Situation Analysis on the Effects of and Responses to COVID-19 on the Education Sector in Asia

Regional Synthesis Report

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October 2021

Foreword

The pandemic caused a major children's rights crisis: all service sectors being profoundly impacted, with the most disadvantaged being disproportionately affected.

COVID-19 – possibly the largest pandemic the world has ever seen- led to an economic crisis probably more radical and global than ever before; as well as disruption of learning on an unprecedented scale. The pandemic caused a major children's rights crisis: all service sectors being profoundly impacted, with the most disadvantaged being disproportionately affected.

In response, with support from the Global Partnership for Education, UNICEF and UNESCO joined forces with Mott MacDonald, Cambridge Education to carry out a situation analysis, primarily to generate analyses to inform strategic responses to the crisis going forward. While the extension and duration of the pandemic required to invest more time to produce the final analyses and reports, fortunately information had already been discussed through webinars and national conversations with Ministries of Education and other partners across large parts of the Asia Pacific region.

Furthermore, the reports continue to be of utmost relevance given subsequent waves of COVID-19 sweeping across the world in 2021 and very likely in 2022 as well. The task of learning from the crisis and how to mitigate its effects in education is on-going. More than one academic year has now been lost for many children. To ensure continuity of learning whilst schools are closed, the delivery of education is radically changing today through distance education: digital, blended or hybrid learning have become part of the new learning reality which all Governments, teachers and learners will have to adjust to.

While major efforts are needed to mitigate the learning loss of those children who return to school in the post-COVID-19 recovery phase, we must also remember that many children were not learning before the crisis and several million were not even in schools. The reports therefore also explore opportunities to build back better and to re-imagine education; to shift from fact-based didactic methodologies to competency-based approaches, which are more flexible, better respond to the holistic needs and aspirations of all children, and provide opportunities for life-long learning as per the Sustainable Development Goals (SDG) 4 agenda.

While the suite of reports provided within the Regional Situation Analysis are particularly relevant to the Asia Pacific region, contexts of course vary considerably across our huge region. At the same time, the reports may also provide insights that are relevant to other regions around the world. Hopefully the findings, including the country case studies, and regional budget needs analysis will help governments resume and accelerate progress towards SDG 4. The way education is conceptualized and delivered is changing fast, and the transformation journey will be steep and full of challenges. Governments, donors, all partners and the private sector will need to work together, not only to get the strategies and levels of investment right, but to build more resilient, effective and inclusive systems, able to deliver on the promise of education as a fundamental human right for all children, whether schools are open or closed.

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List of acronyms

BRAC	Building Resources Across Communities
CBE	Community-Based Education
CPD	Continuing professional development
CSO	Civil society organization
COVID-19	Coronavirus disease
EBS	Education Broadcast Service
ECE	Early childhood education
EMIS	Education Management Information System
GDP	Gross Domestic Product
GEM	Global Education Monitoring
ICT	Information and communications technology
IPC	Infection Prevention and Control
IMF	International Monetary Fund
LTR	Learner-teacher ratio
MoE	Ministry of Education
MoEC	Ministry of Education and Culture
MoH	Ministry of Health
MoWCP	Ministry of Women and Child Protection
MHPSS	Mental health and psychosocial support
NCD	Non-communicable disease
NGO	Non-governmental organization
ODA	Overseas Development Assistance
OECD	Organization for Economic Co-operation and Development
PISA	Programme for International Student Assessment
SDG	Sustainable Development Goals
SOPs	Standard operating procedures
STEM	Science, technology, engineering, and mathematics
UCB	Universal Child Benefit
UNHCR	United Nations High Commissioner for Refugees
UNICEF	United Nations Children's Fund
UNESCO	United Nations Educational, Scientific and Cultural Organization
WASH	Water, sanitation and hygiene
WFP	World Food Programme
WHO	World Health Organization

Executive summary

Introduction

The global nature of the COVID-19 pandemic makes it unique, affecting the whole world with the twin shocks of a health emergency and an economic recession. This will lead to long-term costs on human capital accumulation, development prospects and welfare. The pandemic has affected all parts of the world and the responses to the situation have disproportionally impacted the most vulnerable and marginalized members of society.

This Situation Analysis has been undertaken as part of the broader analysis initiated by UNICEF and UNESCO to provide a snapshot of the educational responses and effects of COVID-19 across Asia. It considers the direct effects of school closures and reopenings and identifies the initial impact that this may have had on learners, their families as well as on the overall education system. The objectives of the analysis are:

- To assess and estimate the various impacts of the COVID-19 pandemic on the education sector and stakeholders in Asia;

- To examine the policy and financial implications on progress towards achieving Sustainable Development Goal (SDG) 4-Education 2030; and

- To identify examples of promising responses and strategies in education and associated social sectors, which can be shared with other countries.

Background and context

This regional report looks at the Asian region, a group of 23 countries, diverse in size, population, political structure, socio-economic development, and location.[1] The report is based on three sub-regional reports (for East, South, and Southeast Asia), which in turn are based on case studies of 14 countries across these three sub-regions.

- **East Asia:** China, Japan, and the Republic of Korea

- **South Asia:** Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka

- **Southeast Asia:** Indonesia, Lao PDR, and Viet Nam

The countries in Asia range from densely populated countries such as China and India, covering huge areas of land and a range of topographies, to countries with multiple islands such as Indonesia, Maldives and the Philippines, and to smaller Himalayan countries, including Bhutan and Nepal with mainly rural communities and many people living in remote, sparsely populated areas. As well varying geographical features, the countries differ vastly in economic status, with yearly household income in the region ranging from $2,718 in Nepal to $40,861 in the Republic of Korea.[2]

COVID-19 in Asia

The Asia region has a prevalence of emergency situations, including natural disasters such as volcano eruptions, tsunamis, and earthquakes, as well as man-made crises caused by political upheaval and conflict. These regularly affect people's lives, restrict movement and have an impact on schools and learning. Climate change has had an impact on the area, with a higher occurrence of floods, droughts and severe cyclones. While many countries had emergency and disaster management plans in place pre-COVID-19, these were not sufficient to respond to this type of prolonged situation.

COVID-19 was first reported in China in January 2020, and quickly spread, so that by March 2020 all countries in the region had been affected to varying degrees. While India and Indonesia had the highest number of infections in the region, Maldives, Nepal and Singapore were proportionately more severely affected when considering infections relative to population size. Cambodia, Lao PDR, Timor-Leste, and Viet Nam managed to keep the virus contained and had low numbers of infections per 100,000 people. At the end of March 2021, just over a year from the start of the pandemic, it is still affecting lives in the region, with, Bangladesh, India, Indonesia, Pakistan, Philippines, and Japan, starting to see cases rising again, causing further disruption to people's lives and children's education.

The response to COVID-19

Countries in each of the three sub-regions had slightly differing responses to this emergency. Most countries in South Asia and Southeast Asia imposed a lockdown on their populations, which closed schools, businesses, industry and shops. In parts of East Asia, a different approach was taken, as Japan kept shops and businesses open and encouraged their citizens to stay

at home and avoid crowded places, and the Republic of Korea introduced a sophisticated track-and-trace system rather than locking down the whole country, which kept the number of infections low. Emergency measures prevented the spread of the infection but reduced economic growth and negatively impacted on household incomes, disproportionately affecting South Asia and parts of Southeast Asia.

Pre-COVID-19, poverty levels (measured against $1.90 per day) were in decline throughout the region (Figure 1), but this was predicted to change as a result of measures to prevent transmission.[3]

FIGURE 1 | PERCENTAGE OF PEOPLE LIVING IN POVERTY IN THE REGION
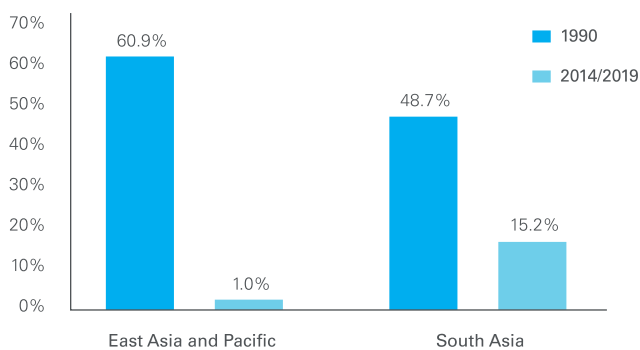
Source: World Bank[4]

The World Bank predicts that the impact of COVID-19 will increase the number of extremely poor people (those existing on $1.90 per day) by 88 million globally, and this could rise to 115 million depending on the severity of the economic impact of the pandemic. "Most of the new poor at the extreme poverty line, as well as the higher poverty lines, live in South Asia."[5] Poverty levels in the East Asia Pacific region, against a measure of $5.50 dollars per day, are expected to increase by as many as 38 million.[6]

The effects of the policy responses to the virus will be most felt by those already most marginalized and vulnerable to falling back into poverty.

How did the spread of the virus affect schools?

The main policy response to the pandemic to affect children was the closure of schools to keep them safe and reduce community transmission. The extended period of school closures, potentially increasing the numbers of drop-outs across the region, and impacting learning levels, is one of the primary factors to have adversely impacted the most vulnerable children during the pandemic, putting them at a further disadvantage and heightening pre-existing inequalities. "Recent modelling studies of COVID-19 predict that school closures alone would prevent only 2–4 per cent of deaths, much less than other social distancing intervention,"[7] and that further research is needed to improve the understanding of decision makers on the effectiveness of the school measures being widely implemented. Variations in transmission are important considerations in response planning, particularly in terms of time spent in and away from school.

Almost 100 per cent of children in the region were out of school during March, April and May 2020. Full school closures lasted for different durations, ranging from approximately one month in Japan, Singapore, Thailand and Timor-Leste to over a year in Bangladesh and the Philippines. These disruptions meant that, throughout the region, children were deprived of face-to-face learning in most countries for a significant period of time, with children in South Asia countries- many already disproportionately disadvantaged- spending the longest time away from school.[8]

Most countries in the region prioritized the return of older children to school, as they were facing high-stakes examinations, important for the children's future and the economy of the country. However, evidence suggests that it was the youngest members of the school population who were most in need of face-to-face interaction and should have been the first to return when schools reopened.[7]

Consideration needs to be given to other less disruptive interventions, especially if measures are imposed for lengthy periods of time. School closures not only affect children's learning, but also impact on their development when services associated with schools, such as additional support (for example, for children with disabilities), feeding, and immunization programmes are also suspended. As a result of this, restrictive measures have the potential to result in major detrimental effects on the health and well-being of children and adolescents, particularly the most vulnerable.[8]

Access to and participation in learning - the situation pre-COVID-19

Throughout the region enrolment has been increasing, with many countries achieving gender parity. However, despite the encouraging figures, there are still many disadvantaged children out of school, perpetuating inequalities and excluding them from learning. The school closures caused by the pandemic threaten to put progress at risk. Despite mitigation measures, a large percentage of children, particularly the most vulnerable, are expected not to return once schools are finally able to reopen again. *"As families face sustained financial pressure and students continue to fall behind, drop-outs are expected to increase".*[9]

Pre-COVID-19, the learning situation for each country in the region was varied, with learning inequalities prevalent throughout the region. Study countries in East Asia were generally on track to achieve SDG 4, while in Southeast and South Asia there were high levels of learning poverty. The World Bank's harmonized test scores reveal the difference in learning levels across the region.[10]

VARIATION IN LEARNING LEVELS IN ASIA

LOW

South Asia has the overal lowest levels of harmonized test scores with all countries below 400

MEDIUM

Most countries in Southeast Asia, plus China and Mongolia score between 400 and 500

HIGH

In East Asia, Japan and the Republic of Korea both score over 550. Viet Nam, in Southeast Asia scores over 500

Effects of COVID-19 on participation and learning

All countries developed plans to enable children to continue learning, with most countries using technology- TV, radio and online delivery mechanisms. However, the provision did not reach all children, especially the most marginalized. Even for those children it did reach, the switch to remote learning was challenging and learning hours were vastly reduced.

UNESCO estimates that about 12 million children from pre-primary to university level will drop out of school in South and West Asia as a result of the pandemic, with pre-primary affected most profoundly.[11] In the East Asia and Pacific region, almost 1.2 million girls are at risk of not returning to school. Across the region, girls, children with disabilities and pre-primary, especially those with no or limited access to technology, were particularly disadvantaged by the move to remote learning.[12]

Over a long period of time, almost a year's absence from school, a lack of face-to-face contact, unequal access to alternatives, and inappropriate provision of learning for young children and children with disabilities will have significant effects on the levels of learning. In a context where many children were already learning below the expected grade level, the effects of the crisis will make it even more challenging for countries to reach the 2030 SDG 4 targets for learning.

Health, well-being and protection - the situation pre-COVID-19

Children's health is a key factor impacting the ability of children to both access and participate in education. Good nutrition, for example, is essential for young children under-5 years old as the brain is almost fully developed by the age of six, so the foundation for the future potential of a child to learn and to be successful is established in this early period of their life. Pre-COVID-19, there were pre-existing health inequalities across the region, both in the nature and severity of health and well-being issues. These included, malnutrition leading to stunting and obesity, domestic violence and mental health issues.

Safe operations in schools

Lack of adequate sanitation and a safe source of drinking water (both at home and in some school settings) leave children at risk of exposure to potentially fatal diseases, including COVID-19. Hand hygiene (washing with soap and water) is one of the most effective actions to reduce the spread of pathogens and prevent infections.[13] Therefore, in order for schools to reopen safely during the pandemic,

it was critical that there were adequate water, sanitation and hygiene (WASH) facilities in place in all schools, safe drinking water from an approved source, single-sex and usable latrines and handwashing facilities with soap available. A recent survey carried out by the World Bank and UN agencies in October 2020 of 113 countries suggested that up to 50 per cent of low-income countries do not have enough WASH resources to offer adequate protection to all pupils and staff.[14]

Effects of COVID-19 on health, well-being and protection

Globally, COVID-19 has had severe financial consequences for families. As already mentioned, poverty levels are expected to increase across the region. A Lancet study estimates that due to decreases in GNI per capita, over 3.9 million additional children will suffer from wasting in 2020 in South Asia alone. A reduction in household income, coupled with disruptions to health services connected to schools, left many families without the support nets they needed to purchase or access enough food for their families, which will have detrimental effects on their health and well-being.

Across the region, the level of disruption to essential services was uneven. These disruptions include: routine immunization; diagnosis and treatment of non-communicable disease (NCD); provision of sexual and reproductive health services; treatment for mental health disorders and sick child services.[15] Community-based child protection programmes, and case management for children requiring supplementary personalized care, including those living with disabilities, and abuse victims were also partially or completely suspended.[16] During school closures, many children faced social isolation and increased levels of stress. There is a major risk that children with disabilities may not return to school or will return but with extended delays, with their feelings of exclusion and isolation being magnified.[17] Children with working parents or caregivers may be forced to stay home alone, putting them at risk of a wide range of protection issues.[18]

Finances

The COVID-19 pandemic has caused significant fiscal policy challenges, which are set to continue until lasting solutions to the virus are found. The impact of economic growth shocks in 2020 due to COVID-19 are striking, with an average-3.3 per cent real change in Gross Domestic Product (GDP) predicted across the Asia region and two-thirds of Asian countries experiencing a real reduction in output. Even countries that have so far managed to avoid a contraction in GDP, are experiencing significantly lower rates of GDP growth than before the pandemic. These

negative economic shocks will have lasting effects, with subdued levels of growth forecast over the medium-term for the region.

Education budgets pre-COVID-19

The relative size of countries' education sectors prior to COVID-19 helps explain the priority governments' assign to the sector as well as the available resources to address the shocks caused by COVID-19. Countries with relatively low education budgets are generally at higher risk of falling education outcomes as those systems are likely to suffer the most from under-investment and reprioritization. On the other hand, countries with relatively higher education budgets likely have stronger, more resilient systems and a sufficient funding base to allow governments to better respond to the impacts of COVID-19 through funding reallocation or budget reprioritization. Only Timor-Leste and Bhutan allocated more than the guideline of 6 per cent of GDP to education. Mongolia, Viet Nam, Malaysia, and Nepal allocated more than the lower band recommendation of 4 per cent of GDP to education. The remaining countries in the region for which data were available all had relatively low education budgets prior to the negative shocks caused by COVID-19.

Effects of COVID-19 on achievement of SDG 4

The findings from the financial modelling done as part of this Situation Analysis confirm that COVID-19 has had a significant impact on education sector budgets. The average financial impact for the region under the baseline scenario is a 9.6 per cent increase in the required budget between 2020-2030 to attain SDG 4. This equates to almost one year of the education budget over the past decade, which is a relatively large demand at a time when growth forecasts are weak and there are pressures to reprioritize budgets towards healthcare and social protection systems. To help manage these education funding pressures, planners can use the disaggregated results to prioritize specific interventions that are expected to have the largest impact (such as implementing hygiene standards) and those services which are an extension of their current obligations (remediation, accommodating students shifting from private to public schools, and re-enrolling students who have dropped out due to COVID-19). Moreover, planners can use the results of this analysis to advocate for the protection and extension of education budgets, as well as the fast-tracking of critical WASH investments.

Challenges, positive responses and lessons learned

This Situation Analysis identified four common challenges that had to be faced by education systems across the region. The extent to which these challenges affected learning varied across countries.

Two webinars were held with government and donor partners from across the three sub-regions to present the findings of this analysis and to validate these with countries' more recent experiences. Feedback from countries during the webinar are included in this report.

Challenge 1: Ensuring schools are safe to open

It is essential that schools are able to stay open for as long as possible as being out of school affects children negatively. The longer schools are closed, the greater the

COMMON CHALLENGES FACED BY COUNTRIES

1 Reopening schools safely

2 Delivering equitable and inclusive distance learning at scale to reach all children during full or partial school closures

3 Supporting health, well-being, and protection

4 Mitigating against learning loss and reducing the learning divide
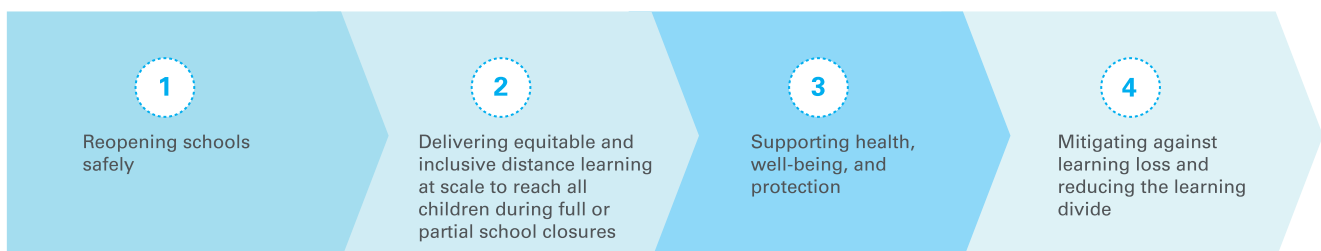
risk of long-term health issues due to a lack of access to school-based health support. Other risks include harm to vulnerable children, children dropping out and not re-enrolling, increased mental health and well-being issues and irreversible learning loss. For a school to reopen safely, there needs to be adequate WASH facilities and sufficient space for social distancing, community support for reopening and safe hygiene practices.

The UNICEF/UNESCO/UNHCR/WFP/World Bank framework for reopening schools[19] and the WHO checklist[20] provided valuable advice to countries across the region for the development of government guidelines and helped set out clear principles and procedures. These also included guidelines in the situation where schools have to close and reopen again. Countries and communities faced significant challenges in implementing reopening guidelines where WASH facilities were inadequate pre-COVID-19, data on the current situation was insufficient and classrooms are often overcrowded. The pandemic has highlighted inequalities in access to drinking water, sanitation and hygiene facilities within countries and across the region.[21] The financial analysis conducted as part of this Situation Analysis shows that the development of equitable WASH facilities is a major driver of the estimated additional marginal cost to education budgets for countries with inadequate WASH facilities prior to COVID-19.

Challenge 2: Delivering equitable and inclusive distance learning at scale to reach all children during full or partial school closures

Education systems across the region were challenged with providing continued learning for all during school closures. Governments provided a range of platforms for distance learning, including broadcasting lessons through TV, radio

Positive responses: The Sri Lanka[22] case study focused on school reopening, and identified three major factors which facilitated this happening safely: cross-sectoral collaboration and communication, increased financing and cross-sectoral monitoring. The quick and successful school reopening in China[23] suggested that the WASH facilities in some parts of the country generally met the basic requirements to prevent and halt the spread of COVID-19. It also highlighted issues such as a shortage of water taps, and the Ministry of Education (MoE) used this data to put plans in place to address these shortages as quickly as possible. In the Lao PDR[24] case study, key factors which facilitated safe reopening were identified as: data collection and analysis, a coordinated response using technology, provision of funding and messaging designed to reach into all communities.

Lessons learned on safe school reopening

1. Swift and effective action to develop pandemic response plans, strong coordination and collaboration between ministries and the involvement of parents and communities in decision making, especially in remote areas, is critical for reopening schools.
2. Historical inadequacies and inequalities in the provision of school WASH facilities particularly affected those children in rural areas and in low- and lower-middle-income countries.
3. Monitoring systems need to provide sufficient information for decision makers on whether schools are compliant with safe reopening guidelines, and they need to link health and education data. As countries have been hit by successive waves of infection, it is essential for decision makers to have regularly updated information regarding the situation of each school with regards to WASH and the implementation of safety protocols, in order to channel more support where needed.

and the internet, printed materials, and some direct contact with teachers. However, for already-marginalized children, difficulties in accessing and meaningfully participating in learning were exacerbated during school closures. The sub-regional reports highlighted challenges in reaching the most marginalized, including a lack of data to target the needs of different groups of learners, a lack of adaption for children with disabilities and a lack of understanding and prioritization of providing continued learning for early years' children. Access and quality of remote learning were also impacted by inadequate technological infrastructure, students having inadequate skills for remote learning,

multiple demands on under-prepared teachers, and varying levels of support from home.

