, perhaps through virtual means.

Figure 6.3. How may countries respond to the changing nature of work

Note. Adapted from World Development Report 2019: The changing nature of work, from the World Bank (2019).

5 See also for South Asia-wide discussion on the subject: Yaseen & Ahmed, 2016; Ahmed & Qadir, 2018; and Khan & Ahmed, 2014.

Will institutional reform keep pace with evolving GSCs?

Recent research on this subject focuses on the kind of institutional response required to enable countries to manage fast-changing technology. It could be in the workplace or otherwise, seen as a GSC across most case studies. We not only discuss this but also highlight the need for institutions and their policies to evolve as a response to various vulnerabilities faced by the poorest.

Chuah, Loayza, and Schmillen (2018, p. 4) argued:

> In the long run, technological innovation would bring about higher incomes and quality of life, including more leisure. Even in light of the challenges brought about by the Fourth Industrial Revolution, this prediction is attainable for the entire population and not only for a privileged few—but only if public institutions promote equality of opportunities, generate an educational system that favours flexible skills and creativity, and use redistribution policies to share the proceeds of technological gains. With proper public institutions, instead of raging or racing against the machine, we can race with the machines toward a better future.

Innovations in education and skills development

The interplay of two transmission channels, i.e. technology and institutions, is seen in the case studies of Nigeria, Peru, and Ghana. For example, the adoption of technology for achieving quality education across Nigeria is seen as a challenge with respect to lack of funding and intellectual property rights (IPRs) (Adeniran et al., 2020). Considering regional disparity, especially in the South East of Nigeria, and the observed gender-related inequalities in the Northern region, the potential benefits or adoption of ICTs (unless accompanied with complimentary pro-poor policies) would further enhance inequalities in quality education (Adeniran et al., 2020). The systemic concern at the global level relates to property rights, which means investors or entrepreneurs would extract benefits from technology (required for provision of education). Hence, there are transaction costs and externalities which must first be analysed before fully embracing them.

The case study of Peru looks at SDG 4 (quality education) and SDG 8 (decent work and economic growth) from global perspectives wherein changes in education and work have implications for the marginalised and left-behind groups. Alcázar et al. (2020) focus on Peruvian youth (between the ages of 15 and 29 years) termed as 'marginalised groups' and who are also left behind in accessing quality education and decent employment opportunities. The marginalisation of left-behind groups is analysed along with socio-economic characteristics, such as ethnic background, geographical location, and urban and rural dimension (Alcázar et al., 2020). This analysis shows how GSCs impact youth in select regions of the Andean highlands and the Amazon rainforest through restricted access to public services. The selection of youth along gender, education, and employment lines was sought prior to holding in-depth interviews on life stories.

In the context of globalisation and technology, the authors argue for the positive gains of technological literacy at an individual level. Besides improving access through the adoption of remote learning in areas where public services have yet to reach marginalised groups, technology can provide access to a variety of skills in today's labour market. Conversely, ICT can negatively contribute to furthering inequalities in education. For instance, in the case of marginalised youth in rural and remote areas, accessing technology and the internet is more problematic due to resource constraints. Moreover, the universal or pre-designed modern literacy programmes may not align with indigenous or traditional systems of schooling.

Marginalised groups are disadvantaged in accessing ICT locally because of lack of infrastructure and low incomes.

As empirically demonstrated by Alcázar et al. (2020), the system of education in Peru is characterised by the low quality of education. The adoption of the global shift in ICT could widen inequalities in marginalised youth as many vulnerable groups struggle to acquire decent jobs and, therefore, become increasingly trapped in the left-behind classification. The Peruvian government introduced ICT in education, i.e. improving physical access to computers to cater for the quality deficit, however, Alcázar et al. (2020) observe a wide-ranging disparity in ICT access in rural and poorer areas.