Challenge 3: Supporting health, well-being and protection

Children need to have good physical and mental health and feel safe if they are to learn well. The importance of investing in children's health and well-being is essential for long-term success for the child, community and economy.[28] The World Food Programme Feeding Strategy

Positive responses: In Indonesia, the Learning from Home programme was developed as both an offline and online alternative to attending school.[25] In Afghanistan, the Education in Emergencies Working Group was able to quickly develop paper-based self-learning guides for the community teachers to use with their learners through Community-Based Education (CBE).[26] In the Republic of Korea, the Ministry of Education targeted their support to meet the specific needs of students with disabilities.[27]

Lessons learned on distance learning

1. Countries in the region were not prepared to adopt widespread distance learning approaches, highlighting challenges of access as well as those of effectiveness. Distance teaching required a different set of skills from those developed in traditional classrooms; pre-primary needed to be prioritized for both intervention and an early return to school.
2. Involving local actors, who can reach marginalized communities, and look for alternative learning solutions has helped to address inequalities, but without explicit evidence-based policies ensuring reach to disadvantaged households, only wealthier and more educated families will be able to cope with future shocks.
3. While the pandemic has undoubtedly caused major disruption to education systems, schools and learners, there is also evidence from the case studies that it has been seen in the region as a catalyst for change and improvement.

2020-2030 highlights that, globally, additional investment in primary education could make a difference to children's health and would contribute to investment in learning. The challenge for governments was how to manage children's health and well-being in the context of increased poverty levels, reduced access to essential services and heightened negative stress levels and well-being issues.

Challenge 4: Mitigating against learning loss and reducing the learning divide when schools reopen

When learners return to schools, the unevenness of distance learning provision means it is likely there will be wider disparities in what children know, understand

Positive responses: In East Asia, countries have put in place robust financial and social support packages, with the intention of easing the financial burden on households, reducing stress levels and ensuring families are fed. Uniquely, in its 'Guidelines on The Requirements for School Health Promotion', the Cambodian Government has outlined action on the broader health and nutritional needs of children as well as focusing on equity issues.[29] Across the South Asia region, initiatives were taken to include psychological counselling and well-being as part of remote lessons, for example by BRAC in Bangladesh, through the community-based education in Afghanistan and on return to school in Sri Lanka.[30]

Lessons learned on supporting health, well-being and protection

1. Good cross-sector collaboration, particularly between the Education and Health sectors, is essential to supporting rapid preparedness during a health response. Social protection systems were not strong enough to reach the number of households vulnerable to falling into poverty.
2. Mental health was a major effect of lockdowns, which was not fully understood or addressed in the Asia region. Resource constraints have led, in most instances, to a focus on a few key health issues in the education sector. A lack of monitoring means that the extent and the outcomes of interventions during the pandemic are largely unknown.

and can do, and simulations as described in section 2.5 indicate that there will be learning loss. During school closures, however, levels of participation and learning were not systematically measured, so there is limited data about what children have learned during school closures. In addition, this lack of assessment means it is unclear which channels, materials and approaches were most effective in improving learning outcomes.

Reopening schools demands an adapted timetable and curriculum as teachers will have to assess learning loss, provide remediation and adapt pedagogy. Governments will need to consider how to prioritize and refocus the curriculum, which provides an opportunity to reduce curriculum content and enable a concentration on foundational literacy and numeracy and the integration of well-being and health issues.

Building back better

The impact of the pandemic has provided a unique opportunity for change. The focus needs to shift to marginalized children (including young children, girls and children with disabilities) and to differentiating their needs at different ages and in different contexts. This requires a better understanding of what goes on in the classroom (virtual and face-to-face) and how and when children learn. This includes measuring the extent to which lesson activities focus on learning activities by the children and are supported by: a supportive classroom culture and positive behavioural expectations, the teacher facilitating the lesson, checking for understanding and giving feedback and stimulating critical thinking, children being more autonomous, encouraged to persevere and socially engaging and collaborating.[35] The overarching theme for this vision is that the most marginalized children should be at the forefront of all decision making. This will require extra investment, but solutions, developed through an inclusion lens, will enable countries to meet the needs of all groups of children.

Positive responses: Japan's Ministry of Education, Culture, Sports, Science and Technology (MEXT) is planning to channel resources to ensure children can 'catch up' on learning through supplementary instruction and materials on their return to school, but if this is not sufficient, MEXT plans to implement 'special measures' such as moving certain learning content to the following years.[31] In Bhutan during school closures, the Government developed an adapted curriculum which focused on core foundational skills in primary and combined subjects at the higher grades to reduce coverage.[32][33] Viet Nam is aiming to close learning gaps, using summer schools and catch-up education programmes. An accelerated programme is contemplated for hard-to-reach ethnic minority children. The Philippines is planning to adopt a prioritized curriculum and to hold a revision period through self-study as schools reopen.[34]

Lessons learned on mitigating against learning loss

1. Assessment processes are critical during distance learning and upon school reopening so that teachers understand what children know and can do so that their needs can be met. Teachers need training and support to develop new skills so they can be more flexible in their pedagogy and implement differentiated teaching in their classrooms.
2. Flexible curriculum planning can take many forms: adaptation of the school year to compensate for lost learning time, prioritization of the curriculum to give time for revision and consolidation of essential skills, and review of the curriculum to include health and well-being and the development of digital literacy skills.
3. During school closures, reliance on parental support has shown the importance of developing home school communication about learning.

FIGURE 2 | INCREASING RESILIENCE AND BUILDING BACK BETTER

This new vision requires substantial systems reform and increased financial investment by governments and development partners or run the risk of an increasing digital divide and potential increased levels of poverty and unrest.

Monitoring, evaluation, assessment and data collection and use, were found to be particularly in need of strengthening so that there is more information about learning gains and where initiatives have not had significant impact in order to vary plans and approaches.

Introduce blended learning approaches for flexible learning but recognize that technology is not the whole solution.

Develop learning strategies which recognize how to make schools safe places where well-being is prioritized and safeguarded. Provide for those who may not for various reasons return to the classroom.

Investment in building skills and capacity for teachers and learning supporters.

Revised curricula would feature deeper knowledge of fewer things, encouraging independent learning, a concentration on foundational skills, awareness of climate change issues, gender sensitive materials etc., using both what is taught in the classroom and what is augmented through other media and contexts.

Local knowledge and experience are critical to reach all children in the most appropriate way; the best solutions have taken place at the local level. Blended learning offers opportunities for flexible learning locations.

Wheel diagram segments: Education Investment, Teachers, Curriculum Reform, Alternative Learning Solutions, Safe Schools, Blended Learning Strategy, Use of Data. Center: FOCUS ON THE YOUNGEST AND ON MARGINALIZED LEARNERS

Recommendations

As demonstrated in this report, the sub-region reports and country case studies, there have been some good responses to the pandemic in many countries and there are some examples of excellent initiatives that could be adapted and expanded to other contexts. There are also very serious impacts of the pandemic seen in many countries that will take many years of investment and technical support to overcome. It is recognized that budgets for investment are constrained, yet it is vital that children and young people are prioritized. Consideration of the challenges, lessons learned and the vision for building back better has led to the development of the following recommendations, which look at both the immediate responses required as well as the longer-term changes that need to be made.

1. **Reopening schools safely.** Strengthen evidence-based decision making on when to reopen schools. Decentralize decision making and provide support for safe reopening. Strengthen monitoring and evaluation systems at all levels to provide timely data on which schools are operating safely, which ones are not and why. Prioritize WASH infrastructure and facility needs for Early Childhood Education (ECE) centres and schools serving the most marginalized groups and identify short- and long-term financing solutions to address these.

2. **Deliver equitable and inclusive distance learning at scale to reach all learners during full or partial school closures.** Establish or strengthen real-time data collection systems and use continuous comprehensive monitoring. Improve access to different learning modalities. Strengthen provision for the most marginalized learners. Develop school, teacher, parent and student readiness for distance learning.

3. **Provide a package of support to ensure children's health, nutrition and well-being.** Strengthen pandemic response planning and cross-sector collaboration. Prioritize funding, policy development, data collection and use of cross-sector pre-primary child development. Promote and fund outreach services for teachers' and young people's mental health and psychosocial support. Identify, record and address protection issues especially for girls. Address issues of household poverty and child labour through social welfare and child benefit.

4. **Strengthen teaching and teacher support to address existing low levels of learning and help narrow the learning divide.** Assess learning loss once schools reopen and support teachers to ensure ongoing formative assessment of learning becomes integral to every lesson and activity. Provide guidelines for schools and teachers on

delivering long-term remediations based on a revised curriculum. Develop comprehensive strategies and plans for taking forward blended learning. Review teacher development and support systems. Increase student agency and make learning more relevant. Increase provision and enrolment in quality pre-primary childcare and ECE, especially for the most marginalized children and communities.

5. **Prioritize education funding.** Consider the impact of COVID-19 on progress towards education targets and its implication on funding needs. Prioritize and increase funding to the education sector. Target funding so that it reaches the most marginalized children. Strengthen the efficiency of education spending.

Conclusion

COVID-19 has had a severe impact on education sectors in the region, leading to long-lasting consequences on the region's economic and social development. Although progress had been made towards enrolment and completion pre-COVID-19, there remained vast inequalities in access to schools and education provision. The closure of schools and the move to remote learning highlighted the digital divide and further widened this gap between the advantaged and the disadvantaged members of society.

As a result of the pandemic, countries have begun to re-envisage education and reflect on these levels of marginalization and how to address them. Strengthened collaboration across sectors and deepened levels of partnerships at all levels are promising approaches which can be built on in the future. Education systems have started to take advantage of the opportunities that technology can create, when planned for in an inclusive way.

The financial implications of the pandemic on countries' GDP will be significant, which will have a resultant impact on education budgets. While some higher-income countries will be able to generate or re-allocate funds to education from domestic revenues, lower-income countries in the region will need to look externally to source for deficit financing or aid.

Across the region, there has been immense effort to address the challenges raised by COVID-19 and many examples of good practice have emerged that can help to guide other countries as they begin to build the resilience of their education and emergency response systems.

If these levels of energy, commitment, effort and partnership are put into driving long-term reforms in the region, then countries will be better positioned to face, address and solve their existing challenges as well as the new challenges created by the COVID-19 pandemic, and be in a stronger position to face disruptions in the future. This is the only way to achieve the SDG 4 targets and to give the opportunity to the millions of marginalized children to fulfil their potential in life.

01

Introduction

1.1 Background

The global nature of the COVID-19 pandemic was unique as it affected the whole world with the twin shocks of a health emergency and an economic recession, coupled with shocks to all other sectors, not least education. There will be a long-term negative impact on human capital accumulation, overall development prospects and welfare. The pandemic has affected all parts of the world and the responses to the situation have disproportionally affected the most vulnerable and marginalized members of society. The contexts within which people of South Asia, Southeast Asia and East Asia, are having to cope with the virus vary significantly, with disparities in living conditions and varying degrees of access to, and quality of, essential services such as health and education. Across the continent there is vast inequality between the rich and the poor and, therefore, different levels of resilience to the shocks that this disease has brought, putting the poor at long-term risk of far more challenges beyond the consequences of contracting the virus.

Some of the most vulnerable children felt the side-effects of COVID-19 from the moment nationwide lockdowns were put in place to control the spread of the disease. Initially, schools, markets, workshops, farms and factories closed, leaving children and families stranded. Throughout this situation, deep-rooted inequalities in societies are being exposed. A year on from the start of the crisis, for many people the fear and uncertainty continues, whereas for others in the region, life has almost returned to normal.

This Situation Analysis has been undertaken as part of the broader analysis initiated by UNICEF and UNESCO to provide a snapshot of the educational responses and effects of COVID-19 across Asia. It considers the direct effects of school closures and reopenings and identifies the initial impact that this may have had on learners, their families as well as on the overall education system. It seeks 'to gain' an understanding of the contextual factors that may have supported or hindered learning, with particular attention on those disadvantaged groups who will be most affected by the pandemic, particularly girls and learners with disabilities. The aim of this is to identify interventions which have been able to successfully reach the most marginalized communities, and how their different needs were addressed to increase accessibility and participation for all.

Objectives of the study

- To assess and estimate the various impacts of the COVID-19 pandemic on the education sector and stakeholders in Asia;
- To examine policy and financial implications on progress towards achieving SDG 4-Education 2030; and
- To identify examples of promising responses and strategies in education and associated social sectors, which can be shared with other countries.

1.2 Methodology

The regional synthesis report provides an overview of the situation across South, Southeast and East Asia and is drawn from key documents, including three sub-regional reports and 14 detailed country case studies, which examine responses to the pandemic in more depth. The report development has been supported by the regional UNICEF and UNESCO offices. Country governments from across the region reviewed the case studies and participated with other stakeholders at two webinars.[36] This synthesis report contains feedback from these webinars.

1.3 Structure of the report

The regional report is a synthesis of the sub-regional reports, structured in six chapters. After the introduction, chapter 2 outlines the situation prior to COVID-19, as well as the effects of COVID-19 on: access and participation, and learning levels; health, well-being and safe learning operations; and the financial implications of reaching the SDG 4 targets. Chapter 3 presents the overarching challenges, examples of positive responses and lessons learned. Chapter 4 looks to the future, considering what building back better could look like in the region. Chapter 5 provides specific recommendations for building back better and increasing the resilience of education systems to future shocks. Finally, chapter 6 concludes the report, with a summary against the three objectives of the study.

02

Background and context

2.1 Introduction to Asia

Asia is a vast continent with a diverse range of countries. This Situation Analysis focuses on South, Southeast and East Asia.[37] Fourteen countries were selected across these three sub-regions for deeper study:

- **South Asia:** Afghanistan, Bangladesh, Bhutan, India, Maldives, Nepal, Pakistan, and Sri Lanka
- **Southeast Asia:** Indonesia, Lao PDR, and Viet Nam
- **East Asia:** China, Japan, and the Republic of Korea

The region covered by this Situation Analysis contains a diverse range of countries by size, population, political structure, socio-economic development, and location. This ranges from densely populated countries such as China and India, covering huge areas of land and a range of topographies, to large countries with multiple islands such as Indonesia, Maldives and the Philippines, and smaller Himalayan countries, including Bhutan and Nepal with mainly rural communities and many people living in remote, sparsely populated areas.

As well as a variety of geographical features, the countries range vastly in economic status. The majority of the countries in the region are middle-income countries, but there is a range from low-income countries, such as Cambodia and Timor-Leste, to high-income countries including Brunei Darussalam, Japan, the Republic of Korea and Singapore. This diversity is also reflected in the range of household income, which ranges from $2,718 in Nepal to $40,861 in the Republic of Korea.[38]

These different contextual factors influenced the effect of the pandemic on each country as well as the way in which the countries responded.

2.2 COVID-19 in Asia

Levels of preparedness for COVID-19

The Asia region has a prevalence of emergency situations, such as volcano eruptions, tsunamis, earthquakes, political upheaval and conflict, which regularly affect people's lives, restrict movement and have an impact on schools and learning. Climate change has had an impact on the area, with a higher prevalence of floods, droughts and severe cyclones. Most countries, therefore, have disaster management plans in place, which ideally enable them to provide quick responses to such emergencies.

This health emergency, however, was unique, as it was not a sudden disaster, destroying infrastructure and forcing people from their homes.

Case study findings: Bangladesh
The Bangladesh Government is experienced in disaster management and accustomed to working with non-governmental organizations (NGOs), at all levels of the system, to provide a swift and comprehensive response. Their disaster management has been particularly effective for cyclones as an efficient early warning system and provision of shelter in cyclone-prone areas has led to minimal loss of life over the past few years, compared to 500,000 lives lost in the cyclone of 1970. As a result of experience and planning, there are thousands of trained people who can be quickly mobilized to respond to any sudden event. However, the COVID-19 pandemic was a protracted crisis for which the Government (in common with many other countries) was not prepared, and therefore faced extreme difficulties in providing adequate learning opportunities for all children.[39]

The first cases of COVID-19 were reported in China in December 2019, and quickly spread, so that by March 2020 all countries in the region had been affected to varying degrees. The table below shows the cumulative number of infections per country across the region. While India, followed by Indonesia, had the highest number of infections in the region, Maldives, Nepal and Singapore were proportionately more severely affected when considering infections relative to population size. Cambodia, Lao PDR, Timor-Leste, and Viet Nam managed to keep the virus contained and had low numbers of infections per 100,000.

At the end of March 2021, just over a year from the start of the pandemic, it is still affecting lives in the region, with, Bangladesh, India, Indonesia, Pakistan, Philippines and Japan starting to see cases rising again, causing further disruption to people's lives and children's education.

TABLE 1 | CUMULATIVE NUMBER OF INFECTIONS AND INFECTIONS PER 100,000 ACROSS THE REGION, MAY 2021

COUNTRY	INFECTIONS PER 100,000	CUMULATIVE NUMBER OF INFECTIONS
Maldives	8,931	47,421
India	1,866	25,496,330
Nepal	1,651	472,354
Malaysia	1,307	417,512
Singapore	1,074	61,235
Philippines	982	1,062,225
Sri Lanka	678	147,720
Indonesia	622	1,682,004
Bangladesh	480	782,129
Pakistan	408	882,928
Japan	351	443,001
Myanmar	264	142,842
Timor-Leste	195	2,524
The Republic of Korea	182	94,198
Bhutan	172	1,309
Afghanistan	169	64,122
Mongolia	108	3,481
Thailand	105	72,788
Cambodia	93	15,361
Brunei Darussalam	52	227
Lao PDR	13	966
China	7	102,172
Viet Nam	3	2,985

Source: WHO COVID-19 dashboard[40]

The response to COVID-19

Countries in each of the three sub-regions had slightly differing responses to this emergency. Most countries in South Asia and Southeast Asia imposed a lockdown on their population, which closed schools, businesses, industry and shops. In parts of East Asia, a different approach was taken, as Japan and the Republic of Korea took a softer approach to preventing infection. Japan kept shops and businesses open and encouraged their citizens

to stay at home and avoid crowded places, and the Republic of Korea introduced a sophisticated track-and-trace system rather than locking down the whole country, which kept the number of infections low.

Case study findings: The Republic of Korea

The Republic of Korea introduced what was considered one of the largest and best-organized pandemic control programmes in the world, using three phases of the pandemic preparedness and response framework: detection, containment, and treatment. The Government information campaign communicated two main components: risk factors and useful protection measures. Daily press briefings, websites, and automated text messages helped to answer questions related to COVID-19.[41]

2.3 Who will be most affected?

Emergency measures prevented the spread of the infection but reduced economic growth and negatively impacted on household incomes, disproportionately affecting South Asia and parts of Southeast Asia.

Globally, economies are expected to contract on average by -6.7 percent in per capita terms in 2020. Across Asia and the Pacific, countries in the Pacific—with an expected contraction of -5.7 percent—are expected to be hardest hit followed by -4.8 percent among high-income countries, -4.0 percent among South Asia countries, and -2.7 percent among East Asia countries. The economic shock in 2020 is likely to be more severe than those that occurred both during the 2007–2009 Global Financial Crisis and the 1997–1998 Asian Financial Crisis. As a result of this contraction, unemployment, poverty, and income inequality rates are projected to rise across the region.[42]

In 2019, the UNICEF East Asia and Pacific Regional Office developed a synthesis of the latest data and evidence on out-of-school children and adolescents in the region.[43] The report used the Five Dimensions of Exclusion model to identify the characteristics of the most marginalized and vulnerable groups across the levels of education (Table 2). These characteristics intersect, and the most marginalized

TABLE 2 | CHARACTERISTICS OF MARGINALIZED AND VULNERABLE CHILDREN IN SOUTHEAST ASIA[44]

CHARACTERISTIC	MARGINALIZED GROUP
Socio-economic status	Especially those from the poorest 20 per cent of households and those who live in poor urban areas.
Residence	Those in rural areas, remote areas or small islands. Those who migrate from rural to urban areas and refugees.
Disability	Children with disabilities are disadvantaged in both access to and quality of provision across all levels of education.
Gender	Girls are more likely to participate at all levels, but are affected more by poverty or place of residence and by harmful social norms such as child marriage than boys. Boys participate less than girls, and perform less well, but have more access to further education and work opportunities.
Minorities	Ethnic or language minority groups.

"are characterized by several combined factors of disadvantage." For the purposes of this report, references to marginalized and vulnerable children refer to these definitions.

The Lancet describes vulnerable groups as those people who "are disproportionately exposed to risk,"[45] and the most likely to be affected by the policy responses to the pandemic. It goes on to describe vulnerability as a dynamic state which people could move in and out of during the course of the pandemic.

The World Bank predicts that the impact of COVID-19 will increase the number of extremely poor people (those existing on $1.90 per day) by 88 million globally, and this could rise to 115 million depending on the severity of the economic impact of the pandemic. Figure 4 shows the regional distribution of the COVID-19 extremely poor population. "Most of the new poor at the extreme poverty line, as well as the higher poverty lines, live in South Asia."[46] The effects of the policy responses to the virus will be most felt by those already most marginalized and vulnerable to falling back into poverty.

FIGURE 3 | CHANGES IN $1.90 PER DAY POVERTY LEVELS IN THE REGION SINCE 1990
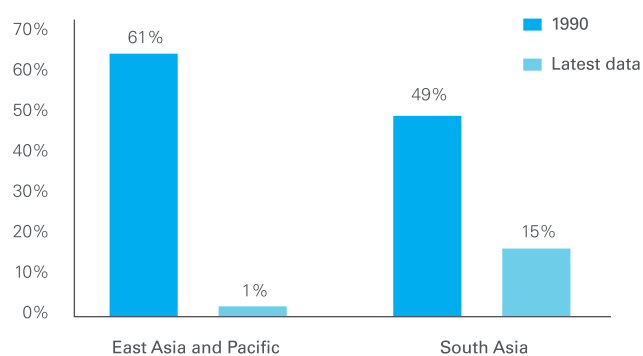
Source: World Bank[47]

FIGURE 4 | REGIONAL DISTRIBUTION OF COVID-19 INDUCED POOR, 2020 (MILLIONS)
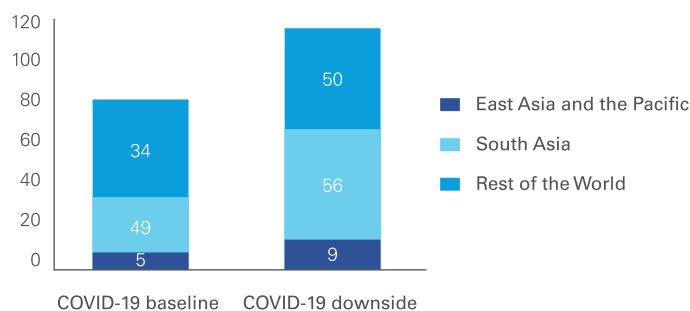
Source: World Bank[48]

Pre-COVID-19, poverty levels measured against $1.90 per day throughout the region were in decline, but this was predicted to change as a result of measures to prevent transmission.

2.4 How did the spread of the pandemic affect learning?

The main policy response to the pandemic which affected children, was the closure of schools to keep them safe and reduce community transmission.