Another worrying reality in Peru regards access to the internet, which is significantly skewed in favour of urban areas. According to official data, while there is 65% internet access in urban areas, only 10% of rural schools can access the internet. What is rather more troubling is that the ICT access gap has actually been widening in rural and urban primary and secondary schooling in the past 10 years. In Latin American states, there is a global recognition of the positive contribution of internet access when applied in a tailored fashion, along with compatible instruction for its implementation. In Peru, ICT programmes lack coherence with local systems of learning and teaching, especially when taking into account the socio-economic trends, and geography and the remoteness of schools. Most of the distance learning schemes in Peru piloted and implemented by the local Ministry have not attained intended results for reasons such as misplaced objectives and not knowing the reasons for ICT programme failure.

In the pursuit of SDG 4, there are two particular global systemic obstacles which are counterproductive in narrowing inequalities. The first relates to the widening of inequalities witnessed between the affluent and the marginalised caused by inequitable access to computers. Marginalised groups are disadvantaged in accessing ICT locally because of lack of infrastructure and low incomes.

The second relates to the universal application of ICT around the world without recognising the gender aspect. In Peru, technological literacy is gender biased, i.e. the adoption of technological shift is not only male oriented, but also indicates adverse implications for indigenous women and children, who are unable to adopt modern technical skills because of cultural and language barriers. The globalisation of technology is also undermining Peru's national policy of youth employment viewed in terms of bridging the gap between urban and rural cognitive skills and educational outcomes.

While the positive aspect of remote learning could significantly improve the quality and coverage of education, Peru's rural schools suffer weaknesses that are primarily attributed to the inability of the national government to accept how the fourth industrial revolution is transforming labour markets around the world. The adoption of Peru's Education for Work Program (EPT) was essentially designed to offset the implications of the global push for ICT. The EPT programme, however, has not adequately responded to labour market trends, especially with the adoption of technologies being inconsistent with supply and demand.

Transitioning to sustainable energy for all

The study of Ghana focuses on SDG 7 and examines stark differences between urban and rural access to affordable, reliable, and modern energy services (Crentsil et al., 2020). The transmission channels of technology and institutions are at play here. Rural dwellers rely on traditional sources of energy, such as wood and polluted fuels, to meet domestic energy needs. It was noted that access to clean energy is dependent on individual, social and ascribed attributes, such as gender, ethnicity, religion, and place of birth (Crentsil et al., 2020). According to the Human Opportunity Index (HOI), which takes into account inequality of opportunity, Crentsil et al. (2020) note that the highest inequality in terms of access to energy is witnessed in the upper east and northern regions.

The attainment of SDG 7 indicates two 'means of implementation' for accessing resources and technology. The first relates to international cooperation on clean energy and investment in energy infrastructure. The second relates to greater investment in technology to cater for the modern energy demands in developing countries. In order to address household energy needs in Ghana, the authors have identified the following global systemic concerns.

The case study points to weak availability of external financing (Crentsil et al., 2020). The achievement of sustainable household energy needs is positively correlated with external financing. In improving access to clean cooking and in the provision of LPG[6] in rural areas of Ghana, around 80% of the funding came from donors, namely: United Nations Development Programme (UNDP), African Development Bank (ADB), and U.S Agency of International Development (USAID) (Crentsil et al., 2020). In the future, a deficit in funding infrastructure through public investment will have to be bridged by private sources. As local private sectors may not be able to bridge the gap on their own, there is a need for state intervention in crafting national policies to attract foreign capital. The inability of the state to arrange foreign investment could have adverse effects on energy inequalities and the implications for the health of households.

In addition, systemic issues related to limitations in research and development in new technology are reflected in the example of Ghana. In the past, households in Ghana benefited from energy efficient technology for improved cooking stoves. There is a positive correlation between research and innovation for reducing household energy inequalities, however, the imported stoves were not aligned with traditional cooking practices (Crentsil et al., 2020).

6 Liquefied Petroleum Gas (LPG) is an alternative source of fuel used in houses for cooking. It is obtained during the process of refinement of petroleum.

As we know, localisation means customising energy needs, and developing countries such as Ghana lack resources.

The third systemic area pertains to weak global partners in the energy sector. Although it is now well known that a billion people are without electricity (Daly, 2018), the global community lacks business models to deliver basic infrastructure towards this goal, despite the existence of initiatives such as Sustainable Energy for All (SE4ALL). Under the global quest for sustainable energy, it is important to efficiently use scarce electricity to meet human needs in industry, residential premises, and commercial buildings. The carbon capture, storage and its usage are equally important in a developing country setting. However, there is a suboptimal policy emphasis around the use of carbon. There is a need to design transition policies which address the adjustment faced by local coal-mining communities and the companies providing energy locally.

Meeting energy consumption through distributive policies requires global financing on a much larger scale. Currently, only half of the required funding for achieving SDG 7 is secured. At a local level, institutions and enterprises have the backing of vested interests for pursuing continuous reliance on fossil fuel. Hence, policy coherence at the national level requires greater attention. The energy planners could benefit from public-private partnership, i.e. if investors and regulators enter into a win-win solution for doing business. This could also contribute to making the task of planning for SDGs and the nationally determined contributions (NDCs) under the Paris Agreement much easier (also see Wagner, 2017).

To conclude, institutions and their policies need to evolve to mitigate the negative impacts of technological change. The understanding of institutions and people remains weak on this subject. More dynamic labour markets are required which, in turn, need skills to cope with future demand,[7] safety nets for the excluded,[8] and progressive tax and public spending measures.[9] With such a response, Chuah et al. (2018) note that it will be possible to acquire the right skills in time to transform replacing technologies into enabling technologies for workers in developing economies.

Institutional channel of GSC propelling exclusion

This section looks at how GSCs are impacting exclusion in education through information asymmetries. The Nigerian case study argues that the fourth industrial revolution is an opportunity only if LNOB considerations are duly addressed (Adeniran et al., 2020). Youth in rural communities are often left behind in educational attainment. The gaps increase as they climb the hierarchy of schooling and learning.

The lack of availability of timely and well-programmed external development assistance implies that Nigeria struggles to achieve quality education and target exclusion. Despite donors and state-induced grants for education, there is a significant financial gap which ultimately needs to be bridged to achieve SDG 4. An estimated USD 34 billion (at 2018 prices) is required to achieve early childhood, primary, and secondary education. While the authors identify private

7 See Card, Kluve, & Weber, 2018; OECD, 2017.

8 See World Bank 2013, 2018b.

9 See Freeman, 2015.

and external sources of funding for education, the feasibility and social benefits of such sources would have to be evaluated.

In this regard, the study proposes e-learning and related tools which have positive externalities (technology channel) for youth in rural areas (Adeniran et al., 2020). This, however, requires a large investment in infrastructure to ensure sustainable and cost-effective e-learning.

The situation in Bolivia is similar. In this case, however, we see an interplay of three different transmission channels, i.e. information, institutions, and technology.

Bolivian policymakers embarked on several reforms for countering exclusion. According to Andersen et al. (2020), international development organisations funded reforms in the education sector, including technological adoption. However, these were met with mixed success as Bolivia has a low score for connectivity indicators compared to other countries in the region.

Moreover, in the past two decades Bolivia has yet to undertake a comprehensive assessment in order to identify how technology can benefit education. The inability to carry out regular impact assessment of interventions in the education sector is primarily attributed to (institutional) deficiencies which are prevalent in the planning and administration (Andersen et al., 2020). In addition, certain exogenous global systemic trends also continue to affect the attainment of SDG 4 in Bolivia.

Bolivia has yet to undertake a comprehensive assessment to identify how technology can benefit education.

For example, the rise in global commodity prices has contributed to Bolivia's major export industry, creating an upsurge in capital-intensive and labour-driven service sector. However, implications for educational attainment may not be favourable.