Much of the evidence regarding the effectiveness of school closures and social distancing measures has been based on influenza transmission, which tends to be driven by children.[49]

Research into transmission of COVID-19 has shown how children are affected by the pandemic (Figure 5), but this is also changing as new variants are developing.

"Recent modelling studies of COVID-19 predict that school closures alone would prevent only 2–4 per cent of deaths, much less than other social distancing interventions,"[51] and that further research is needed to improve the understanding of decision makers on the effectiveness of the school measures being widely implemented. Variations in transmission are important considerations in response

FIGURE 5 | WHAT DO WE KNOW ABOUT CHILDREN, COVID-19 AND SCHOOL CLOSURES?

Overall, COVID-19 is reported much less frequently in children.

Children usually have mild or no COVID-19 symptoms.

Older children are more likely to become infected and to transmit COVID-19, but the role of younger children in transmission is not yet fully understood.

See WHO Information Network for Epidemics for updates

FIGURE 6 | OVERVIEW OF SCHOOL CLOSURES AND REOPENING IN EAST ASIA
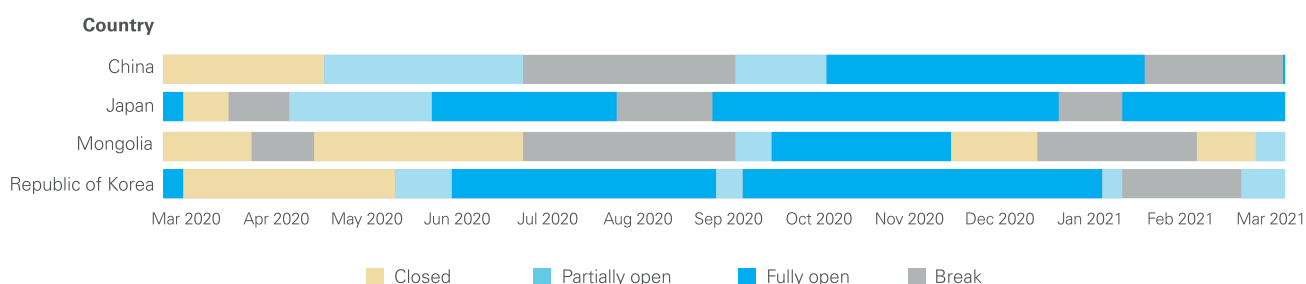
Source: UNICEF / UNESCO[50]

planning, particularly in terms of time spent in and away from school. Where there is widespread community transmission or the number of cases is rising, effective safe operating measures in schools are even more important while public health measures in the community are essential to protect schools from amplifying transmission.[52] Significant outbreaks in schools are not widely recorded, but there are examples of where these have been associated with overcrowded classrooms and weak preventive measures.[53]

Figures 6 to 8 show school closures throughout the region during the pandemic. As can be seen from the charts, almost 100 per cent of children were out of school during March, April and May 2020. Full school closures lasted for different durations, ranging from approximately one month in Japan, Singapore Thailand and Timor-Leste to over a year in Bangladesh and the Philippines. These disruptions meant that throughout the region children were deprived of face-to-face learning in most countries for a significant period of time, with children in South Asia countries- many already disproportionately disadvantaged- spending the longest time away from school.

In East Asia schools were reopened, at least partially within three months of closing, limiting the number of school days lost (Figure 6). However, in Mongolia, schools closed again in December 2020 and only partially reopened in March 2021, increasing the number of school days lost. In China, schools were only partially reopened until October 2020 and have remained fully open since then. In Japan, schools have remained fully open from June 2020 and in the Republic of Korea, partial reopening has been intermittent throughout the year.

In South Asia, schools have been closed fully and partially over the last year, causing major disruption to schooling (Figure 7). Only four countries, Afghanistan, Maldives, Pakistan and Sri Lanka managed to reopen schools fully for any length of time in 2020.

In Southeast Asia, schools closed for an initial period then reopened again either fully or partially in all countries (Figure 8). While Lao PDR and Timor-Leste have kept their schools fully open since June 2020, all other countries have had periods of partial closure. Myanmar and the Philippines have been fully closed for the longest period.

Most countries in the region prioritized the return of older children to school, as they were facing high-stakes examinations, important for the children's future and the economy of the country. However, evidence suggests that it was the youngest members of the school population who were most in need of face-to-face interaction and should have been the first to return when schools reopened.[54]

"Early Childcare Education (ECE) promotes physical health, emotional safety, social connections and engaged learning. Reopening ECE settings can provide children with much-needed emotional support, learning opportunities and offers reliable childcare options for parents returning to work."[55]

Consideration needs to be given to other less disruptive interventions, especially if measures are imposed for lengthy periods of time. School closures not only affect children's learning, but also impacts on their development when services associated with schools, such as additional support (for example, for children with disabilities), feeding, and immunization programmes are also suspended. As a result of this, restrictive measures have the potential to result in major detrimental effects on the health and well-being of children and adolescents, particularly those most vulnerable.[56]

FIGURE 7 | OVERVIEW OF SCHOOL CLOSURES AND REOPENINGS IN SOUTH ASIA
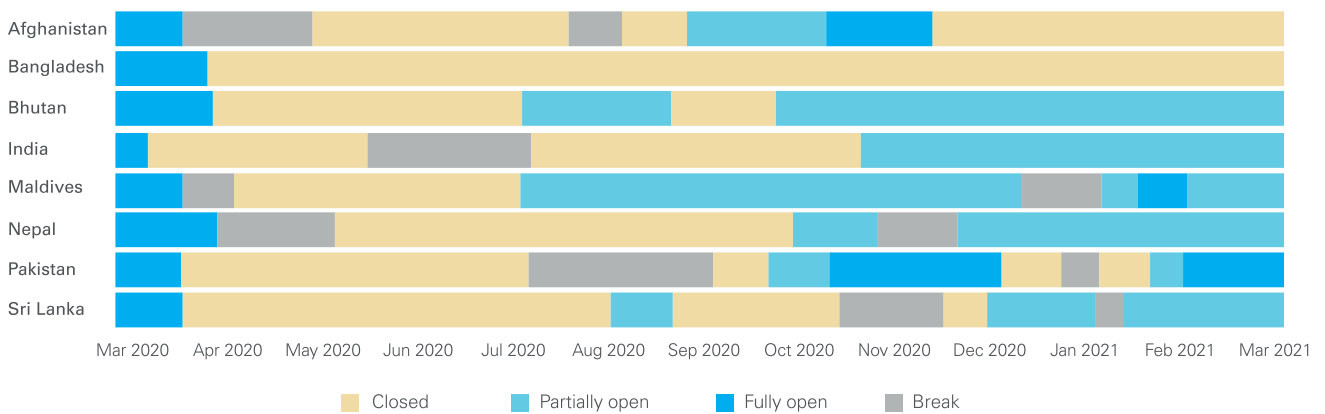
Source: UNICEF / UNESCO[57]

FIGURE 8 | OVERVIEW OF SCHOOL CLOSURES AND REOPENINGS IN SOUTHEAST ASIA
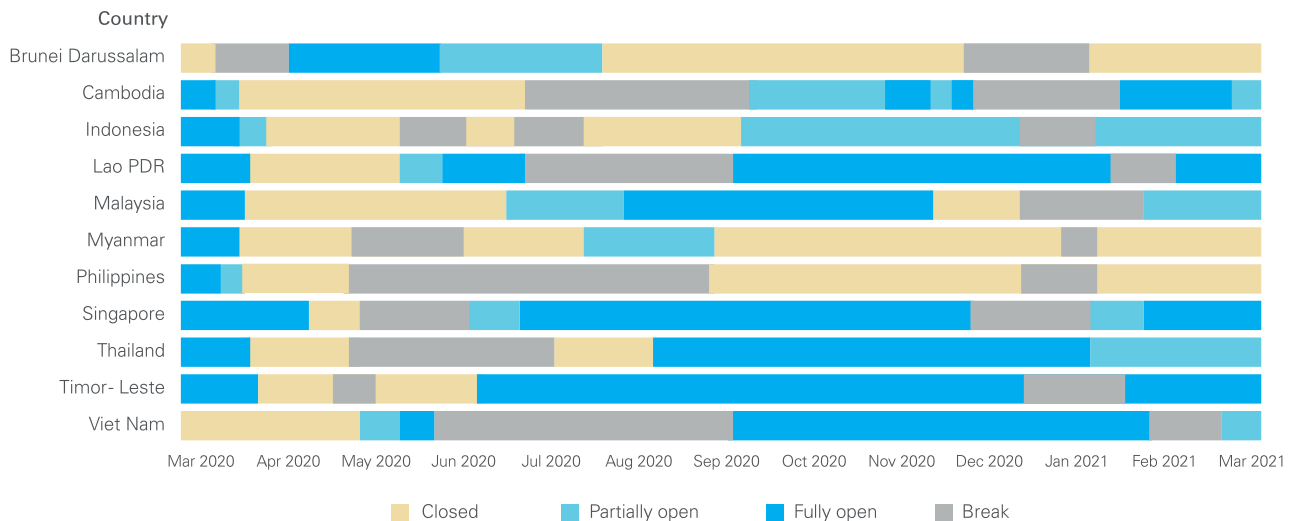
Source: UNICEF / UNESCO[58]

2.5 Access to and participation in learning

What was the situation pre-COVID-19?

Were children attending school and participating in learning?

Throughout the region, enrolment has been increasing with many countries achieving gender parity. However, despite the encouraging figures, there are still many disadvantaged children out of school, perpetuating inequalities and excluding them from learning.

- The East Asia Pacific region is still home to 50 per cent of the world's out-of-school population.

  "More than 15 million girls in the East Asia and Pacific (EAP) region were not enrolled and able to gain an education before COVID-19. Concerted efforts by governments across the region halved the overall number of girls out-of-school from 30 million to 15 million over the past two decades. These notable achievements towards girls' access to education on a regional level hide significant variability at the country level. In Mongolia and the Philippines, for example, 73 per cent and 63 per cent respectively of primary school aged children out-of-school were girls before COVID-19."[59]

- In South Asia, UNICEF describes the crisis situation of 95 million children from primary to upper secondary being out of school (2018).[60]

- Pre-COVID-19, enrolment was high in the East Asia study countries, and primary and lower secondary completion rates near universal. In Mongolia, however, upper secondary completion rates for students in the lowest wealth quintile was only 50 per cent.[61]

- Gender disparity in completion rates in Southeast Asia tends to be more prominent among the poorest households.[62]

- As shown in section 2.7, enrolment in pre-primary is over 80 per cent across the Asia region. Much of this is private provision with between 30 per cent (South Asia) and 42 per cent (East Asia) of pre-primary children enrolled in public schools. However, the Southeast Asia case study reports that *"ECE still does not have the prioritised political and budgetary support in the sub-region and according to latest available data, access to pre-primary education in Southeast Asia remains far below the targets set for 2030."[63]*

The school closures caused by the pandemic threaten to put progress at risk. Despite mitigation measures, a large percentage of children, particularly the most vulnerable, are expected not to return once schools are finally able

VARIATION IN LEARNING LEVELS IN ASIA

LOW

South Asia has the overal lowest levels of harmonized test scores with all countries below 400

MEDIUM

Most countries in Southeast Asia, plus China and Mongolia score between 400 and 500

HIGH

In East Asia, Japan and the Republic of Korea both score over 550. Viet Nam, in Southeast Asia scores over 500

to reopen again. "As families face sustained financial pressure and students continue to fall behind, drop-outs are expected to increase."[64]

Were children learning prior to the pandemic?

This report has used three measures to show levels of learning across the region.

1. Learning Poverty implies children who are unable to read and understand a short, age-appropriate text by age 10 and it is calculated by the share of children who haven't achieved minimum reading proficiency adjusted by the proportion of children who are out of school.

2. Programme for International Student Assessment (PISA) scores for Reading and Maths (2018) and world rankings.

3. Harmonized Learning Outcomes are used for countries that did not participate in all or some of the other assessments or do not have a Learning Poverty score.[65] This enables a broad comparison of learning levels across the region.

   • In East Asia, countries are performing above the average level of learning poverty for the region (21 per cent) although it varies in and between the countries of the sub-region.

   • 2019 data showed that, pre-COVID-19, learning was already in crisis with 58 per cent of children in South Asia described as learning-poor.[66]

   • In Southeast Asia[67], the range of learning poverty across the sub-region is large, ranging from only 1.7 per cent in Viet Nam to over half of all children (51 per cent) in Cambodia.[68]

The World Banks' harmonized test scores starkly reveal the difference in learning across the three sub-regions.[69]

Effects of COVID-19 on learning

The extended period of school closures, potentially increasing the number of drop-outs across the region, and impacting on learning levels, is a major factor which adversely affected the most vulnerable children in the community during the pandemic, putting them at a further disadvantage and heightening already pre-existing inequalities.

The World Bank has carried out simulations that consider three different lengths of school closures – 3, 5 and 7 months – and considered different learning mitigation approaches (mainly through remote learning) and their levels of effectiveness. This has created three global scenarios – optimistic, intermediate and pessimistic. The results show that, "COVID-19 could result in a loss of between 0.3 and 0.9 years of schooling adjusted for quality… Across the globe, close to 7 million students from primary up to secondary education could drop out due to the income shock of the pandemic alone… Globally, a school shutdown of 5 months could generate learning losses that have a present value of $10 trillion."[70]

Modelling has been conducted by the Brookings Institute to analyse the likely impact of different remediation methods on learning following school closures (Figure 9).[71] The study found that 3 months of school closure on a Grade 3 pupil, equates to:

   • One year of learning loss by Grade 10 if no remediation is in place.
   • Half a year of learning loss by Grade 10 if one year of remediation is provided.
   • Over a year of learning gain by Grade 10 if one year of remediation is combined with instruction reorientation (prioritized curriculum, focus on foundational skills, formative assessment, ongoing teaching at the right level) which is continued for subsequent years.

Pre-COVID-19, the learning situation for each country in the region was varied, with learning equalities prevalent throughout the region. Study countries in East Asia were generally on track to achieve SDG 4, while in Southeast and South Asia there were high levels of learning poverty.

FIGURE 9 | EFFECT OF REMEDIATION ON LONG-TERM LEARNING
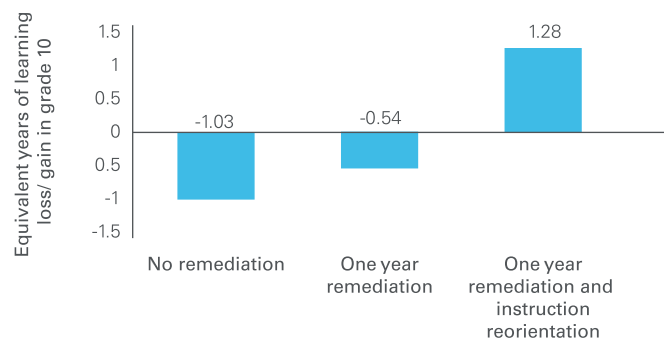
Source: Brookings Institute[72]
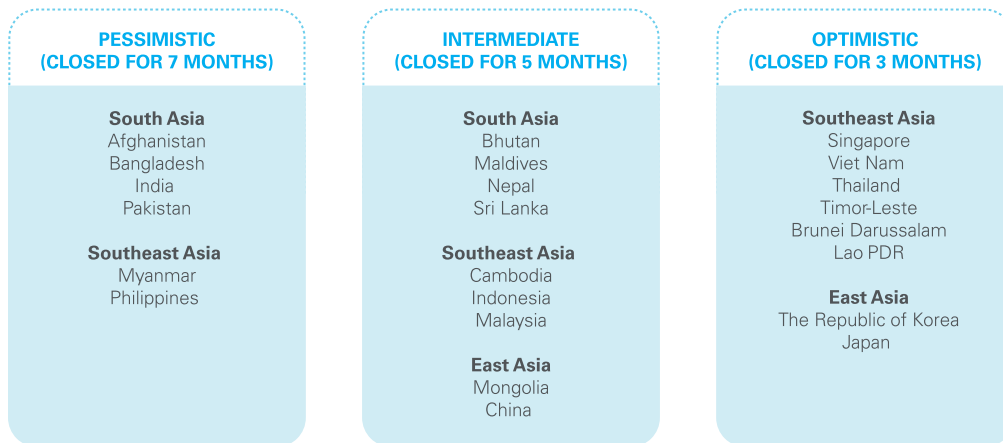
PESSIMISTIC (CLOSED FOR 7 MONTHS)	INTERMEDIATE (CLOSED FOR 5 MONTHS)	OPTIMISTIC (CLOSED FOR 3 MONTHS)
South Asia Afghanistan Bangladesh India Pakistan **Southeast Asia** Myanmar Philippines	**South Asia** Bhutan Maldives Nepal Sri Lanka **Southeast Asia** Cambodia Indonesia Malaysia **East Asia** Mongolia China	**Southeast Asia** Singapore Viet Nam Thailand Timor-Leste Brunei Darussalam Lao PDR **East Asia** The Republic of Korea Japan

All countries developed plans to enable children to continue learning, with most countries using technology such as TV, radio and the internet as a delivery mechanism. However, the provision did not reach all children, especially the most marginalized. Even for those children it did reach, the switch to remote learning was challenging and learning hours were vastly reduced.

Although the effectiveness of remote interventions is not yet known, the table above considers how the countries in the three sub-regions could fall into the World Bank categories. Countries from all three regions were in the intermediate, half of South Asian and a small number of countries from Southeast Asia in the pessimistic and half of East Asian countries in the optimistic category.

Experience has also shown that learning will have been lost for many children across the region, exacerbating the learning crisis and increasing learning poverty.

Judging by the World Bank's simulation, learning loss will be much greater in those countries in the region where there is already the biggest learning crisis. Since these simulations were done, there have been new spikes in South Asia which have worsened the situation, likely shifting more South Asian countries into the pessimistic category. A UNESCO report estimated that in low- and low-middle income countries, the number of children falling further into learning poverty globally could rise by 10 percentage points as a result of COVID-19.[73]

UNESCO estimates that about 12 million children from pre-primary to university level will drop out of school in South and West Asia as a result of the pandemic, with pre-primary affected the most.[74]

Girls: In the East Asia and Pacific region almost 1.2 million girls are at risk of not returning to school. Across the region, girls, children with disabilities and pre-primary-aged children, especially those with no or limited access to technology, were particularly disadvantaged by the move to remote learning.[75]

The Malala Fund, early on in the crisis, looked to learning from the Ebola outbreak to highlight that secondary-school-aged girls were most likely to drop out as a result of the school closures during the COVID-19 pandemic.[76]

"There is also a significant gender digital divide, with girls far less likely to own or have access to digital devices and fewer opportunities to gain digital literacy skills."[77] In South Asia, only 65 per cent of women have mobile phones with a 23 per cent gender gap in ownership, whereas in the East Asia and Pacific region ownership is 95 per cent, with a 1 per cent gender gap.[78]

Children with disabilities: A UNICEF report on the inclusion of children with disabilities in COVID-19 response strategies, showed how the exclusion of children with disabilities has also been exacerbated, as learning has shifted to remote and online delivery.[79] In the East Asia and the Pacific region, only 19 per cent of governments who participated in the survey adopted measures to support learning for children with disabilities and in South Asia (see Figure 10); more than 60 per cent of governments did not adapt their response to make learning accessible for children with disabilities.

The same UNICEF report also suggests that more research and data is needed to show how the pandemic has affected children with disabilities, but that they are, "likely to remain invisible in data collection efforts, unless dedicated measures are put in place to make such efforts disability-inclusive."[81]

FIGURE 10 | PROVISION OF MEASURES TO SUPPORT LEARNING FOR CHILDREN WITH DISABILITIES DURING THE PANDEMIC
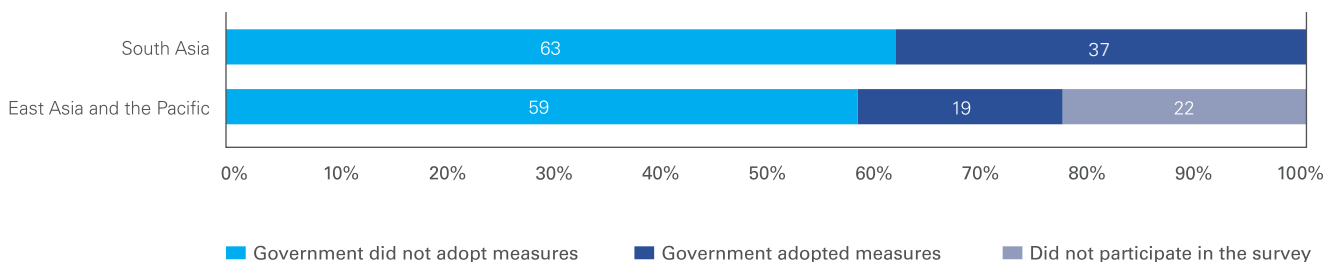
Source: UNICEF[80]

Pre-primary-aged children: Research has shown that every \$1 spent on pre-primary education results in \$9 of benefits to society through increases in lifetime earnings (as participation and completion rates increase) and savings to the education system as repetition rates decrease.[82] However, lower-income countries globally spend less than 2 per cent of their education budgets on pre-primary education and less than 1 per cent of total international aid to education between 2012 and 2016 was spent on ECE.[83] The effects of COVID-19 on pre-primary-age children's long-term health and development will be significant, making additional investment and the implementation of specific ECE policies more important than ever.

"Young children need comprehensive nurturing care which includes good health, adequate nutrition, early learning opportunities, responsive caregiving, and safety and security. Severe, lifelong impacts can result from deprivations during the early years if children do not have these critical inputs to ensure optimal child development."[84]

Across the region there was little evidence of distance provision for pre-school learners, possibly because education systems (and families) tended to prioritize continued education for older learners, and possibly because of the relative difficulty in finding a suitable distance delivery model for young learners. Poor and marginalized families were able to provide the least levels of support, as parents had to provide income for the family and, in many cases, do not have the literacy levels (especially in their own language) to support young children's learning at home. Guidance for parents was provided in East Asia, but it was only accessible to those who could read or access the internet and only implementable by those who had the financial security for a member of the family to spend time on childcare.[85] [86]

In South Asia, the youngest learners, whose reading skills are yet to be developed fully, had particular challenges accessing and participating in remote learning, and required intense support from parents or caregivers.[87] For many families in this sub-region, due to their own low levels of literacy, or the need to go out and provide an income for the household, this support wasn't available. As a result, the youngest, with the greatest need for cognitive and socio-emotional development opportunities, spent the longest periods away from school and received the least support.

"The substantial long-lasting effects of early years education on economic and social outcomes are particularly high for children from disadvantaged backgrounds, whose home environments may not provide them with the foundational skills necessary to prosper at later educational stages. Therefore, investing as early as possible in high quality education for all and in supporting students from disadvantaged backgrounds is a cost-beneficial strategy: it pays off.[88] Loss of learning estimates (see RISE simulation[89]) will be higher for younger children than secondary students as their foundational learning has already been achieved."[90]

This further emphasizes the importance of strengthening alternative learning modes during school closures and of reopening schools as soon as it is safe to do so. School closures should be considered a last resort after exhausting all alternative measures to prevent community transmission.

Over a long period of time, almost a year's absence from school, a lack of face-to-face contact, unequal access to alternatives, and inappropriate provision of learning for young children and children with disabilities will have significant effects on the levels of learning. In a context where many children were already learning below the expected grade level, the effects of the crisis will make it even more challenging for countries to reach the 2030 SDG 4 targets for learning.

2.6 Health, well-being and protection and safe school operations

What was the situation pre-COVID-19?

Health, Well-being and Protection

As can be seen in Figure 11, pre-COVID-19, there were pre-existing health inequalities across the region, both in the nature and severity of health and well-being issues.

For many children in Asian countries, free school meals are an important source of nutrition. In their 2020-2030 School Feeding Strategy document, the World Food Programme (WFP) estimated that around 73 million primary school children living in extreme poverty in 60 countries do not have access to national school feeding programmes or other health and nutrition school interventions such as deworming, nutritional supplements and nutrition education, which will have a detrimental effect on their health and development.[91]

Children's health is a key factor impacting the ability of children to both access and participate in education. Good nutrition, for example, is essential for young children under-5 years old; the brain is almost fully developed by the age of six, so the foundation for the future potential of a child to learn and to be successful is established in this early period of their life.

FIGURE 11 | HEALTH ISSUES AFFECTING CHILDREN ACROSS ASIA PRIOR TO COVID-19

SOUTH ASIA

More than half of the world's stunted children live in South Asia and it is the third highest region for violence against children.[92]

According to Multiple Indicator Cluster (MICS) 4 data, only two-thirds of children between the ages of 36 to 59 months are developmentally on track in South Asia.[93] The proportion of children aged 0 – 59 months old who are left in inadequate care is also alarmingly high, meaning that many young children do not receive the nurturing and responsive care they require for achieving their developmental potential.

Globally, there are 23 million children who are not fully immunized and 8 million of the live in South Asia. It is the last region still fighting Poliovirus. Inequalities remain both in terms remain both in terms of immunization coverage and access within countries.

SOUTHEAST ASIA

The region faces a double burden of malnutrition, i.e., stunting and obesity.[94]

Almost a third of children in the region have stunted growth due to chronic malnutrition, making them highly prone to life-long cognitive and physical limitations.[95]

Adolescents' mental health and well-being, growing incidences of self-harm, and high suicide rates are of increasing concern in the Southeast Asia and Pacific region. [96]

EAST ASIA

2018 data from UNICEF shows that 14 per cent of the poorest children in Mongolia suffer from malnutrition.[97]

China is in the top three highest remittance-from-migrant-workers countries.[98] Isolation and reduced mobility (together with lost income) have increased the risk of abuse, exploitation and trafficking in persons, particularly of women migrant workers and children.

In 2017, 1 in 6 children under 17 in Japan were reported to be living in relative poverty (as classified by OECD99) and at an extreme disadvantage in terms of medical care, meals, schooling and prospects for higher education.

Source: UNICEF/UNESCO Sub-regional reports for South Asia, Southeast Asia and East Asia[101] [102] [103]

Safe operations in schools

Deprivations in adequate sanitation and safe sources of drinking water (both at home and in some school settings) leave children at risk of exposure to potentially fatal diseases, including COVID-19. Hand hygiene (washing with soap and water) is one of the most effective actions to reduce the spread of pathogens and prevent infections.[104] Therefore, in order for schools to reopen safely during the pandemic, it was critical that adequate WASH facilities, as defined by UNICEF (Table 3) were in place in all schools.

A recent survey, carried out by the World Bank and UN agencies in October 2020, of 113 countries has suggested that up to 50 per cent of low-income countries do not have enough resources to offer adequate protection to all pupils and staff.[105] Figures 12 to 14 give overviews of the WASH situation in schools pre-COVID-19 across the region. Provision of WASH services both within and between countries is unequally distributed, affecting the ability of schools to reopen safely.

Figure 12 shows that there is a lack of data about WASH facilities in South Asia, with only two countries having data for drinking water, sanitation and hygiene provision (Bangladesh and India). This made planning for and tracking safe school reopening difficult for education managers. For countries where there is data, around half of all schools do not have adequate hygiene services in place.

TABLE 3 | UNICEF DEFINITION OF BASIC WASH SERVICES IN SCHOOLS

Drinking water	Water from an improved source (piped water, boreholes or tube wells, protected dug wells, protected springs and packaged or delivered water), and water is available at the school at the time of the survey.
Sanitation	Improved sanitation (flush/pour flush to piped sewer systems, septic tanks or pit latrines; ventilated improved pit latrines, composting toilets or pit latrines with slabs), at the school that are single-sex and usable (available, functional, private) at the time of the survey.
Hygiene	Handwashing facilities with water and soap available at the school at the time of the survey.

Source: UNICEF[106]

FIGURE 12 | WASH SITUATION IN SCHOOLS IN SOUTH ASIA

Only two of the eight countries in South Asia have comprehensive data on the WASH situation in schools: Bangladesh and India.
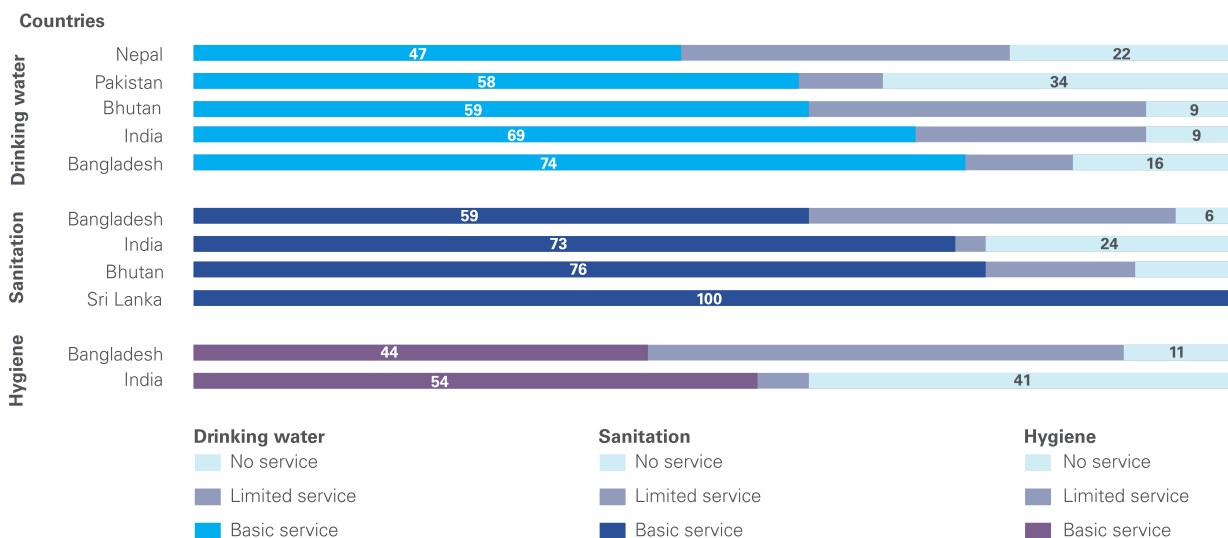
Source: WHO/UNICEF[107]

Figure 13 shows the disparity in WASH provision across Southeast Asia.[108] The figure shows that almost all schools in Brunei Darussalam, Malaysia and Singapore, have basic hygiene and sanitation services. However, basic WASH facilities required for hand hygiene remain out of reach for many schools in the sub-region, particularly in Indonesia, Lao PDR, Philippines and Timor-Leste.

All schools in Japan[109] and the Republic of Korea[110] have basic hygiene and sanitation services. However, basic WASH facilities are inadequate in rural areas of Western China[111] and Mongolia. Figure 14 shows data from Mongolia where only 41 per cent of schools have basic hygiene facilities, with wide disparities by location. Only 35 per cent of schools in rural areas have basic hygiene facilities compared to 53 per cent in urban areas.

FIGURE 13 | SCHOOL HEALTH AND SANITATION SERVICE LEVEL DATA FOR SOUTHEAST ASIA BY LOCATION (2019)
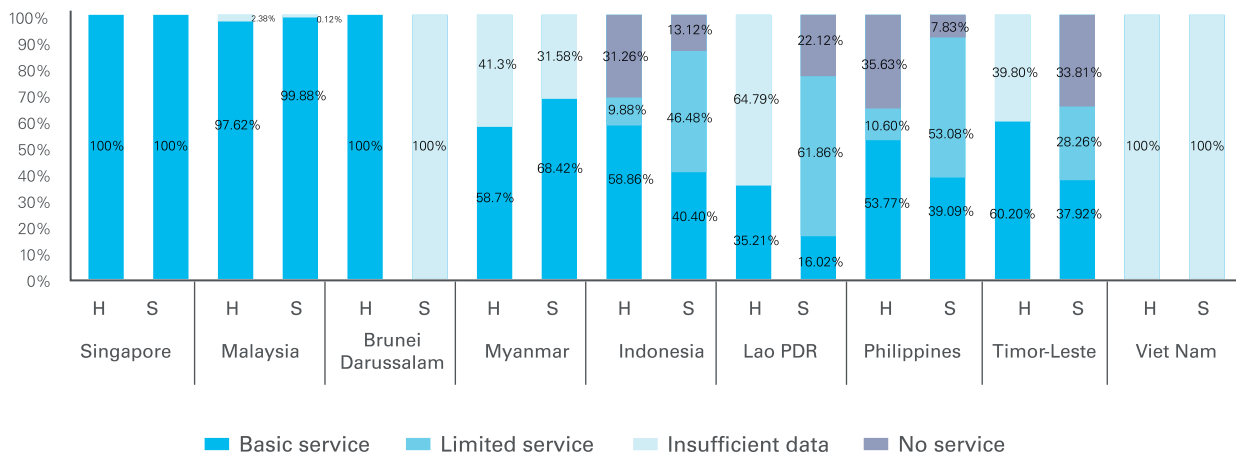
Source: WHO/UNICEF[112]

FIGURE 14 | WASH FACILITIES IN MONGOLIA (2019)

School data- Mongolia- 2019- Service Levels
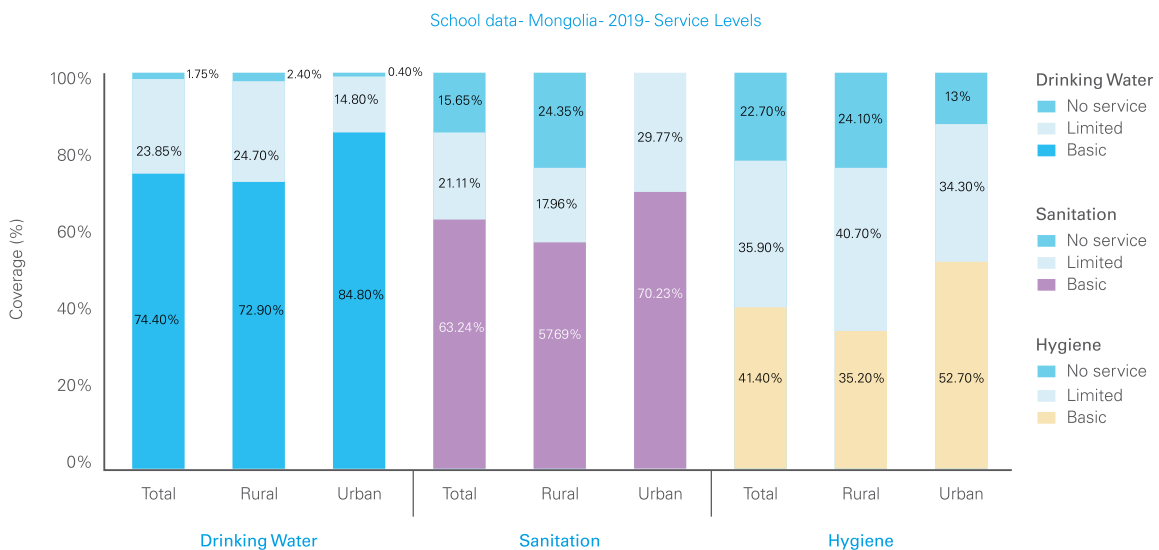
Source: WHO/UNICEF[113]

368.5 million children globally across 143 countries who normally rely on school meals for a reliable source of daily nutrition must now look to other food sources.[114]

Effects of COVID-19 on health, well-being, protection and safe operations

Globally, COVID-19 has had severe financial consequences for families. One of the major challenges countries faced was how to manage a health emergency which led to the lockdown of businesses, the service sector and schools and contributed to a slow-down in economic growth throughout the region (Section 2.7 provides a financial analysis), while at the same time preventing vulnerable households from falling back into poverty. Section 2.3 discussed the financial impact of COVID-19 on the extreme poor, with the majority of those slipping further into poverty being in South Asia. Poverty levels in the East Asia Pacific region, against a measure of $5.50 per day, is expected to increase by as many as 38 million.[115] A study by The Lancet estimates that, due to decreases in Gross National Income (GNI) per capita, over 3.9 million additional children will suffer from wasting in 2020 in South Asia alone. A reduction in household income, coupled with disruptions to health services connected to schools, left many families without the support nets they needed to

purchase or access enough food for their families, leading to detrimental effects on their health and well-being.

"With the deepening of economic and food systems crises, other forms of malnutrition, including malnutrition child stunting, micronutrient malnutrition, and maternal nutrition, are expected to increase. Without adequate action, the profound impact of the COVID-19 pandemic on early life nutrition could have intergenerational consequences for child growth and development and life-long impacts on education, chronic disease risks, and overall human capital formation."[116]

A strong health response was vital for education, not only to protect children and their families against the risk of COVID-19 infection, but to ensure that the myriad of other interlinked health, mental health, nutrition, social and WASH services required to support child and adolescent well-being remain accessible, through schools, to those most in need. COVID-19 exacerbated existing poverty-related health problems and increased inequality.

FIGURE 15 | ECONOMIC BURDEN OF LOCKDOWN

Reduction in household income **+** Decreased spending on food, education and health **=** Further hampers the academic performance of rural students
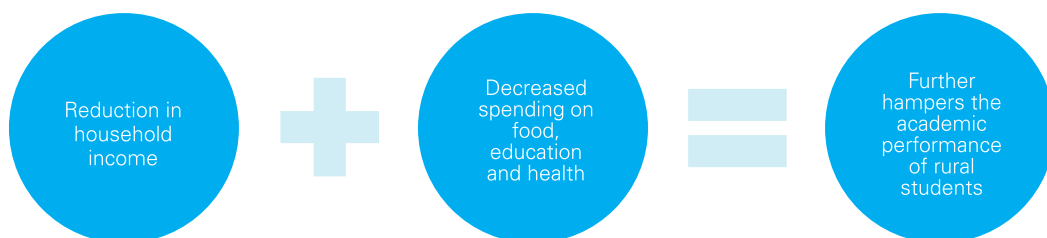
Source: UN[117]

Insufficient food and nutrition: This decreased access to food will have multiple effects.

- It could lead to as much as a 44 per cent increase in monthly deaths of children under 5 across 188 low- and middle-income countries.[118]

- A BRAC Rapid Assessment study in Bangladesh found that food insecurity was a common reason given for not studying by madrassa and urban students.[119]

- Malnutrition is not only the underlying cause of 45 per cent of preventable deaths among children under 5, but is associated with weakened immune systems and impacts future educational and economic attainment.[120]

Health services: Across the region, the level of disruption to essential services was uneven. Southeast Asia[121], particularly low- and low-middle income countries, had the most severe disruptions, while the Western Pacific[122] region had the least.[123] These disruptions include routine immunization, diagnosis and treatment of non-communicable disease (NCD); provision of sexual and reproductive health services; treatment for mental health disorders and sick child services.[124]

Case study findings: Southeast Asia
In Viet Nam, a UNICEF rapid assessment found that 44 per cent of study participants with children reported difficulties in accessing child healthcare services compared to pre-pandemic times.[125] This included interrupted vaccination schedules of many children, including in areas with already low immunization rates prior to the pandemic.[126]

Community-based child protection programmes, and case management for children requiring supplementary personalized care, including those living with disabilities, and abuse victims were also partially or completely suspended.[127]

"It is expected that as a result of school drop-out among girls in South Asia due to COVID-19, an additional 405,640 adolescent pregnancies will occur in the region. This could lead to an additional 655 maternal and 9,986 neonatal deaths, 154,985 low birthweight births, and 29,000 children who are likely to be stunted by the age of 2 years."[128]

Children with disabilities: Research has demonstrated that children with disabilities and their families are more likely to be subjected to hunger and poverty.[129] Children with disabilities often have underlying health conditions and not only face increased risk of serious complications from COVID-19,[130] but are likely to face obstacles in accessing the support and response measures they need. Micronutrients such as iodine, vitamin A, and iron are vital to the health and development of children,[131] with a number of such deficiencies known to potentially hinder children's cognitive development.[132] There is a major risk that children with disabilities may not return to school or will return but with an extended delay, and their feelings of exclusion and isolation being magnified.[133]

Well-being and protection: During school closures, children face social isolation and increased levels of stress. Those with working parents or caregivers may be forced to stay home alone, which puts them at risk of a wide range of protection issues.[134] An increased level of domestic violence against women and children damages their physical, emotional and mental well-being while prolonged stress has been shown to impair students' learning and threaten their future development.[135] Many countries across the region have seen an increase in protection issues such as child labour, trafficking for sexual exploitation, and child marriage.

2.7 Finances

This section of the report builds on the pre- and post-COVID-19 situation analyses to review the financial impact that COVID-19 has had on national education budgets, measured in nominal terms and as a percentage of the pre-COVID-19 budget allocations, as forecast by UNESCO, to achieve SDG 4 by 2030. The financial impacts of COVID-19 are determined by the relative strength of education systems pre-COVID-19 as well as the ways and degrees to which COVID-19 impacted education sectors. The impacts covered in this section include shocks to the demand for public education, as well as shocks to the supply of education services and infrastructure. The estimated financial impacts of COVID-19 should be interpreted as likely outcomes rather than precise forecasts.

General economic impact of COVID-19

The COVID-19 pandemic has caused significant fiscal policy challenges, which are set to continue until lasting solutions to the pandemic are found. The economic growth shocks in 2020 due to COVID-19 are presented for the region in Figure 16. The impact is striking, with an average -3.3 per

cent real change in GDP and two-thirds of the countries experiencing a real reduction in output. Even countries that managed to avoid a contraction in GDP experienced significantly lower rates of GDP growth than before the pandemic. These negative economic shocks will have lasting effects, with subdued levels of growth forecast over the medium-term for the region.

Among the implications of these macroeconomic shocks is a downward pressure on government revenues, which reduce fiscal space and force governments to make difficult prioritization decisions. Governments' top funding priorities include the healthcare emergency and strengthening social protection to support the increased numbers of unemployed and underemployed workers. Within this context of deteriorated fiscal balances at the same time as increased expenditure demands, the IMF stresses the risk that other critical public expenditures, notably on education, are crowded out.[136] In fact, UNICEF report that more than a third of low- and lower-middle-income countries have either already experienced or anticipate decreases to their education budget for the current or next fiscal year.[137]

This risk is complicated by the negative effect of rising unemployment and underemployed on household income, which is a key supplementary source of education expenditure – especially in countries with high numbers of low-fee private schools, like India. It is thus critical that these prioritization decisions are carefully managed to avoid detrimental effects on education outcomes that undermine progress towards SDG 4.

This section of the report therefore estimates the regional impact of COVID-19 on countries' education budgets. The objective is to demonstrate how school closures as well as altered teaching environments and modes are expected to change the resources required by education sectors. The impacts are presented relative to the pre-COVID-19 funding needs to attain SDG 4 by 2030. The modelling results indicate how much governments should additionally budget for education to respond to the challenges presented by COVID-19, which are reviewed in detail in section 3. Stakeholders can apply the findings to reformulate education budgets to maintain progress towards achieving SDG 4 by 2030.

FIGURE 16 | REAL ANNUAL GDP GROWTH, 2019 VERSUS 2020
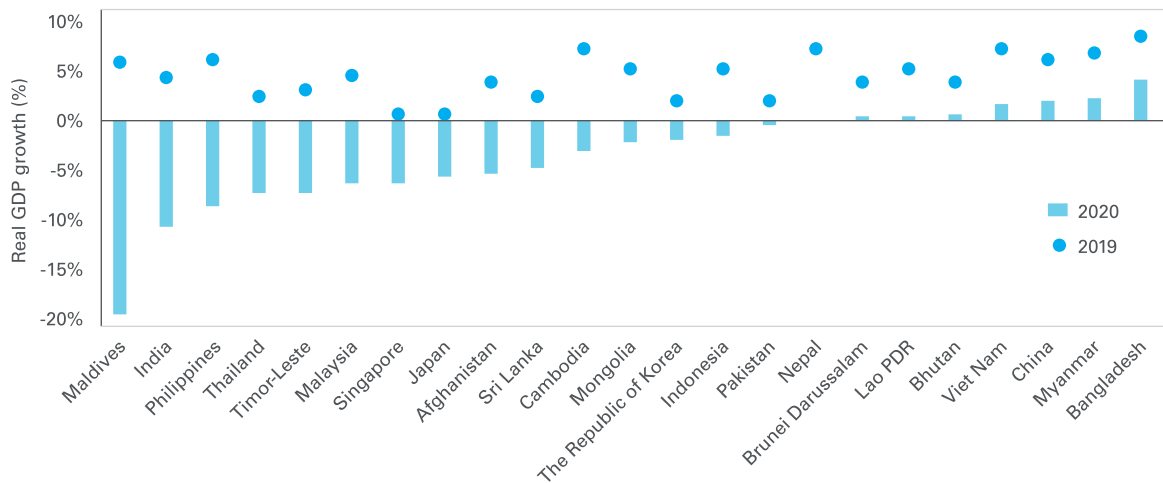
Source: IMF, 2021

Pre-COVID-19 situation

The relative size of countries' education sectors prior to COVID-19 helps explain the priority governments assigned to the sector as well as the available resources to address the shocks caused by COVID-19. Countries with relatively low education budgets are generally at a higher risk of falling education outcomes as those systems likely suffer the most from under-investment and reprioritization. On the other hand, countries with relatively higher education budgets likely have stronger, more resilient systems and a sufficient funding base to allow governments to better respond to the impacts of COVID-19 through funding reallocation or budget reprioritization. Figure 17 presents the countries' government education budgets relative to the benchmark in the Education 2030 Framework wich governments commit at least 4 per cent-6 per cent of GDP to education.[138] Only Timor-Leste and Bhutan allocated more than the guideline 6 per cent of GDP to education. Mongolia, Viet Nam, Malaysia, and Nepal allocated more than the lower bound recommendation of 4 per cent of GDP to education. The remaining countries in the region for which data were available all had relatively low education budgets prior to the negative shocks caused by COVID-19. The required responses to the COVID-19 shocks represent a large proportional increase in financing for these countries with low education budget baselines. Moreover, budget reprioritization away from the education sector

would further undermine education outcomes in these countries with relatively low education budget baselines.