The mining sectors benefited from the commodity boom, which lasted from 2006 to 2014, thus appealing to young people who abandoned school to work in the industry (Andersen et al., 2020). The young people were more interested to the industry due to the low return on education. That children drop out from schools and are attracted to the mining industry is highly significant in areas such as El Alto, Santa Cruz de la Sierra, as these sites offered work opportunities to young men. Moreover, the commodity boom had a cascading effect on the agriculture industry, attracting unskilled labour to benefit from the 'windfall profits' which occurred from the rents accrued from the natural resource industry.

Three knock-on effects were also witnessed. First, diminishing returns on education were reinforced over time due to the lack of policies which incentivised higher quality education. Second, an increase in deforestation adversely affected SDG 15 (life on the land). Finally, an appreciation of the exchange rate had contributed to the growth of the construction industry, thus witnessing an increasing demand for young men. According to Andersen et al. (2020), the prominence of extractive sectors in Bolivia has contributed to low demand for skilled labour.

As witnessed in Peru, the education sector in Bolivia faces challenges to rise up to the emerging technologies in terms of better connectivity (Alcázar et al., 2020; Andersen et al., 2020). In response to the deficit

of modern methods and tools of learning, Bolivia's initiative of one computer per student has not been a success and is also unlikely to transform traditional education practices.

Unrestrained migration is also influencing the state of education in Bolivia. The negative effect of migration is affecting the long-term productivity of the middle class, which is caused by the brain drain of highly skilled people (Andersen et al., 2020). The migration of skilled people also adversely affects the supply side of the education sector. The highly capable and qualified educationists exit the local market in search of more lucrative and stable opportunities abroad. Moreover, there is no strategy for luring back the diaspora abroad, who could play an instrumental role in the dissemination of ideas and knowledge transfer. As of now, there is very little to indicate that the benefits of migration exceed the cost in Bolivia.

Policy responses

This section outlines policy options available to deal with the impact of global systemic concerns. We also refer to country-level case studies and suggestions therein on how to embed 'leave no one behind' in global and country-level responses. For the ease of understanding, policy prescriptions to systemic issues are discussed under global and national-level responses.

While the design of policy responses is important, it will be equally important to consider sequencing. Given the inequalities at the national level it is recommended not to have a one-size-fits-all approach. Regions lagging in socio-economic endowments may require higher levels of policy and operational support. This aspect has been explored through two related angles in the literature, explained below.

Welfare and state

The literature around "technologies of government" discusses methods adopted by the government to operationalise interventions, which establish linkages between the state authorities and citizens (Rose & Miller, 1992). The way governments operate and take decisions has been studied to determine how institutions seek to successfully enlist the support of citizens, and mobilise resources and procedures in the pursuit of achieving welfare goals.

There is close connection between 'welfarism' and state. Evidence shows that Western states acquired the status of 'welfare states' by ensuring economic progress, high employment, health and housing, and "through state planning and intervention in the economy" (Rose & Miller, 1992, p. 22). This was achieved through an "extensive bureaucratically staffed apparatus for social administration" (Rose & Miller, 1992, p. 22).

Governance and institutional capacity

Countries with a skilled and educated workforce are in a much better position to take advantage of, for example, technological advancement and the fourth industrial revolution. Citizens in economies with

relatively better infrastructure have opportunities for both wage- and self-employment and are globally connected (Grindle, 2000).

Conversely, in poor countries, despite globalisation, a segment of citizens are marginalised and, in the case of the poor, face extreme difficulties in securing livelihood opportunities. As a consequence, most developing countries are unable to deal with GSCs at the national level. The persistent governance gaps in developing countries, and lack of local solutions, have contributed to underdevelopment and institutional decay (Ahmed, Ghaus, Iqbal, Azizul, Mirza, & Mutambala, 2014).

One of the most important areas in improving state capacity for the effective provision of social service is the alignment of political leaders with well-trained and capacitated technocrats on the one hand, and the establishment of technical research and policy implementation units for diagnosing how best to implement public policies, on the other.

Alongside capacity building, reforms to ensure tenure for civil servants is essential. Evidence suggests that capacity building in an environment of frequent turnover (such as the civil service) may not render desired results (Ahmed & Qadir, 2018; Planning Commission of Pakistan, 2011). Grindle (2000) also explained how a government's capability can be enhanced through public sector's adoption of information technology. Having infrastructure that can take internet connectivity to remote areas improves monitoring and evaluation of interventions.

Effective institutions and good governance conditions vary from country to country, so dealing with systemic issues would have to be adaptive, considering the peculiarity of the challenge and its transboundary effects (Currant, 2018; Curran, Dougill, Pardoe, & Vincent, 2018).

A key question here is how countries should respond to GSCs in the milieu of weak institutions and governance gaps. Since political and state contexts vary, it must be acknowledged that there are no straitjacket or one-size-fits-all options to deal with global systemic concerns at the national level effectively.

Desired country responses

Countries need to be proactive in reforming public service delivery in response to GSCs, and ensure that these reforms reach marginalised and disadvantaged groups. This section describes some country-level proposals that could be pursued.

Embracing technological change

Technological change emerges as a key GSC in most of the country studies. However, the access to technology and how it interfaces with the vulnerable requires a whole-of-government approach. Taking the case of Sri Lanka, the challenge is threefold. First, Sri Lanka will need to invest in higher labour standards and skills. Creative and design aspects of the apparel industry, for example, will still require human brain power. Second, for displaced workers active labour market policies be needed to enable the affected workers to secure jobs in other sectors. Moving to other sectors, though, depends on technical

and vocational training. Third, there would be many displaced female workers who could face extreme difficulties in managing a transition to a new sector for wage employment. For this cohort, opportunities for retraining, self-employment, and micro credit and insurance facilities will be required (Ahmed, Nazir, Gregory, Faraz, Ace, Nabil, & Agyeben, 2019).

Sustained investment in skills and labour standards

The country study of Bolivia highlights the challenges involved in the implementation of SDG 4 (Andersen et al., 2020). Conscious policy intervention may be designed to help improve retention of children in school and prevent early dropout. It is thought that such an intervention may also be complemented by orientation on skills with market demand. This, however, will require sustained investment in apprenticeship and internship programmes. The famous international restaurant "Gustu" is cited as an example of providing jobs to disadvantaged youth. Such success stories can be replicated across the country through local-level fiscal incentives.

Access to technology and its interface with the vulnerable segments of society requires a whole-of-government approach.

The country study of Peru also highlights the importance of LNOB in state-designed social interventions (Alcázar et al., 2020). Moreover, the problems of access to education in rural areas require deliberative efforts and state intervention in the provision of ICT tools. In pursuing SDG 4, it is recommended to ensure that the marginalised, and especially the youth, are not affected by the informal labour market and its pitfalls. Access to technology and its interface with the vulnerable segments of society requires a whole-of-government approach. We suggest that better results may be achieved by developing inter-agency linkages.

Use gender-responsive lens to respond to GSCs

The state and the apparel sector in Sri Lanka will need to recognise the demands on women. The general principle should be for the state to take care of those responsibilities which usually fall unevenly on women, for example, care for the elderly and children. In addition, the apparel sector needs to adopt flexible work regimes in the case of women's quest for industrial employment.

The case study from India prescribes that to deal with the challenges involved in the implementation of SDGs 4 and 8 (through a gender lens), it will be important to adopt those skills that are relevant to the demands in the goods market (Nair, et al., 2020). The performance, course selection, and placement procedures of the skilling industry requires institutional changes. For instance, public-private partnerships have the potential to improve the existing skilling regime. In rural and peri-urban areas, adequate safety and travel measures should be implemented for women employed at local industries. The enforcement of anti-harassment laws should be ensured to protect the women from various forms of harassment. The benefits of e-technology and e-governance tools should be available for women, which reduce transaction costs.