The impact of COVID-19 on a country's education budget is linked to the level of education provision pre-COVID-19. The relative strength of an education system, measured in terms of enrolment characteristics and the stock of human and physical capital, helps determine the degree to which COVID-19 disrupted education services and necessitates structural changes to the system. For example, education systems with higher levels of human capital in the form of teaching staff are able to more readily (in terms of time and cost) implement social distancing measures.

Gross school enrolment ratios reflect the number of students affected by the disruptions caused by COVID-19 on the education sector. The relationship between enrolment and the budget impact of COVID-19 is therefore positive (i.e., the better the pre-COVID-19 situation in terms of higher enrolment ratios, the larger the budget impact caused by COVID-19 as more students are affected). Figure 18 presents the weighted average sub-regional gross enrolment ratios in 2019. The results are similar for the sub-regions and reveal that a large proportion of children in the subregions attend basic education institutions, being primary and lower-secondary school. The data reveals that enrolment outcomes were lowest at the pre-primary and upper-secondary school levels.

FIGURE 17 | EDUCATION BUDGETS RELATIVE TO UNESCO GUIDELINE, 2018
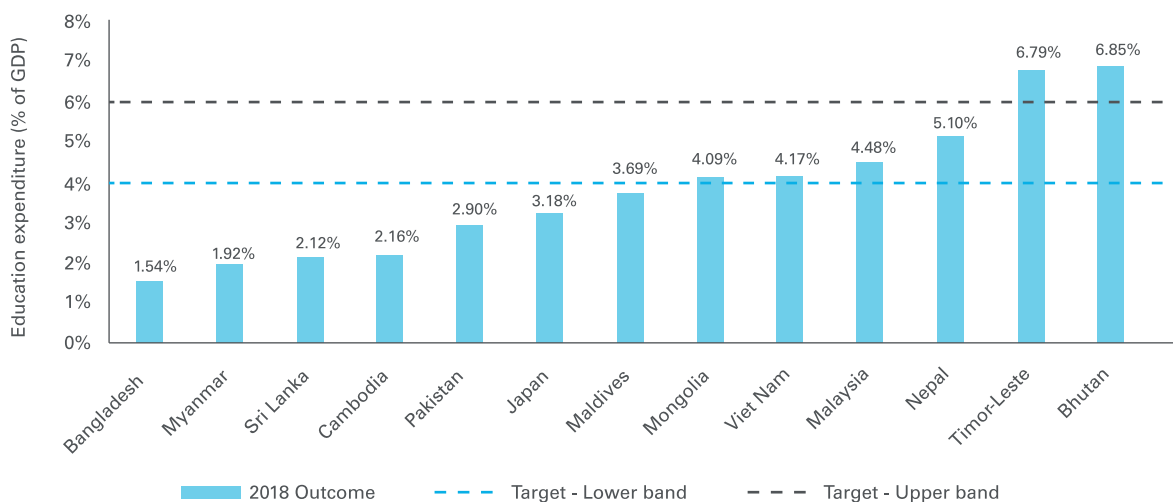
Source: UNESCO, 2021[139]

FIGURE 18 | WEIGHTED AVERAGE GROSS ENROLMENT RATIOS, 2019
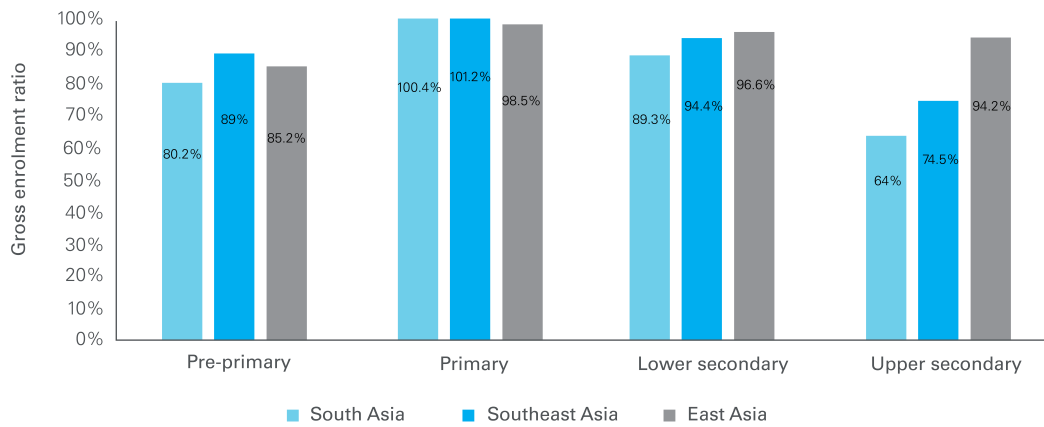
Source: UNESCO, 2021[140]

FIGURE 19 | WEIGHTED AVERAGE PUBLIC-SECTOR SCHOOL ENROLMENT, 2019
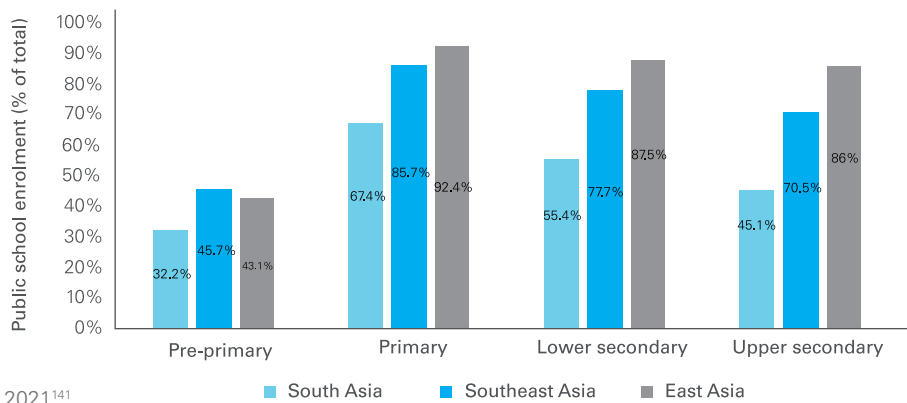
Source: UNESCO, 2021[141]

The characteristics of the private education sector contributed to the impact of COVID-19 on the public education system. Previously, private sector education provision has helped to ease the resource burden on the public education system. While this remains true, many countries have seen a rapid reduction in private education provision as a result of the shocks caused by COVID-19, especially among low-fee private schools. In these cases, the private education sector poses a contingent public liability as privately enrolled students may return to the public school system. Figure 19 presents the sub-regional enrolment in public schools in 2019. There are large deviations across countries, but overall, the private sector fulfils a significant role in education provision in the region, especially at the pre-primary and upper secondary levels. The most striking outcome is for South Asia, where a minority of students at the pre-primary and upper secondary levels attend public schools.

The learner-teacher ratio (LTR) has a significant bearing on the ability of countries to adhere to social distancing rules in classrooms, as well as the cost to achieve social distancing guidelines. Lower LTR mean that countries require relatively fewer, if any, additional teachers to achieve social distancing guidelines. There is thus a positive relationship between the LTR and the budget impact of COVID-19. In addition to the cost associated with the additional teachers, countries with high LTR may find it logistically difficult, at least over the short- to medium-term, to achieve the prescribed LTR. Figure 20 presents the sub-regional LTR outcomes in 2019. The outcomes are generally better at the pre-primary level, which is partly linked to the low enrolment ratios, and in the East Asia sub-region. The average LTR across the three sub-regions are 22.3:1 at the pre-primary level, 30.4:1 at the primary level, 26.7:1 at the lower-secondary level, and 28.0:1 at the upper-secondary level. In general, the LTR far exceed 20:1, which is presented below as a target to achieve social distancing.

FIGURE 20 | AVERAGE LEARNER-TEACHER RATIOS, 2019
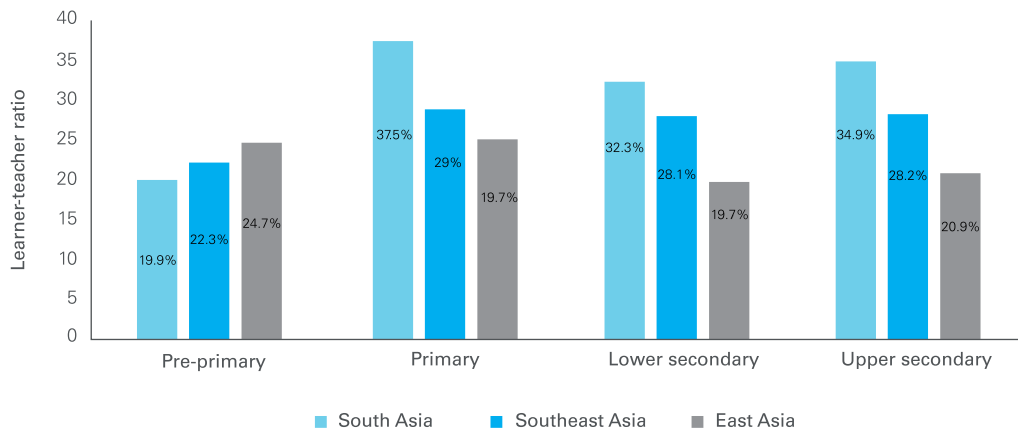
Source: UNESCO, 2021[142]

Methodology to estimate the financial impacts of COVID-19 on education sectors

To estimate the marginal impact of COVID-19 on education sector budgets through to 2030, when SDG 4 is hoped to be achieved, we developed an interactive Excel modelling tool called the 'COVID-19 Shock Model' that forms part of the project outputs. In contrast to the World Bank's micro-model,[143] this is a macrosimulation model – similar to that applied in the Global Education Monitoring (GEM) Report[144] –designed to estimate scenarios for education budgets. The budget baselines for the model are set according to the pre-COVID-19 education budgets to achieve the SDG 4 targets by 2030, as generated by the UNESCO Education Costing Model 2020 for Asia and the Pacific Region.[145]

There is still a high degree of uncertainty about the pandemic. First, the outbreaks and resultant disruptions caused by COVID-19 are still evolving. In fact, at the time of writing this report there were new waves of COVID-19 and additional school closures across many countries in South and Southeast Asia. Second, the effectiveness and rollout (specifically to developing countries) of vaccines is still to be determined. Third, there are ongoing data collection and validation exercises that continuously improve our understanding of the impacts of COVID-19 on the education sector. As such, the model is designed so that the financing scenarios are flexible. Users can interact with each variable, either specifying the parameters based on: updated/verified data; an assumed baseline with stress tests; or a likely range. Given this functionality, although the parameters for the variables were fixed for this study, users can reapply the tool to effect any required changes. The financial scenarios presented below are therefore indicative of the potential magnitude of the impact of COVID-19 on education budgets.

The model obviously has its limitations. First, in order to remain both user-friendly and transparent, the model relies on a limited number of variables. Although care was taken to select a comprehensive set of key variables, there may be some financial implications of COVID-19 that have been omitted. In this event, users should regard the results as a base for the financial impacts of COVID-19 from which to add the impact of missing variables. This point likely explains many of the estimation differences between this and other models. Second, the model is intended to approximately quantify the long-term budgets needs to maintain progress towards SDG 4 by 2030 and therein guide investment cases. Hence, the model does not lend itself to in-year budget/programme planning. Third, the model's focus is limited to pre-primary, primary, lower-secondary, and upper-secondary education. This resulted in omissions to the SDG 4 targets related to tertiary education, skills for work, adult literacy, education for sustainable development and global citizenship, and scholarships. Fourth, although the

Excel model is dynamic, the results presented in this report represent a specific point in time – in this case, the situation as of February 2021. As such, the subsequent waves of COVID-19 in the region are not captured by this snapshot and would contribute to a worse outcome. The methodology is further detailed in Appendix A.

Estimated financial impact of COVID-19 on the education sector

Based on the model specifications detailed in Appendix A, we estimate the marginal impacts that COVID-19 will have on countries' education budgets. Where possible, the parameters for the variables are specified using either real data or relevant studies. In the absence of this data, we have applied best estimates and undertaken a sensitivity analysis. As such, the estimated financial impacts of COVID-19 should be interpreted as likely outcomes rather than precise forecasts.

It is also important to highlight that the costs presented throughout this section do not represent the total education budgets, but rather the additional budgets that countries likely require to respond to COVID-19 and still be in a position to achieve the noted SDG 4 targets by 2030.

In summary, the following variables are covered in the model. Further details are provided in Appendix A.

1. Remediation of lost learning

- Duration of full school closures
- Duration and coverage of partial school closures
- Number of teaching days that can be caught up via longer school days or shorter holidays

2. Student enrolment and placement

- Additional student dropouts due to COVID-19
- Proportion of students shifting from private to public schools

3. School and teacher management

- One-off costs
  - » Teacher training about how to deliver online lessons and COVID-19 awareness
- Recurring costs
  - » Social distancing protocols in classrooms
  - » Hygiene products for students/teachers and monitoring hygiene protocol

- » Teacher support programmes
- » School feeding programmes for vulnerable children

4. Water, sanitation and hygiene (WASH) infrastructure costs

The modelling exercise generates three potential scenarios to account for uncertainty: baseline, optimistic and pessimistic. The baseline scenario applies the most likely value for each variable. The baseline scenario should therefore be viewed as the expected outcome, with the optimistic and pessimistic scenarios providing a range for the potential outcomes. The optimistic scenario parametrizes the variables based on favourable outcomes, wherein COVID-19 has a less severe impact on the education sector. The pessimistic scenario parametrizes the variables based on poor outcomes, wherein COVID-19 has a more severe impact on the education sector.

Total budget impact

The estimated value of the additional budgets that countries require to respond to COVID-19 are shown in Table 4: those are estimated budget increases to the total education budgets from 2020 to 2030, which had been estimated prior to COVID-19 to reach SDG 4 targets by 2030. This indicates the cumulative quantum of the COVID-19 shock, as it stood at the end of February 2021. Depending on the source of the budget shock, which is presented in Figure 21, the shock is either immediate (such as teacher training), spread out over the duration of the pandemic (such as adherence to hygiene protocols), or longer-term (such as investment in WASH infrastructure). The large variations across countries are representative of the relative size of the countries in the region, as well as the particular impacts of COVID-19 on their education system. The budget shocks are a function of the severity of the school closures and the health of education systems pre-COVID-19. Weaker education systems, for example, those with higher learner-teacher ratios, require more resources to respond to COVID-19 in line with parameters set for the model. The value of the budget shocks ranges from $121 million in Maldives to $316 billion in China in the baseline scenario. The shocks are still large but less severe in the optimistic scenario. The budget shocks severely increase in the pessimistic scenario relative to the baseline scenario described in Appendix A. These variations between the scenarios signal the downside risks associated with the pandemic.

TABLE 4 | ESTIMATED MARGINAL BUDGET INCREASE TO RESPOND TO COVID-19

COUNTRY	$ (MILLIONS)		
	BASELINE SCENARIO	OPTIMISTIC SCENARIO	PESSIMISTIC SCENARIO
Maldives	$121	$131	$187
Bhutan	$134	$101	$240
Timor-Leste	$145	$116	$268
Brunei Darussalam	$252	$191	$524
Mongolia	$676	$498	$1,176
Lao PDR	$771	$709	$1,346
Cambodia	$1,240	$928	$2,265
Nepal	$1,812	$1,279	$3,483
Sri Lanka	$2,340	$1,974	$4,027
Afghanistan	$3,058	$2,132	$5,566
Myanmar	$3,369	$2,721	$5,799
Viet Nam	$5,925	$4,002	$12,249
Malaysia	$8,042	$6,124	$14,516
Thailand	$14,745	$9,016	$28,668
Pakistan	$31,641	$23,988	$54,658
Indonesia	$36,534	$28,459	$66,685
Bangladesh	$58,280	$45,383	$94,944
Japan	$88,922	$54,920	$175,341
India	$164,282	$133,428	$275,223
China	$315,816	$189,618	$671,080

Source: COVID-19 Financial Shock Model, 2021

Relative budget impact

The budget shocks presented in Table 4 are contextualized in Figure 21 and 22 as a proportion of countries' cumulative education budgets from 2020-2030. This indicates the relative budget impact of COVID-19 under each scenario. For the baseline scenario, the impacts of COVID-19 have extended countries' 2020-2030 education budgets by 4.1 per cent in Viet Nam to 44 per cent in Bangladesh. This severe outcome in Bangladesh is due to the 169 days of full school closures from the beginning of the pandemic to February 2021, in combination with low levels of investment in the public school system prior to COVID-19 – for example, Bangladesh had high learner-teacher ratios, poor levels of WASH infrastructure at schools, and low levels of coverage by public schools at pre-primary and secondary levels. The budget shocks are still proportionally large in the optimistic scenario, ranging from 2.8 per cent of the 2020-2030 budget in Viet Nam to 34.3 per cent of the 2020-2030 budget in Bangladesh. The results from the optimistic scenario indicate that, even under an optimistic scenario, many countries will still face large proportional budget shocks over their previously planned budgets to achieve SDG 4 by 2030. The impacts increase dramatically in the event that the pessimistic scenario is closest to the eventual outcome, ranging from 8.5 per cent of the 2020-2030 budget in Viet Nam to 71.7 per cent of the 2020-2030 budget in Bangladesh. The regional average budget impact is 9.6 per cent in the baseline scenario, 7.3 per cent in the optimistic scenario, and 17.1 per cent in the pessimistic scenario.

FIGURE 21 | ESTIMATED IMPACT OF COVID-19 ON THE CUMULATIVE EDUCATION BUDGETS FROM 2020 TO 2030
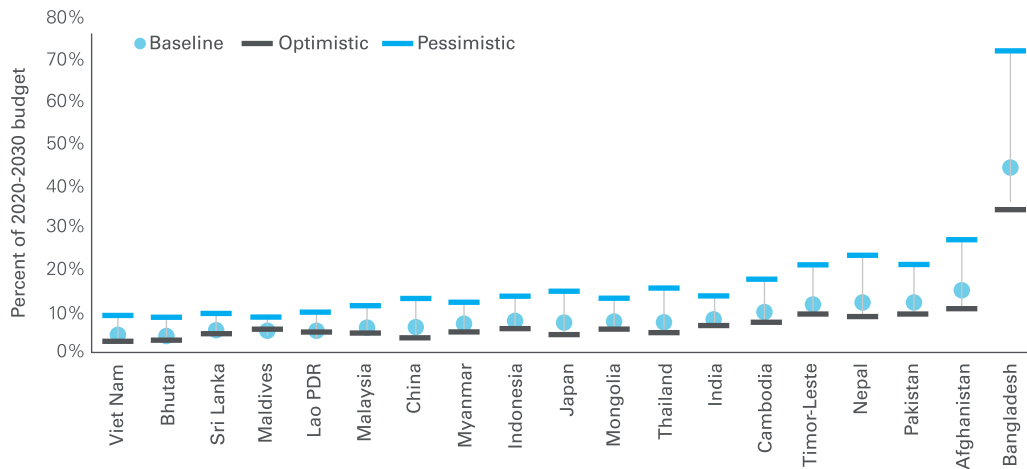
Source: COVID-19 Financial Shock Model, 2021

FIGURE 22 | RELATIVE IMPACT OF COVID-19 ON CUMULATIVE EDUCATION BUDGETS FROM 2020 TO 2030 FOR BASELINE SCENARIO
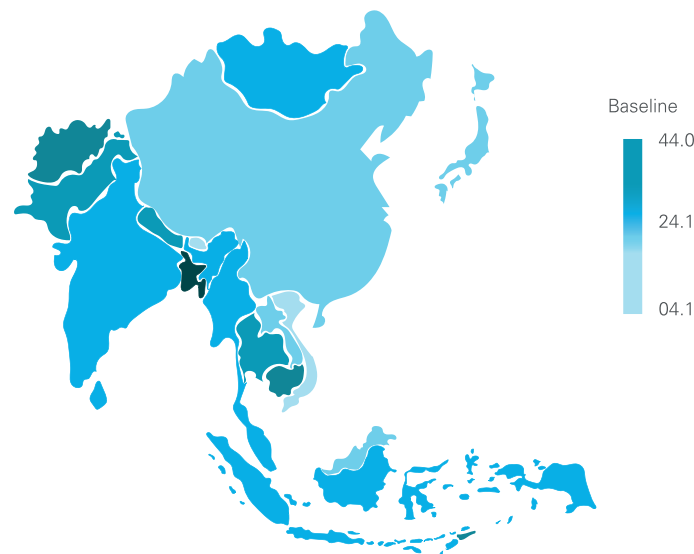
Source: COVID-19 Financial Shock Model, 2021

Source of the budget shocks

The source of the budget shocks is explained in Figure 23 to 25 for the baseline scenario. Figure 23 disaggregates the total marginal budget impact of COVID-19 according to the level of education. Pre-primary school is consistently the smallest component of the budget shock, due in a large part to the fact that this level only comprises 1 year of teaching. However, despite accounting for a small proportion of school years (typically 1 out of 12-13 years) the budget impacts at the pre-primary level are significant and average 9 per cent of the total shock for the region. This finding is largely due to the relatively high LTR at the pre-primary level, which means that relatively more additional teaching staff are required to achieve social distancing guidelines. In general, the largest component of the budget shock across the region is primary school. This is due to a combination of primary school forming most of the total school years for all countries and generally high learner-teacher ratios. A large proportion of the budget shocks are also experienced at the lower and upper-secondary school levels, where LTR are relatively high and the high degree of private provision through low-fee private schools poses a contingent liability to the public school system as COVID-19 causes students to shift back to public schools.