Governments in developing economies need to demand a global response

In the case of several GSCs, developing economies need to join hands and present a coalition that collectively demands change. This will also help likeminded civil society organisations and international NGOs in the North to hold their leaders accountable. Together these coalitions can present the case where, for example, education providers and suppliers of e-learning tools will need to ease restrictions on intellectual property rights. Similarly, arms proliferation will need discouragement through a synchronised response by multilateral agencies through effective measures, such as better accounting for the arms trade and controlling illicit financial flows across borders. Additional concessional finance with improved monitoring and evaluation systems is required to sustain pro-welfare programmes. We discuss the need for a global response further in the following section.

Taking a broader approach to institutional reform

Better institutional capabilities are not just required to manage the effects of technology. Rather a whole-of-government approach is necessary so that institutions in other spheres also keep pace with fast evolving GSCs. As we see in the case of arms proliferation, the authors of Nigeria's case study argue that this continues to affect schooling. The easy acquisition of small and light weapons is facilitated by global illicit flows of finances aided by criminal groups. The presence of extremist organisations—funded by internal or external networks—is particularly responsible for the displacement of people and creating disincentives for children to acquire education, especially in the North Eastern region of Nigeria. Due to protracted insurgency, many schools are converted to accommodate internally displaced persons. Hence, the acquisition of education is compromised since additional finances are more likely to be spent on fighting terrorist' networks. In this case, institutions responsible for service delivery in education need to work hand-in-hand with the relevant law-and-order departments.

Global-level policy options

Policy coherence: an integrated approach to SDGs

In the adoption of the 2030 Agenda, and also the Addis Ababa Action Agenda, UN members made a commitment to "pursue policy coherence and an enabling environment for sustainable development at all levels and by all actors" (Organisation for Economic Co-operation and Development [OECD], 2016, p. 15). The SDG target 17.14 relates to the means of implementation, i.e. "to enhance policy coherence for sustainable development" (OECD, 2016, p. 15; Morales, 2018).[10]

The High-Level Political Forum on Sustainable Development has also stressed the need to devise tools and approaches which help enable countries to align their polices with universal goals. For instance, the nationally determined contributions framework is a useful tool to establish potential synergies across various actors and helps achieve the Goals under the Paris Agreement on Climate Change and the 2030 Agenda.[11] The challenge of policy coherence is also closely tied to

10 Policy coherence could fall into two areas; vertical and horizontal. Vertical coherence means policy alignment between multiple levels of governance. Horizontal coherence implies alignment of policies across policy domains at global, regional, and national levels of governance (Mallows, 2015).

11 For more information about this initiative, please visit: https://klimalog.die-gdi.de/ndc-sdg/

ensuring SDGs' prioritisation at national level, in line with the country's political economy.

Dealing with arms proliferation

The Nigeria country study makes a case for multistakeholder partnerships to address the challenge of arms proliferation (Adeniran et al., 2020). There are international rules for combating the spread of arms, which require nation states to carefully embed policies into sectoral frameworks. However, recent efforts to only deal with this issue through national-level intervention seem to have failed in most developing countries, which has led to the suggestion to help these countries raise integral systems for border controls, inland security, and better coordination of national security agencies with regional and international security platforms (Rana, 2016; Transnational Alliance to Combat Illicit Trade [TRACIT], 2019).

Dealing with illicit financial flows

The issue of arms proliferation, the use of drugs, and other illegal activities are closely linked to the availability of illicit financing. The transfer of illegitimate money from developing countries is a global concern, as it affects sovereign states (Ahmed, 2018). Variants of illicit financial flows (IFFs) include tax evasion, regulatory abuse, financing criminal activities, and political funding. Arguably all forms of IFFs undermine the achievement of the 2030 Agenda, which stresses the need to combat illegal financial transactions (SDG 16.4). IFFs erode social progress. Losses caused by illicit financial outflows reduce the amount of public resources available for the provision of education and other public services.