FIGURE 23 | ESTIMATED MARGINAL BUDGET IMPACT OF COVID-19 IN BASELINE SCENARIO, BY SCHOOL LEVEL

■ Pre-primary   ■ Primary   ■ Lower secondary   ■ Upper secondary
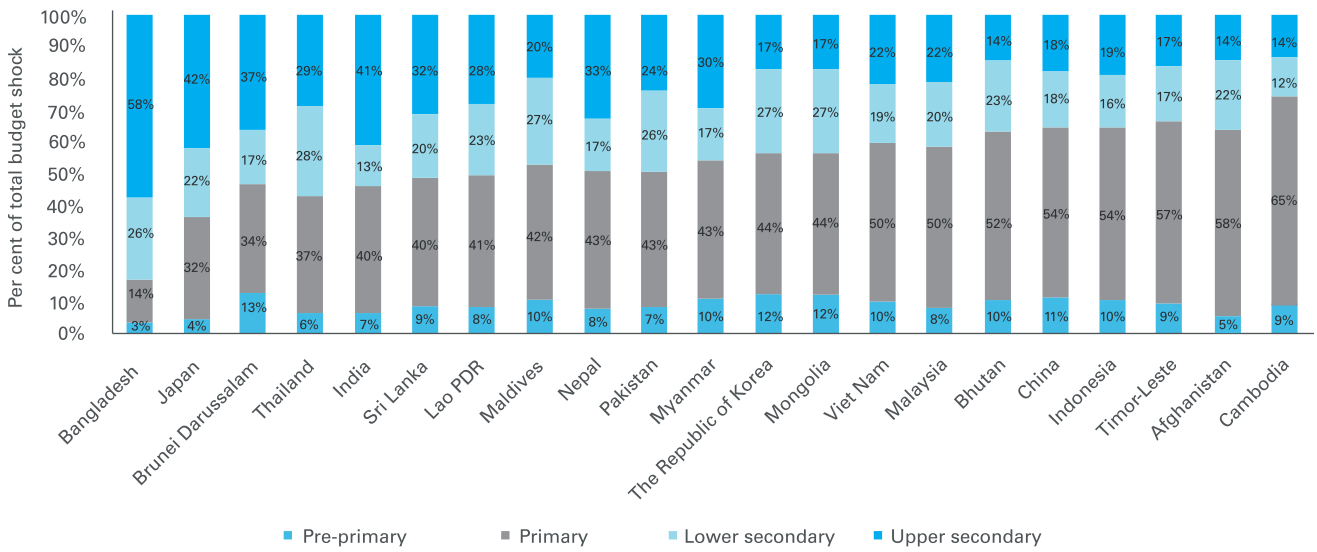
Source: COVID-19 Financial Shock Model, 2021

FIGURE 24 | ECONOMIC CLASSIFICATION OF THE COVID-19 BUDGET IMPACTS IN BASELINE SCENARIO

■ Recurrent   ■ Goods & services   ■ Capital
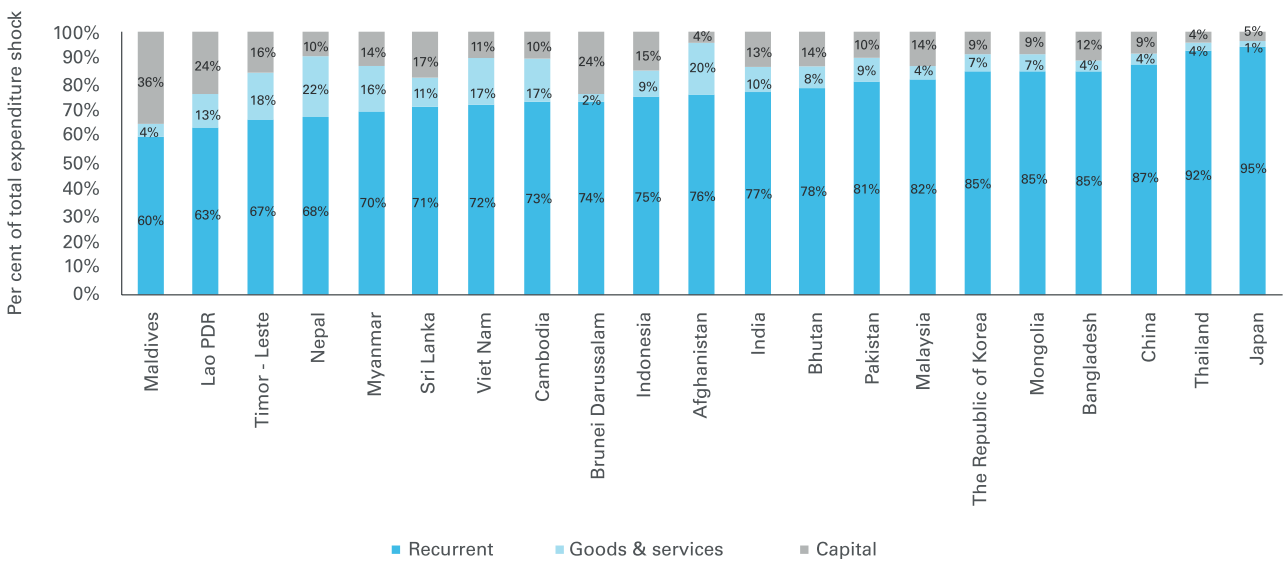
Source: COVID-19 Financial Shock Model, 2021

Figure 24 disaggregates the total budget impacts according to the economic classification of the expenditure items. The recurrent expenditures include remediation costs, the cost to incorporate students shifting from private to public schools, the cost to re-enrol students who have dropped out of school, and the cost of teachers for social distancing. The goods and services expenditure includes teacher training costs, hygiene and cleaning products and services, teacher support systems, and nutrition programmes. The capital expenditures include WASH infrastructure. This information helps with budgeting and indicates potential financing sources for the budget impacts. For example, recurrent expenditures should ideally be funded through a sustainable, long-term mechanism such as tax revenues, while capital expenditures are also appropriate for deficit financing. Recurrent expenditures comprise the bulk of the budget shocks across the region. Capital expenditures are generally the next largest expenditure component, with goods and services comprising a minor share of the budget shock. This information signals that the COVID-19 impacts are human resource intensive, with some countries also requiring significant investment in WASH infrastructure.

Figure 25 disaggregates the total budget impacts according to activity. This information identifies the specific activities that drive the magnitude of the budget impacts in each country, and thereby also helps to explain differences in relative size of the budget shocks across countries and sub-regions of Asia. The most significant activities in descending order of impact are social distancing, remediation, accommodating students shifting back from private schools, and investment in WASH infrastructure. These four activities largely drive the budget impacts of COVID-19. For all countries in the region, the costs associated with re-enrolling students who have dropped out, hygiene standards, and nutrition programmes are minor components of the overall budget impact.

Figure 26 disaggregates the total budget impacts according to whether the expenditures are an extension of services currently provided or are new services. The previously provided services cover remediation costs, the transferred costs for students shifting from private to public schools, and the cost to re-enrol students that

dropped out as a result of COVID-19. The new services cover the social distancing measures, all goods and services related to COVID-19 protocols, such as personal protective equipment (PPE) and hygiene products, teacher support programmes, and the additional maintenance costs associated with the expedited WASH investments. This distinction between previous and new services is important as it identifies which costs are potentially discretionary, being the new services. Countries have potentially more agency over whether to the budget increases associated with new services, while the extension of previous services is in many ways a contingent liability. For the region, the extension of previous services averages 44 per cent of the total budget shock while new services comprise the remaining 56 per cent of the total budget shock. The high proportion of new services in certain countries is largely due to the high number of teachers that are required to achieve social distancing guidelines, as per Figure 25.

FIGURE 25 | COVID-19 BUDGET IMPACTS DISAGGREGATED BY ACTIVITY IN BASELINE SCENARIO
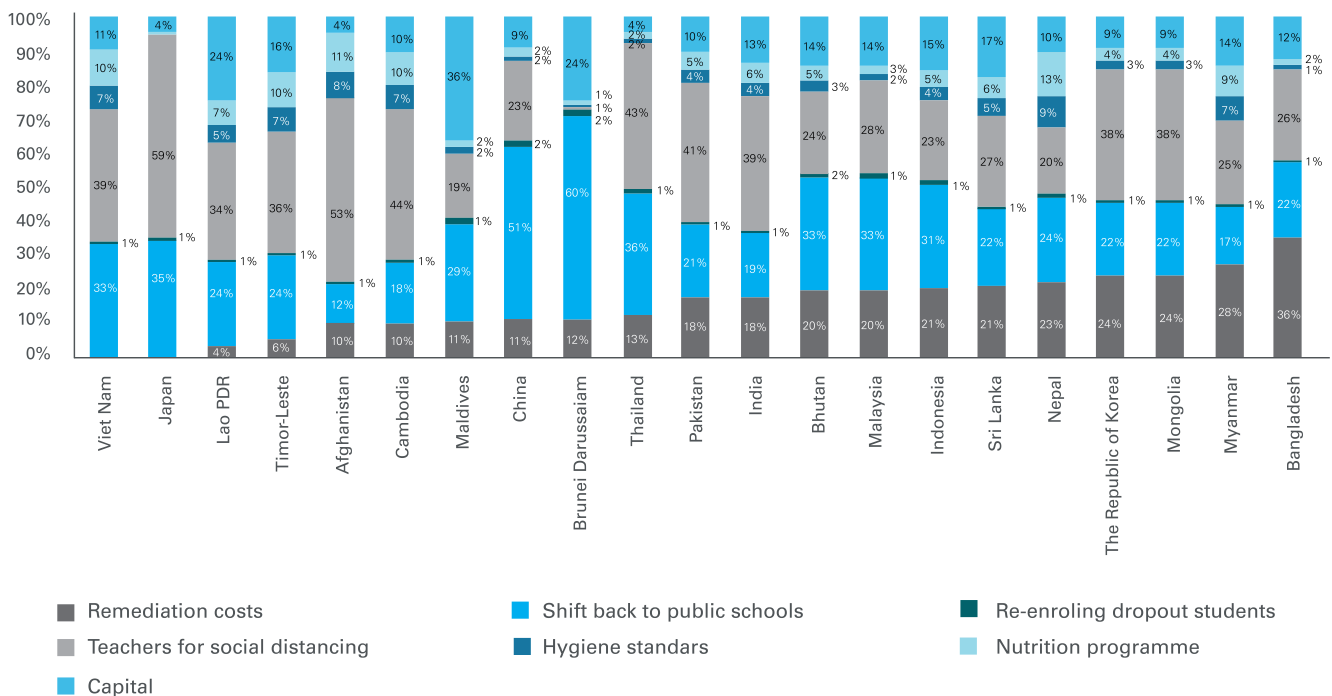
Source: COVID-19 Financial Shock Model, 2021

FIGURE 26 | DISAGGREGATION OF THE COVID-19 BUDGET IMPACT BY EXISTING AND NEW SERVICES IN THE BASELINE SCENARIO
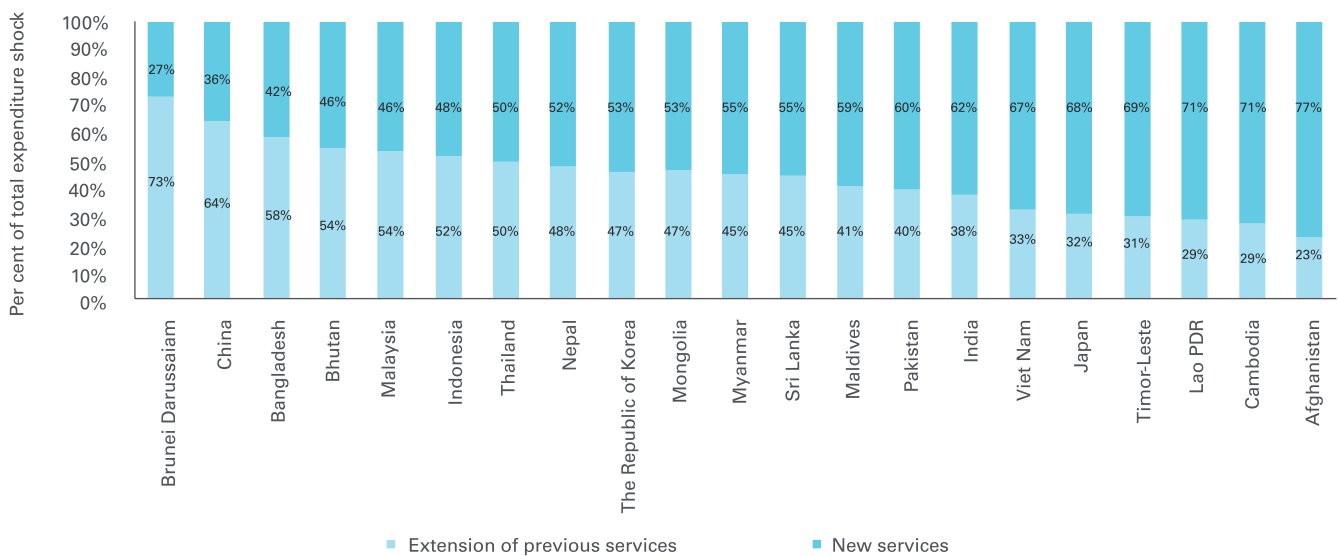
Source: Costing Model (COVID-19 Shock Model)

The findings from this financial analysis confirm that COVID-19 has had a significant impact on education sector budgets. The average financial impact for the region under the baseline scenario is a 9.6 per cent increase in the required budget between 2020-2030 to attain SDG 4. This equates to almost 1-year of the education budget over the decade, which is a relatively large demand at a time when growth forecasts are weak and there are pressures to reprioritize budgets towards healthcare and social protection systems. To help manage these education funding pressures, planners can use the disaggregated results to prioritize specific interventions that are expected to have the largest impact (such as implementing hygiene standards) and those services which are an extension of their current obligations (remediation, accommodating students shifting from private to public schools, and re-enrolling students who have dropped out due to COVID-19). Moreover, planners can use the results of this analysis to advocate for the protection and extension of education budgets, as well as the fast-tracking of critical WASH investments.

03

Challenges, positive responses and lessons learned during the pandemic

This section looks at four major challenges that governments across the region had to address in order to reduce the negative effects of the COVID-19 pandemic discussed in Chapter 2.

1. Ensuring schools are safe to reopen

2. Delivering equitable and inclusive distance learning at scale to reach all children during full or partial school closures

3. Supporting health, well-being and protection

4. Mitigating against learning loss and reducing the learning divide.

For each challenge it presents a range of positive responses (one from each sub-region) and then highlights the key lessons learned.

3.1 Challenge 1: Reopening schools safely

As discussed in Chapter 2, the situation of school opening varies throughout the region, with both continuous and intermittent, full and partial school closures as the virus peaks and fades. These school closures will have far-reaching consequences for household and economic growth.

Why it's important to open schools as quickly as possible

The longer schools are closed, the greater the risk of:
- Long term health issues and developmental challenges, especially for the youngest learners
- Harm to vulnerable children, especially children with disabilities
- Children dropping out and not re-enrolling
- Increased mental health and well-being issues
- Irreversible learning loss

To minimize these consequences, so that schools stay open, with children learning, a series of measures are required.

- Establishing guidelines on issues such as social distancing (phased reopening, staggering of attendance, safe spacing of desks), provision and organization of WASH facilities, adequate ventilation, mask wearing, organization of cleaning and disinfecting of school facilities, etc.

- Establishing clear roles allocated to local authorities, school committees, teachers, community volunteers and students regarding the implementation and communication of these guidelines.

- Good communications with key groups including parents and teachers so that they understand the level of risk involved in opening schools and in keeping them closed, and the importance of adopting mitigating behaviours at home and in the wider community.

- Better and more regular measurements of learning so that teachers can adapt the curriculum to meet the needs of the learners (discussed under Challenge 4).

The UNICEF/UNESCO/UNHCR/WFP/World Bank framework for reopening schools[146] and the WHO checklist[147] provided valuable guides for the development of government guidelines and helped set out clear principles and procedures, including the situation where schools have to close again.

"Decisions on reopening will require countries to quickly gather critical information on how schools, teachers, students, and communities are coping with closures and the pandemic. Rapid response surveys of school and local leaders, teachers, students, and parents can help provide this information. Decision makers must then assess how learning and well-being can best be supported in each context, with special consideration of the benefits of classroom-based instruction vis-à-vis remote learning, against risk factors related to reopening of schools, noting the inconclusive evidence around the infection risks related to school attendance".[148]

For a school to be safe to reopen, there needs to be adequate WASH facilities and sufficient space for social distancing. As discussed in Chapter 2, the pandemic has highlighted inequalities in access to drinking water, sanitation and hygiene facilities within countries and across the region.[149] In countries, regions or communities where WASH facilities were inadequate pre-COVID-19, data on the current situation was insufficient and classrooms overcrowded, implementation of guidelines presented significant challenges.

WHO Checklist for Safe Opening

- Epidemiological surveillance
- Messaging and isolation procedures
- Hand hygiene and respiratory etiquette
- Physical distancing and use of masks in schools
- Environmental cleaning and ventilation

KEY CHALLENGES TO SAFE REOPENING

FINANCE

Additional funds were needed to provide adequate WASH facilities, training and procurement of safety materials such as soap and sanitizer. The financial analysis in section 2.7 shows that the development of equitable WASH facilities is a major driver of the estimated additional marginal cost to education budgets for countries with inadequate WASH facilities prior to COVID-19.

MONITORING

Few systems were collecting real time data about safe school reopenings, so countries did not know whether measures had been implemented.

In Southeast Asia, parents in all three case study countries, Indonesia, Lao PDR and Viet Nam, expressed concern about their children returning to school.[150] As well as adequate health and safety provision, governments needed to implement a number of initiatives to influence parents to send their children, particularly girls, back to school. Some of these are described in the next section.

Positive responses

The quick and successful school reopening in China[151] suggested that the WASH facilities in some parts of the country generally met the basic requirements to prevent and halt the spread of COVID-19. It also highlighted issues such as a shortage of water taps, and the Ministry of Education (MoE) used this information to put short-term plans in place to address these shortages. At the webinar in March 2021, held to share the findings of this report for East and Southeast Asia, Chinese government representatives shared that they had established and upgraded WASH facilities for the safe reopening of schools.

The Sri Lankan case study focused on school reopening, and identified three major factors which facilitated safe reopening: cross-sectoral collaboration and communication, increased financing and cross-sectoral monitoring.[152]

- **Cross-sectoral collaboration and coordination:** Close coordination between the MoE and the Ministry of Health (MoH), specifically the School Health Department of the Family Health Bureau under the MoH and the Department for Health and Nutrition under the MoE, enabled a better understanding of the situation. From early on the roles and responsibilities of all counterparts were clearly identified. Systematic planning from health and education ministries resulted in a high level of readiness for reopening. Co-creation was used as the MoH produced detailed guidelines on health protection for school children (how students travel, use of materials, co-curricula

activities, etc.) which helped steer MoE protocols and led to the central Secretariat of the MoE issuing a detailed circular on school reopening and guidance on its implementation. Health authorities helped communicate these messages to parents. Health staff in all but the four high-risk areas had time to support schools in health promotion, working with school health clubs and were supported by public health inspectors for promotional activities on safety measures.

- **Increased financing:** The MoE diverted development funds to address the urgent WASH needs of schools, while schools in more deprived areas were given additional facilities to support their reopening (equitable access for all children was a Government concern). Both private-sector agencies and communities contributed to the building of WASH facilities.

- **Cross-sectoral monitoring:** Verification that schools were ready for reopening was based on an initial inspection by the local education authority, followed by a final inspection through the MoH and the go-ahead by the Epidemiology Unit of the MoH, beginning with low risk districts. Public Health Inspectors under the leadership of the local 'Medical Officers for Health' have been responsible for assessing the adequacy of infrastructure facilities to maintain Infection Prevention and Control (IPC) measures using a checklist

In the Lao PDR case study, key factors to facilitate reopening were identified: data collection and analysis, a coordinated response using technology, provision of funding and messaging designed to reach into all communities.[153]

- **Data collection and analysis:** The Ministry of Education and Sport and other relevant line ministries, most notably MoH, with support of UNICEF, implemented a stakeholder perception survey, following its two Back-to-School campaigns, to assess their success and the additional risk communications required.

- **A coordinated response:** This was enabled by the use of WhatsApp groups within Government to coordinate between different Taskforces and different levels of the Government.

- **Provision of funding:** The Government Task Force commented on the willingness of many line ministries to divert funding and priority to the education sector during the pandemic, and the international donors have supported through the provision of additional funding.

- **Messaging designed to reach into all communities:** The Government of Lao PDR adopted online, radio, TV and campaign approaches to reach out to parents and communities which integrated messages on parenting, mental health and psychosocial support to encourage children back to school.[154] To ensure communication reached the village level, nearly 5,000 USB sticks were distributed containing public speaking announcements for use on community loudspeaker systems.

Lessons learned

Across the region some common lessons have emerged about reopening schools safely.

Swift and effective action to develop pandemic response plans was instrumental in the safe, inclusive and full reopening of schools. Adapting national plans to the local context and involving all stakeholders improves teacher, student and parental confidence for the safe reopening of schools.

Effective pandemic response preparedness and planning requires strong coordination and collaboration between ministries (education, health and social welfare) with support from international agencies and local organizations. Experience suggests that in many countries, increased collaboration between government ministries, particularly the MoE and MoH, is a positive feature of the response. This cross-sectoral cooperation coupled with good support from UN agencies and a wider group of stakeholders (including communities) can start to build a stronger system that will be more resilient to future pandemics.

Involvement of parents and communities in decision making, especially in remote areas, is critical to ensure schools can reopen safely. This also helps to reduce the reliance on already over-stretched teachers.

The historical lack of investment into WASH facilities shone a light on inequalities within and between countries and affected the ability of schools to reopen safely. This particularly affected those children in rural areas and in low- and lower-middle-income countries. This was seen across South Asia, most of Southeast Asia, Mongolia and Western China.

Current monitoring systems do not provide sufficient information for decision makers on whether schools are compliant with safe reopening guidelines, nor do they link health and education data. This data is important as countries are hit with successive waves of infection and may need to shut down/reopen schools multiple times. It is therefore essential for decision makers to have regularly updated information regarding the situation of each school in relation to WASH and the implementation of safety protocols, in order to channel more support where needed and strengthen measures locally.

3.2 Challenge 2: Delivering equitable and inclusive distance learning at scale to reach all children during full or partial school closures

Education systems across the region were challenged with providing continued learning for all during school closures. Governments provided a range of platforms for distance learning, including broadcast lessons through TV, radio, internet/online, printed materials and some direct contact with teachers. However, for already-marginalized children, difficulties in accessing and meaningfully participating in learning were exacerbated during school closures, further widening the learning divide.

At the webinar, held by UNICEF and UNESCO with stakeholders from across Southeast and East Asia, to share the findings of this report, the key challenge

identified in ensuring continuity of learning during school closures, especially for the most marginalized was the digital divide, followed by the capacity of teachers. The sub-regional reports highlighted further challenges, shown in Figure 27.

- **Governments lacked the data needed to identify and target different groups of marginalized learners.** Across the region there was little understanding of which children were accessing learning, due to the unavailability of real-time or disaggregated data and information. As a result, data on marginalized children, for example children with disabilities, is not available and therefore specific interventions cannot be targeted and monitored effectively. Figure 28 uses the example of South Asia to show how the provision of distance learning modalities does not guarantee that children will access devices, use them, and actually learn. The diagram also shows that, while there is information about access to technology, there is no data available on whether children are actually learning.

LACK OF DISAGGREGATED DATA	INADEQUATE TECHNOLOGY INFRASTRUCTURE	INADEQUATE SKILLS FOR REMOTE LEARNING
LACK OF ADAPTATION FOR CHILDREN WITH DISABILITIES AND PRE-PRIMARY CHILDREN	MULTIPLE-DEMANDS ON UNDER-PREPARED TEACHERS	VARYING LEVELS OF SUPPORT FROM HOME

Source: UNICEF/UNESCO[155]

FIGURE 28 | ESTIMATED REACH VS ACTUAL REACH OF EDUCATION TECHNOLOGY FOR REMOTE LEARNING

% of children with **access** to technology for learning

> 90% of households have access to at least a basic phone (increasingly, a smartphone)
> 80% of households in urban areas have access to a TV in most countries in South Asia

% of children **using** technology for learning

Typically, less than half of children with access to a technology in the household (e.g. mobile, TV), were using it for learning during school closures

% of children **well-supported by teachers** in using technology for learning

Majority had infrequent or no contact with teachers

% of children **learning effectively***

Majority perceived themselves as learning less during school closures

*Measured through a proxy indicator in South Asian household surveys: self-reported perceptions of learning a lot less, or less, during school closures compared to when schools were open.

Source: Van Cappelle, F., Chopra, V., & Ackers, J. (2021). Education for all, learning for some: Inequities in learning continuity in India, Pakistan & Sri Lanka. 16th UKFIET Oxford Conference on International Education and Development.[156]

- Infrastructure was insufficient for all children to access the distance learning modalities which relied on the use of technology. In the East Asia and Pacific region this was highlighted by the World Bank, *"Rapid urbanisation and business demands are feeding a massive need for investment in infrastructure across the region, such as electricity access, … and broadband infrastructure and connectivity."*[157] The underdevelopment of fixed broadband networks in some Southeast Asian[158] countries is partly due to a lack of infrastructure, such as electricity. According to an International Energy Agency (IEA) report, despite significant progress showing 90 per cent of the population have access to electricity in Southeast Asia *"an estimated 65 million people remain without electricity."*[159] In South Asia, 92 per cent of the total population have access to electricity, but there is a gap between the provision in urban (99 per cent) and rural areas (87 per cent).[160]

- There is a vast digital divide across the region. A UNICEF report in August 2020 showed that 147 million children (pre-primary to upper-secondary) in South Asia and 80 million in East Asia and the Pacific region could not be reached by digital and broadcast solutions.[161] Despite the East Asia countries being relatively well-positioned and prepared for distance learning, a significant equity challenge resulted from the growing digital divide which the emergency response highlighted and exacerbated.[162] The level of internet use in Southeast Asian countries ranges from only 26 per cent in Lao PDR to 95 per cent in Brunei Darussalam.[163] Across South Asia just 13 per cent of children and young people have access to internet at home, with the poorest and those living in rural areas having far less access than their richer and more urban peers.[164] As shown in Section 2.5, girls from rural and poor households in particular faced barriers to accessing distance learning during school closures.

  Mobile phones were also used as a medium for learning, as reach is high across the region. However, this was not a solution which met everyone's needs. Children who rely on mobile phone technology, on- or offline, may have to 'compete' with other family members for access, particularly in families in poverty, or even relative poverty. Data is expensive and even where collaboration with providers has been agreed, this remains problematic. Finally, not all types of learning are possible with a small screen and keyboard, particularly for children with disabilities, unless accessibility features are utilized, or teachers plan carefully with this challenge in mind.

- Many students didn't have the skills needed for remote learning. This included, a lack of digital literacy, independent learning skills and literacy skills.

  "The digital divide goes beyond the issue of access to technology. A second digital divide separates those with the competencies and skills to benefit from computer use from those without."[165]

  In East Asia both the China and the Republic of Korea Case Studies report that teachers believe the gap between low and high achievers is widening further as a result of online learning. Teachers in the Republic of Korea attribute the difference to students' self-motivation and independent learning skills- skills which are by and large are not developed by the current curriculum, assessment processes or predominant teaching style.[166] This has been described as the *"Matthew Effect"* in Educational Technology, which *"tends to confer further advantages on the already-advantaged."*[167]

- Distance learning modalities weren't generally adapted for learners with disabilities (as discussed in Section 2.5). Parents of children with disabilities were concerned about not being able to easily access and understand the lessons being sent out online. Some children with hearing and sight difficulties could not hear the commentaries well and most videos did not have subtitles or signing.[168] As well as some learning platforms not being accessible for children with disabilities, the social isolation suffered by many after the closure of special education provision is exacerbated for those whose disability prevents the use of EdTech.[169]

- Provision for early years did not consider the developmental needs of young learners.

  Given the importance of early childhood education for children, countries faced significant challenges to ensure that young children received the learning and socialization opportunities they needed during school closures (as discussed in Section 2.5). TV broadcasts and online provision should only be a very small proportion of learning opportunities for young children, as they cannot provide the emotional and physical experiences that young children need. Additionally, children do not have the independent learning skills to take advantage of these modalities and need support from their parents or caregivers, teachers, older siblings, community volunteers, etc. This support was not always available and was not systematically

supported, especially for those parents or caregivers who needed it most (see below).

- There were multiple demands on teachers during the switch to remote learning for which they were ill-prepared and received little training and support. This change in role increased teachers' workload and demanded that they used a range of skills, for which they were mostly unprepared. They were expected to embrace a new way of teaching, involving less contact with students and using high-tech, low-tech and no-tech modalities, and some were asked to monitor health, well-being and protection issues as well as supporting learning. Many teachers faced competing demands on their own time and lacked the protected space and time, resources and capacity to work effectively from home. In East Asia teachers struggled with the sudden shift to distance learning with low levels of confidence and negative attitudes towards digital education.[170] This was despite the efforts over time of mature education systems such as that of the Republic of Korea, to digitize education. In South Asia, teachers' possession of digital tools at home, such as mobile phones and laptops and their experience of using information and communications technology (ICT) in schools varied widely.[171] In Southeast Asia, some teachers have been trained to use ICT within the classroom, for example, using PowerPoint for lesson presentation, but few were confident in preparing online lessons for effective learning at a distance.[172]

- The level of support from home that learners received varied widely, limiting their participation in learning and their future learning levels. Parental support across the entire Asia region was not always available for children as parents faced competing pressures, and many did not have the literacy skills to help their children learn. Although the ability of families to support children to learn is highlighted in all the case studies, it appears that there was not any systemic provision to help and guide them in this. In Southeast Asia, some parents doubted their own capacity.[173] **"How come this teaching and learning is given back to us. What are we going to teach? We are farmers. Suddenly, we are expected to be teachers."**[174] In South Asia, children in remote areas may not have family members who can read or have the confidence to provide learning support, as well as being less likely to access phones and TV or print material in their own language.[175]

Positive responses

In Indonesia, the Learning from Home programme was developed as both an offline and online alternative to attending school.[176] While online lessons and materials were made available to those with internet access, schools were given guidance on how to provide offline distance learning through the distribution of printed materials, or in some remote areas, home visits by teachers.

In Afghanistan, the Education in Emergencies Working Group was able to quickly develop paper-based self-learning guides for the community teachers to use with their learners through Community-Based Education (CBE).[177] Materials, largely focused on revision, were developed centrally and teachers were trained on the materials and messages around COVID-19. They then visited families to deliver weekly learning packs and supported children. The approach was supported by the community and meant that learners were able to continue learning. Families were also reported to have become more engaged with their children's learning at this time.

In the Republic of Korea, the MoE targeted their support to meet the specific needs of students with disabilities.[178] For example, the Education Broadcast Service's (EBS) online content is provided in braille with learning materials customized and developed in larger fonts and in braille (Table 5).

TABLE 5 | CUSTOMIZED SUPPORT PROVIDED TO CHILDREN WITH DISABILITIES IN THE REPUBLIC OF KOREA

TYPE OF DISABILITY	CUSTOMIZED SUPPORT
Visual Impairment	Educational Broadcasting System (EBS) online content is provided in braille, with learning materials customized and developed in larger fonts and in braille.
Hearing Impairment	Newly developed EBS lectures include subtitles, and the educational content on the Eduable website[179] includes sign language and subtitles, with regional support centres providing sign language and stenography services.
Physical Impairment	Learning devices and assistive technology devices are provided.
Developmental Impairment	Various forms of distance learning are provided, including a combination of home visits and online learning, as well as content-oriented and task-oriented online classes.

Lessons learned

- Countries in the region were not prepared to adopt widespread distance learning approaches, which has highlighted challenges of access as well as those of effectiveness. A range of low-tech and no-tech solutions were provided to reach the majority of the population, but data that mapped children's access to different modalities of distance learning was not available to plan the response. Countries need stronger, disaggregated monitoring systems in place to identify and understand all of their children and the challenges they face so that they can put effective measures in place to overcome these. As surveys are conducted and governments are gaining knowledge of the reach of each modality, it is expected that better distance learning plans will be drawn up.

- Distance teaching required a different set of skills from the ones that are developed in traditional classrooms. Making provision of guidance and support for teachers a priority at the start of school closures could have improved their ability to help children to progress. Where teachers had some level of digital literacy, they were able to take advantage of the situation and work more effectively with digital learning approaches. Both teachers and learners were expected to be more independent and be able to use ICT for learning rather than a social purpose. Education systems have not yet been reoriented towards the acquisition and use of essential skills such as critical-thinking and problem-solving, creativity and innovation, collaboration, communication, ICT and information literacy, self-regulation and learning skills. A pre-COVID-19 focus on these areas could have built the skills that helped both learners and teachers cope better with remote learning.[180]

- Pre-primary needed to be prioritized for an early return to school. Emerging evidence around infection and transmission indicates that younger children are less likely to have the virus and transmit it. Distance learning approaches were not adequate for pre-primary as they needed the support of an adult for the development of essential foundational, social and emotional skills.

- Involving local actors, who can reach marginalized communities, and look for alternative learning solutions has helped to address inequalities. A lot more needs to be done, however, especially with children with disabilities and in providing support to parents from vulnerable or marginalized communities who cannot support their children's learning sufficiently. Inclusion of organizations working with people with disabilities in the development of strategies and policies, and consultation with parents of children with disabilities should help to better understand and reach this group of children.

- The learning divide will continue to widen unless reducing disadvantage is prioritized from the planning process onwards. Without explicit evidence-based policies ensuring reach to disadvantaged households and children, only wealthier and more educated families will be able to cope with future 'shocks'.

- While the pandemic has undoubtedly caused major disruption to education systems, schools and learners, there is also evidence from the case studies that it has been seen in the region as a catalyst for change and improvement, as countries begin to understand more about the other types of challenges vulnerable and marginalized children face in participating in learning. It has accelerated progress in adopting digital learning and implementing remote learning approaches which can serve as an example for the introduction of blended learning in future.

3.3 Challenge 3: Supporting health, well-being and protection

Children need to have good physical and mental health and feel safe if they are to learn well. The importance of investing in children's health and well-being is essential for the long-term success of the child, community and economy.[181] The World Food Programme Feeding Strategy 2020-2030 highlights that, globally, additional investment in primary education could make a difference to children/s health and would contribute to investment in learning.

"Providing … children with at least one meal a day would have an additional cost of around $4.6 billion annually, adding the essential school health package would increase the cost to $5.8 billion annually, which represents some 2.5 per cent of the current annual investment in primary education. The return on this investment is a benefit–cost ratio estimated at around $20 for every dollar invested, and which leverages the greater than $210 billion a year investment in learning."[182]

The challenge for governments was how to manage children's health and well-being in the context of increased poverty levels, reduced access to essential services and heightened negative stress levels and well-being issues.

- **Increased poverty levels:** For children, hardship has been caused through loss or reduction of parental income, coupled with additional costs incurred to keep students learning, leading to heightened stress levels

within households. A decrease in household finances will increase the risk of children dropping out from education, as parents' ability to send their children to school could be affected. Hidden schooling costs (ancillary costs, transport, uniforms, etc.) can become a barrier to schooling for the poorest. Many families will adopt negative coping mechanisms to manage, for example reducing the quality and quantity of food eaten, which in turn has a negative effect on children's capacity to learn, both now and in the future.

- **Harmful social norms became more prevalent across the region** as household financial insecurity increased, such as subjecting girls to early marriage, and forcing children to work to supplement family incomes.[183] Tens of thousands of girls in Asia have been subjected to early and forced marriage since the beginning of the pandemic. According to a UNICEF report, an estimated additional 61,000 girls are at risk of child marriage and an additional 118,000 girls at risk of adolescent pregnancy across the East Asia and Pacific region within the next year as a direct effect of the COVID-19 pandemic.[184] The Lancet reports that in South Asia, an additional 200,000 girls could be forced into marriage in the next year as a result of the effects of COVID-19.[185]

- **Reduced access to essential services due to school closures:** The closure of schools has led to a depletion of school health services including routine immunization, school feeding programmes and mental health services. Across the region, there was no widespread evidence of efforts to ensure ongoing provision of other essential services such as immunization, prevention and treatment of communicable and non-communicable diseases. Other lost school services include speech therapy, peer support groups as well as crucial deworming programmes which in many countries have been highly successful in preventing common parasitic worm infections.

  Community-based child protection programmes, and case management for children requiring supplementary personalized care, including those living with disabilities, and abuse victims have also been partially or completely suspended,[186] and with school closures, students have reduced access to any protection teachers or peers could offer.

Heightened negative stress levels and well-being issues: As mentioned under Challenge 2, teachers struggled to combine work and family commitments and

learn new teaching techniques in a very short space of time, which negatively affected their well-being. There is growing global evidence linking parental stress due to economic insecurity with child abuse, neglect and domestic violence.[187] Domestic violence against women and children damages their physical, emotional and mental well-being while prolonged stress has been shown to impair students' learning and threaten their future development.[188] Furthermore, children with working parents or caregivers may be forced to stay home alone, which puts them at risk of a wide range of protection issues.[189] Parental stress and the restrictions caused by lockdowns, increased the physical and emotional abuse of children in South Asia.[190] In Singapore, AWARE's Women's Helpline saw a 33 per cent increase in February 2020 over family violence-related calls received in the same month in 2019.[191]

There was an increased risk of cyberbullying and online abuse with the switch to online learning.[192] In Singapore and the Republic of Korea, this has become more prevalent with girls being at greater risk.[193] In Viet Nam a frontline social worker commented, "After finishing online classes, some children surfed the internet and visited age-inappropriate websites. Although sometimes children did not intend to, these black websites just popped up and children accidentally clicked them. Online quarrels and cyberbullying sometimes happened."[194]

Although there appears to be little large-scale quantitative data about the overall effect of COVID-19 on mental health and well-being in Asia, evidence indicates that learners of all ages faced increased levels of stress due to a variety of factors including isolation, uncertainty and fear of the future.[195]

"The pandemic has worsened existing uncertainties and distress. Containment measures and school closures have isolated children and adolescents from their social networks. Self-isolation can result in anxiety and sleep problems among adolescents, including because of increased screen time, irregular eating habits and reduced physical activity."[196]

In Southeast Asia, surveys conducted by UNICEF Thailand with almost 7,000 young people found three out of four female respondents reporting mental health issues such as stress, boredom, lack of motivation and frustration caused by the lockdown.[197] A small-scale online survey in China found that anxiety levels among 7-18-year-olds had risen as a result of the pandemic.[198]

Positive responses

The Framework for Reopening schools developed by the five UN agencies specifically encourages governments to consider Mental Health and Psychosocial Support Services (MHPSS) in planning and long-term recovery.[199]

In East Asia, to mitigate against the risks associated with increasing household poverty, countries have put in place robust financial and social support packages. These have the intention of easing the financial burden on households, reducing stress levels and ensuring families are fed. These interventions include cash transfers to households (China, Japan, Mongolia and the Republic of Korea), food vouchers (Mongolia) National Healthcare contributions and Child Care support (the Republic of Korea) and social insurance for migrants (China).[200]

While many countries in the region saw the negative impact of reduced access to essential health and social welfare services, uniquely, in its Guidelines on the Requirements for School Health Promotion, the Cambodian Government has detailed action on the broader health and nutritional needs of children as well as focusing on issues of equity.[201] The guidelines outline the need for school health committees (with representation including health facility heads) to, "facilitate provision of vaccination (vaccines) and medicine (deworming drugs) to students according to the policy of the MOH; promote health education in prevention of communicable and non-communicable diseases and implement and monitor 'green school promotion', especially vegetable gardens for extra nutrition while learning, to support health and physical growth of children."

Across the South Asia region, initiatives were taken to include psychological counselling and well-being as part of remote lessons to reduce heightened stress levels, for example by BRAC in Bangladesh and through the community-based education in Afghanistan.[202] In Sri Lanka, the Government included clear guidance for schools and teachers on how to identify mental stress in children and support their psychosocial needs (Figure 29).[203]

FIGURE 29 | EXTRACTS FROM THE SRI LANKAN SCHOOL REOPENING GUIDELINES CONCERNING MENTAL HEALTH

HOW TO IDENTIFY MENTAL STRESSES IN CHILDREN?	FACILITATE MENTAL HEALTH AND PSYCHOSOCIAL NEEDS
• Lack of interest in an activity used to do before • Sleep deprivation or increased sleepiness • Behaviour problems / easily getting angry / violent • Reduced self-esteem • Poor memory • Lack of concentration • Physical symptoms such as change of appetite, headache • Easily irritated • Inappropriate behaviour for age • Displaying stubborn attitudes	• Give opportunities and encourage students to discuss their problems and possible solutions. • Make them understand that it's normal to face such difficult situations and encourage them to express their ideas. • Keep in touch, at least with telephone, with children who are not attending school. • Provide accurate information and adapt them to suit each age group. • Provide services of a Counselling Teacher.

Source: UNICEF/UNESCO[204]

In Southeast Asia, the Ministry of Education and Culture (MoEC) in Indonesia collaborated with other relevant Ministries, such as the Ministry of Women and Child Protection (MoWCP), to conduct research into the extent of domestic violence against children so that they could develop mitigation strategies. Participatory and inclusive processes ensured wide acceptance and endorsement of the reopening guidelines.

In Japan, well-being is closely associated with the ability of children to learn and be creative and there is therefore a strong drive to maintain activities concerning culture, arts, nature and sports in the curriculum. Allowance has also been made for additional school counsellors and school social workers to provide mental healthcare to students in schools where necessary.[205]

Lessons learned

- Good cross-sector collaboration, particularly between the education and health sectors, is essential to support rapid preparedness for a health response. Valuable lessons can be shared across the region in terms of the response, examples from each sub-region include: the Republic of Korea, Viet Nam and Sri Lanka.

- Social protection systems were not strong enough to reach the number of households vulnerable to falling into poverty. Children's future capacity to learn will have been affected through the longer-term economic repercussions as more families fall into poverty as well as the longer-term physical and mental health implications including nutritional issues, and this will impact marginalized children more.

- Mental health was a major effect of the lockdown which was not fully understood or addressed in the Asia region. MHPSS was not given a high enough priority in the response.

- Resource constraints have led, in most instances, to a focus on a few key health issues in the education sector and more needs to be done to fully understand other critical issues and how these can be addressed. There are significant health and welfare needs of children, including mental health and child protection requirements which tend to have been neglected. The impact of the lack of focus on the mental health issues of teachers and the support mechanisms available is not fully understood and needs to be addressed to ensure their well-being and effectiveness when schools resume.

- A lack of monitoring means that the extent and the outcomes of interventions during the pandemic are largely unknown. While NGOs and UN agencies such as UNICEF and UNESCO have conducted surveys to better understand some specific issues, such as status of mental health and protection issues, there is a lack of evidence from the countries studied that data has been collected and analysed to assess the impact of interrupted health, welfare and nutrition-related services. Collection and analysis of information and data would allow for special attention to meet specific needs both during school closures and on reopening. For example, there is little information on measures in place to reach children with disabilities, children of migrant workers and those in need of social protection with the services they require, including systems for tracking children at most risk of drop out and for providing safeguarding.

3.4 Challenge 4: Mitigating against learning loss and reducing the learning divide when schools reopen

This section looks at the challenge of ensuring a smooth transition back to school with minimum learning loss. When learners return to schools, the unevenness of distance learning provision means that it is likely there will be wider disparities between what children know, understand and can do, and simulations as described in Section 2.5 indicate that there will be learning loss. During school closures however, levels of participation and learning were not systematically measured, so there is limited data about what children have learned during school closures. In addition, this lack of assessment means that it is unclear which channels, materials and approaches had the most efficacy in improving learning outcomes.

As schools reopen, it will not be sufficient for teachers to continue teaching the curriculum with the assumption that children are at the same point as they would have been without this extended period away from school. In many classrooms in Asia a traditional didactic teaching style is used to ensure curriculum coverage, presenting teachers and curriculum planners with two major challenges in meeting the needs of all learners:

1. Identifying what learners understand and can do (knowledge and skills), then provide remediation which will enable targeted teaching.

2. Ensuring the curriculum meets learner's needs and constrained timelines.

- Assessing children on their return to school will be critical, so that targeted support can be given, and they do not fall further behind. While learning is not a linear process, the development of skills and the understanding of concepts happen over time and require a solid base: if foundational skills and knowledge are not acquired then children will find it difficult to access higher order learning. If teachers don't know the point at which learners are re-entering the curriculum, many children will miss out on those vital stages of development because the teaching will not meet their needs and learning loss will accumulate. Following assessment there needs to be remediation approaches to support children to progress.