A number of suggestions across the literature, such as the creation of multistakeholder partnerships, have been considered to mitigate negative consequences of illegal transactions on SDGs. For example, in several Latin American countries, youth in poor and rural areas are more prone to falling prey to activities in the IFF ecosystem. Multilateral security institutions could partner with governments to assist them to reach poor and disadvantaged localities. Actions could range from improved provision of internet connectivity in remote areas to improving the skills of local teachers and trainers through distance learning strategies. More straightforward partnership strategies aim at tackling weak mechanisms of international cooperation. Hybrid partnerships between international organisations, national and local governments, NGOs, the private sector, and philanthropic organisations are essential to increase transparency and better coordination.

Easing restrictions to access of knowledge through liberal intellectual property rights

A global assessment is required to think of ways in which intellectual property rights regimes can be eased for developing economies trying to access necessary knowledge, skills, and technology to achieve the SDGs. A part of this can be addressed through global-level interventions which empower multilateral organisations to buy

intellectual property rights on behalf of the poor and marginalised through national governments. However, this could result in negatively impacting incentives for future innovation. An alternative solution might be more liberal trade in technologies and ICT services to help developing economies towards access to better production methods and capacity building (Wahlen, 2018).

Capacity building in issues of global governance

Most capacity-building initiatives for developing economies focus on national-level issues. There is very little to suggest that representatives from the South also receive orientation with the objective of better contributing to the discourse around various global governance themes. For example, cybersecurity and global internet governance are areas where North and South are expected to work together. Perhaps the United Nations Institute of Training & Research (UNITAR) is best placed to identify which GSCs require capacity-building interventions and how to make these available.

Mobilising resources for developing economies

Funding constraints continue to be a cross-cutting issue in the country case studies. SDG 17 calls on developed countries to mobilise financial resources from multiple sources to assist the South in the timely achievement of SDGs. Across most of the discourse it is observed that financing for SDGs is discussed in a manner which is often limited to national-level needs of countries. Our suggestion here is to revisit the Addis Ababa Action Agenda, which provides a consensus on key global public goods, and look into the practical difficulties of sharing the global burden of financing such goods. It has been suggested that the impact measurement framework formulated by the OECD Development Assistance Committee may provide some lessons for such work.

Conclusion

GSCs remain a reality and influence developing countries in multiple ways and through different channels, re-enforcing the thinking that if the risks are not appropriately managed, there would be consequences. To address the negative implications of GSCs, we highlight some global challenges in the foreseeable future and then discuss plausible solutions.

Our key point of departure and the context of engaging with alternative ways of dealing with GSCs is that the world is increasingly becoming more integrated through technology and related channels, with unpredictable results. This chapter makes use of country-level studies to document challenges posed by GSCs, and how global or national-level responses could help. The key recommendations are:

- National efforts are required to study country-specific GSCs, predict consequences, and frame responses.
- These national-level efforts must be complimented by regional platforms, as several GSCs, including climate change and disaster risk, may not be addressed through the good intentions of a single country.

National efforts are required to study country-specific GSCs, predict consequences, and frame responses.

- At a global level, advanced countries need to invest resources in improved understanding of GSCs. It is equally important to encourage creation of evidence around local-level solutions to adapt to GSCs that particularly affect the South. This can also be achieved through building capacities in developing countries in both government and non-government spaces. Advanced countries also need to see how their policies towards artificial intelligence could impact the rest of the world and what this could mean for sustainable production and consumption.
- Global governance institutions need to promote a better understanding of GSCs. Intergovernmental forums usually involve political leadership and civil service at a national level. Civil society organisations, think tanks, and the private sector should also be provided with a clear role when it comes to tackling GSCs.
- Going forward, policy think tanks will need support to strengthen South-South knowledge partnerships to fill the knowledge gaps which are seen while addressing GSCs and require a regional or global response.

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