- Remediation is a long-term strategy to improve learning with both immediate actions once schools reopen and longer-term actions to integrate assessment and needs-based planning into the curriculum. The roadmap for remediation in Figure 30, shows the cycle of assessment and remediation on return to school. Placing more emphasis on formative assessment will help teachers target their teaching at the right level of each student, thus better meeting their needs. Furthermore, formative assessment with its emphasis on reflective practices, will develop more independent learners, a skill that will be increasingly necessary, as infections spike and schools potentially face more closures. The more knowledge the teacher has of the student, the easier the transition will be between remote and face-to-face learning.

FIGURE 30 | A ROADMAP FOR REMEDIATION
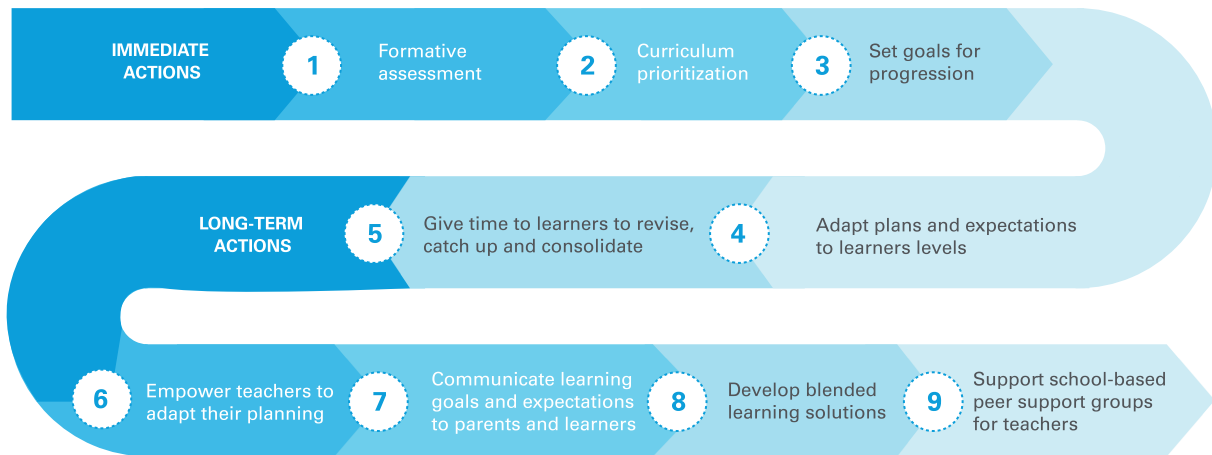
• Reopening schools demands an adapted timetable and curriculum as teachers will have to assess learning loss, provide remediation and adapt pedagogy. Governments will need to consider how to prioritize and refocus the curriculum. Given that many countries' curricula generally have too much content for the age of the learners, the prioritization provides an opportunity to reduce curriculum content and enable a focus on consolidating learning in some key areas. For example, in basic education, foundational literacy and numeracy are the cornerstones of learning and enable access to other areas of the curriculum. For countries where schools closed for extended periods of time, children's levels will have been further stretched between those who had access to distance learning opportunities and were adequately supported to continue learning from home, and those who remained completely idle for the entire time with no learning or even consolidation of prior learning. This is why it is important to meet the children at their level, set progression goals for them that are realistic and feasible time-wise, and therefore to allow sufficient time to revise, catch-up and consolidate, before diving into new content. This is especially important given that many countries decided on automatic promotion between grades.

• Well-being has been raised as a major issue affecting children after this extended period away from school and should be integrated into the curriculum in every school year and co-curricular and extra-curricular activities play important roles in the development of non-examined life-skills.

At the webinar held by UNICEF and UNESCO with stakeholders from across Southeast and East Asia to share the findings of the sub-regional reports, the key plan or strategy identified to mitigate learning loss after schools reopen was curriculum simplification, followed by adaptation of the school calendar through shorter holidays. At the South Asia webinar, countries prioritized the adaptation of the school calendar, curriculum simplification, accelerated learning programmes and differentiated teaching (teaching at the right level) for mitigating learning loss once schools reopened.

Positive responses

Japan's MEXT is planning to channel resources to ensure children can 'catch up' on learning through supplementary instruction and materials on their return to school, but, if this is not sufficient, MEXT plans to implement 'special measures' such as moving certain learning content to following years.[206] Guidance is provided to schools on how to manage different aspects of school environments when reopening during the pandemic and commitment expressed for the provision of funding to support these measures with human and physical resources.

"Recover learning at school by setting special attendance days, making staggered attendance schedules, redesigning the timetable, reviewing the length of long vacations, using Saturdays for school, prioritising school events and shortening their preparation time, etc."[207]

In Bhutan, during school closures the Government developed an adapted curriculum which focused on core foundational skills in primary and combined subjects at

the higher grades to reduce coverage. [208] The content of each subject from Key Stages I-IV has been rationalized in different ways and pared down to the most fundamental concepts that learners need. For classes IX and X, the content of physics, chemistry, biology and environmental science, were compressed into functional sciences, and in Key Stage I, the pre-primary – class III curriculum was combined and the number of concepts within each subject reduced. [209]

In Southeast Asia, as schools begin to reopen, countries are beginning to put plans in place to compensate for learning loss during school closures. [210] By August 2020, as countries were beginning to partially or fully reopen, under half of Southeast Asian countries were using remedial education and 20 per cent reported using accelerated education. [211]

Viet Nam is aiming to close learning gaps using summer schools and catch-up education programmes. An accelerated programme is contemplated for hard-to-reach ethnic minority children. The Philippines is planning to hold a revision period just before or upon reopening, or revision through self-study and to adopt a prioritized curriculum once schools reopen, to address the potential existing and future learning loss, caused by their long school closures (of over one year). [212]

The first month of school reopening in Mongolia was dedicated to assessment and remediation. [213] The assessment and remediation were aligned to the TV distance learning programme used during school closures and were accompanied by support for children's well-being. "Teachers consulted by UNICEF indicated that remedial classes in the first month of reopening were much needed and helpful but noted that the time allocated to each subject was not adequate to fully address learning gaps." [214]

Lessons learned

- There was very little information about what children learned during school closures. Assessment processes, therefore, are critical on school reopening, so that teachers understand what children know and can do in order to plan for meeting the needs of learners. Building assessment into remote learning programmes would have enabled a smoother transition between remote and classroom learning.

- A traditional style of teaching will not help narrow the learning gap. Teachers need training and support to develop new skills so that they can be more flexible in their teaching and use methods which enable them to implement differentiated learning in their classrooms. For example, setting learning goals for children, based on assessment results and using techniques such as teaching at the right level.

- Flexible curriculum planning will support teachers to meet the needs of significantly different levels of learning on return to school. This flexibility can take many forms: adaption of the school year to compensate for lost learning time, prioritization of the curriculum to give time for revision and consolidation of essential skills and review of the curriculum to include health and well-being and development of digital literacy skills.

- During school closures, reliance on parental support has shown the importance of developing home-school communication about learning. Communicating to parents about learning objectives, skills to be acquired and an indication of how they can help, will encourage them to support their children's learning, whether schools are open or closed.

04

Building back better and building resilience

Building back better: A new way of planning and working which will enable all children, including the most marginalized children to access learning at the appropriate level and with appropriate help and support.

This chapter considers the lessons learned from the pandemic and outlines ways in which the system could build back better in the future to support the improvement of children's education in schools and improve learning outcomes across the region. While the overall broad vision described lays out a common way forward for education, each country in the region would follow a different pathway, taking into account their context and priorities, the capacity of the existing system to reform, and the resources available for education in the short, medium and long term.

4 .1 A vision for change

Implementation of the new vision will assist all children to develop capacity for learning, acquire the necessary resilience and curiosity to pursue life-long learning, and prioritize foundational skills. This new way of working needs to recognize and address harmful social norms and provide alternative learning solutions to encompass the likelihood that significant numbers of children will not return to school. This will be a complex undertaking, so each country needs to plan for explicit short-, medium-, and long-term objectives, to show how they are building a new shock-resistant system.

Each government will need to significantly increase the level of funding for basic education as COVID-19 has created a new kind of humanitarian disaster which, unless addressed fully, could undo decades of investment and especially impact further on the education of vulnerable and marginalized children.

4.2 What has COVID-19 done?

Education systems in Asia are all at different states of development. In East Asia and Southeast Asia there are some systems that are stronger and more mature than others in the region. Learners in these sub-regions perform well against international standards. However, in many countries, education systems were struggling even before the pandemic, leading to high levels of learning poverty, especially among the most marginalized learners. The COVID-19 pandemic has magnified the weaknesses of systems, highlighted strengths and ironically provided a pivotal moment in history to make change. Changing the way education systems work can be seen as a matter of global urgency, particularly in the light of pre-COVID-19 literacy levels and also the expected learning loss for many children as a result of the pandemic. To bring about real change, countries need to start where they are and build from their existing strengths, considering policies and planning through a gender lens and putting provision for the most marginalized at the forefront.

Learning from the pandemic has shown that where there has been a degree of collaboration, responses have been strongest and the impacts of the pandemic have been minimized. Applying this learning to future education planning means that the vision for building back better needs to be shared and developed through cross-government co-operation, and not be the sole responsibility of the Education Ministry. Planning for the future, therefore, needs to involve a wider and deeper level of consultation than ever before, involving teachers, parents, community leaders, children themselves, as well as officials within

the system. It needs to be a holistic planning process, as many of the issues which need reform involve ministries and agencies responsible for special education, health, sanitation, nutrition and woman and children.

Across the region there has been a significant range of different experiences during COVID-19, including the severity of the actual impact of the pandemic and length of school closures. Reduction in learning hours varied dramatically as did the availability of adult support and the reach of technology. Each country needs to review the resilience of their systems and use this understanding to identify and sequence their priorities. Subsequently, countries will need to revisit their Education Sector Plans to integrate approaches to sustaining school safety, strategies for better quality distance learning and concrete plans to reach the most vulnerable and marginalized children. By undertaking this process of review and prioritization, countries can develop mid- to long-term plans based on what is affordable and sustainable. The following section sets out the issues that will need to be addressed if a new and more equitable hybrid education system is to emerge.

At the webinar held by UNICEF and UNESCO with stakeholders from across Southeast and East Asia to share the findings of this report, the issue identified as most important to build back better, improve learning and enhance system resilience, especially for the most marginalized, was to develop new capacities and roles of teachers, followed by more flexible learning pathways.

FIGURE 31 | INCREASING RESILIENCE AND BUILDING BACK BETTER

This new vision requires substantial systems reform and increased financial investment by governments and development partners or run the risk of an increasing digital divide and potential increased levels of poverty and unrest.

Monitoring, evaluation, assessment and data collection and use, were found to be particularly in need of strengthening so that there is more information about learning gains and where initiatives have not had significant impact in order to vary plans and approaches.

Introduce blended learning approaches for flexible learning but recognize that technology is not the whole solution.

Develop learning strategies which recognize how to make schools safe places where well-being is prioritized and safeguarded. Provide for those who may not for various reasons return to the classroom.

Investment in building skills and capacity for teachers and learning supporters.

Revised curricula would feature deeper knowledge of fewer things, encouraging independent learning, a concentration on foundational skills, awareness of climate change issues, gender sensitive materials etc., using both what is taught in the classroom and what is augmented through other media and contexts.

Local knowledge and experience are critical to reach all children in the most appropriate way; the best solutions have taken place at the local level. Blended learning offers opportunities for flexible learning locations.

Education Investment · Teachers · Use of Data · Curriculum Reform · Blended Learning Strategy · Alternative Learning Solutions · Safe Schools

FOCUS ON THE YOUNGEST AND ON MARGINALIZED LEARNERS

4.3 A unique opportunity for change

This time provides a unique opportunity for change. The focus needs to shift to marginalized children (including young children, girls and children with disabilities) and to differentiating their needs at different ages and in different contexts. This requires a better understanding of what goes on in the classroom (virtual and face-to-face) and how and when children learn. This includes:

- a supportive classroom culture and positive behavioural expectations;

- the teacher facilitating the lesson, checking for understanding and giving feedback and stimulating critical thinking;

- children being autonomous, encouraged to persevere and socially engage, and collaborate.[215]

The overarching theme for this vision is that the most marginalized children should be at the forefront of all decision making (Figure 31). This will require extra investment, but solutions, developed through an inclusion lens, will enable countries to meet the needs of all groups of children.

If systems are to become more resilient to potential new shocks, they need to begin their investment in human

capital earlier. Strengthening data collection systems to make more disaggregated and gender-responsive information available about their marginalized child learners, will enable appropriate teaching and learning materials and support systems to be developed. For example, during COVID-19, Nepal identified different categories of access that learners would have, enabling them to develop provision for a range of circumstances.

Each country will need to consider how to improve early childhood provision, considering how to ensure that all children can access opportunities which enhance their early development and growth. One idea is to establish early childhood centres where young children and their parents can gather for play experiences and also access basic services. As the evidence from the country case studies showed, cross-sector collaboration results in more effective child support. This can be seen when local services are combined so that vaccines and feeding programmes are focused, targeting the neediest and delivered at school. Countries will also need to establish or strengthen referral systems to different agencies dealing with health and well-being, disability and protection.

More detailed information is given below on how the model of building back better can be taken forward.

"Research shows that the quality of teachers is a major determinant of children's learning and well-being…throughout their lives, affecting…other long-term social… outcomes."[216]

Investment in teachers

Teachers are the bedrock of any education system.

As this report has shown, teachers found responding to COVID-19 difficult as they lacked the pedagogy and assessment skills to pivot to distance learning. As schools reopen, teachers will need new skills, better support and motivation to address the deepening challenges. A global framework for countries to take this forward is set out in the World Bank's Global Platform for Successful Teachers.[217]

A new vision will be needed to recruit teachers differently on the basis of a new set of competencies and not simply on the basis of traditional qualifications. Countries can learn from the new forms of pre-service training being developed in Ghana for example, where all new teachers will be required to hold a new kind of practical-based degree course which involves learning in the classroom from the start of the course.[218] To prepare the teachers of the future to deliver the new hybrid model of education, teacher educators will need to upgrade their skills and the pre-service curriculum will need to adjust to align with the new expectations of teachers in the classroom. This will ensure increased quality of teaching and learning.

Findings from most countries indicate that teachers were not actively included in the early plans for developing remote learning.[219] Teachers had to learn fast, and obviously some learned faster than others. Research shows that the continued involvement of teachers with their students during times of school disruption or closure is vital. It instils confidence and trust, providing personal reassurance to individual children, especially the most vulnerable and particularly those with disabilities. There are many ways in which this has been achieved during the pandemic and can be further enhanced. In all countries, many dedicated teachers responded well and quickly to school closures and provided support. In countries where teachers are seen as important professionals and paid well, teachers felt a great sense of responsibility to support children and ensure they continued learning.

Teachers need to understand that they have a new leadership role in building back better. They have responsibility for providing continuity of learning and positivity to children who have been affected by the events of the past year in different and sometimes traumatic ways. Teachers should be tasked and supported to work in ways that build student resilience and curiosity. They should be prepared to provide safeguarding and support for children faced with increased hardship, violence and abuse, and assist them to find resources that will help overcome extreme psychosocial issues. Teachers learned a great deal during the pandemic, and those lessons should feed into planning for new teacher training and mentoring interventions to ensure they meet the needs of the teachers on the front line and provide adequate support for teachers' well-being through these changes.

What is needed now, is an alignment of pre-service and in-service continuing professional development programmes based on a modified teacher training curriculum. This needs to be reinforced through strengthened school-based mentoring and support for teachers' well-being.

The new skills that teachers will need include how to:

- Facilitate learning and provide a supportive classroom culture based on positive behavioural expectations that reinforce 21st-century skills such as teamwork, collaboration, resilience, independence and critical thinking

- Deal with student safeguarding and well-being, and provide support for their emotional issues, while at the same time developing their own resilience to change

- Assess learning (summative and formative) and check for understanding in the classroom and give feedback

- Plan for remediation approaches based on the assessment results and deliver these using differentiated teaching pedagogies

A new vision of what teachers need to be able to do, supported by continuing professional development to acquire the skills they need, is essential if future education systems are to be strengthened.

- Use technology to deliver lessons, both in the classroom and remotely.

This will take time to develop but will be well worth the investment.

Curriculum reform

Building back better must impact the traditional view of the curriculum. Post-COVID-19, there will need to be a prioritization and simplification of the curriculum so that children (particularly those very young) are thoroughly learning the numeracy and literacy skills, that will build the foundation for all other learning.

The revised curriculum will need to focus not just on traditional knowledge-based learning outcomes, but additionally on making children resilient, independent learners and concentrate on what is essentially important for each age group e.g., health and well-being, foundational skills, etc. This should also include the social and emotional skills that build well-being, and a greater awareness of 21st-century issues such as climate change and disaster risk reduction.

It was clear from the case studies that marginalization was intensified by the exclusion of minority language groups from remote learning due to a lack of materials in their language. The revised curriculum will need to be inclusive and not just promote national cultural relevance, but the diversity of the students within the country, including those with special needs or those speaking minority languages (especially for early years when mother tongue is used). As part of the strategy to challenge harmful social norms, the revised curriculum should be gender transformative, foster respect for diversity and aim at global citizenship and social cohesion (peacebuilding).

There will need to be clearer communication of learning outcomes and competencies to be acquired so schools, teachers and governments can engage more easily with parents/carers about the objectives of learning for each subject and each grade, with better progression ladders to map the journey of progress for learners. Alongside this, there will need to be regular assessments of learning that provide disaggregated results to track progress.

This is a significant challenge but should start with the early grades and develop incrementally over time.

Alternative learning solutions

The case studies have highlighted that local knowledge and experience is critical to reach all children in the most appropriate way, and that the best solutions have taken place at the local level. This, along with the recognition that learning does not just take place in school, is fundamental to building a new system and has implications for ensuring that each country develops framework policies (e.g., blended learning), but delegates responsibility to districts and sub-districts to customize their learning plans to focus on the youngest and most marginalized children in their area.

Developing local learning plans will need to begin at the school level and involve community stakeholders and parents as well as teachers in setting and monitoring targets for their specific school. Schools and local officials will then report the results up the system, increasing results-based accountability. For this to happen successfully, skills will need to be built at community, school and local level to plan, set targets and monitor performance.

"Governments should ensure that girls and women are consulted and can contribute to decisions about school reopening through regular feedback mechanisms, and their engagement in decision-making and planning process."[220]

By harnessing the advantages of technology through a hybrid approach, education can become more accessible and equitable, more learner-centred, more flexible and

better quality for all ages of children, regardless of where they live. This will include a mix of face-to-face and distance learning modalities, which are tailored to be appropriate for each learner's context, which could be online or accessed using low-tech options. The effects of COVID-19 on the way people live, learn and work, has shown that learning can happen anytime, anywhere, and physical schools are not the only place where learning takes place. Schools will still be needed as the pandemic has also highlighted the importance of social contact and that many skills still require face-to-face interactions to be imparted (such as through co-curricular activities). Schools also have important roles to play in providing health and social services.

A phased approach to embedding technology use into education means that countries can plan over time for the changes to ensure that eventually all schools and learners are connected to the internet and all learners have access to learning devices. By using technology, all children can access high-quality content through efficient, engaging, and attractive online learning solutions, which can be used to align formal and non-formal education outcomes, as well as develop technical and vocational competencies. Certification becomes easier with online learning: online validation of learning or competences can help students to become certified over time and at their own pace. This can really help with secondary education completion, post-secondary and tertiary education, and with technical and vocation training. When students can complete courses in a modular fashion and validate these in their own time, this gives them more flexibility, enabling them to work at the same time and apply new skills to their job.

COVID-19 has brought the timeline for this shift forward for many countries and made the need for the change more concrete, but it has also shown the opportunities that exist, and that change can happen.

Safe schools

There is an opportunity to rethink school spaces.

As well as considering alternative learning solutions and centres, a longer-term vision, when funding is available, should include the design of larger classroom spaces and more flexible furniture which will make the environment suitable for a more open learning style.

Schools, like teachers, are an essential part of an education system. They provide focal points in the community, should be places of stability and refuge and

at best, give children a sense of routine and normality which promotes well-being. There is an opportunity as schools reopen after the pandemic, to ensure they are safer spaces, and in some countries there are now regulations which insist on improved safety and well-being before they reopen, so that schools themselves are built back better. Many countries are working towards the essential actions included in the WHO checklists and the UNICEF/UNESCO/World Bank/WFP/UNHCR framework for reopening schools. This includes improving WASH facilities, their use and accessibility and levels of cleanliness as well as ensuring other health protocols within the school are in place for regular hand washing and respiratory etiquette, safe distancing and the use of "bubbles" to keep class groups separate. This also includes infection prevention control measures such as reporting and response procedures and the continuation of essential health services such as school feeding, immunizations, MHPSS, menstrual health management, etc.

Establishing a blended learning strategy

UNICEF's guidance on remote learning during COVID-19 examines a total of twelve different learning modalities across four learning classifications.[221] As each country develops their blended learning strategy, it will be essential to examine these and to determine the nexus between self-learning, teacher-guided learning and home learning modalities. As already mentioned, teachers and their support systems will need to fully understand these modalities and where they will be most effective, and these factors should guide the development of a blended learning strategy. As more schools begin to reopen, countries will need to plan for the continuation of the blended approach not just to manage ongoing COVID-19 cases and quarantining that still occur, but as part of the vision of a hybrid approach to education going forward, building on all the lessons they have learned along the way.

Each country needs to move towards a different vision which shows how remote learning of different kinds can augment formal schooling and if conceptualized well, even replace it in extreme circumstances (e.g., pregnancy, domestic violence and abuse and extreme poverty). Grim though it may sound, there will be times of disruption in the future for various reasons, natural disasters, conflict as well as potential new pandemics. Now is the time to consolidate how traditional classroom teaching can be reinforced and augmented by various types of age- and level-appropriate remote learning. Opportunities need to

be provided to enable the blended learning strategy to be customized for specific local needs and contexts as COVID-19 has shown a range of solutions are needed.

Building a new monitoring, evaluation and assessment framework for the new vision

This framework will need to operate around a revised curriculum. In the classroom environment, teachers are normally expected to monitor children's learning progress through formative assessment, whether learning is on track, and identify strengths and weaknesses. This allows the teacher to adapt and modify their approaches. In an improved environment, where the focus is on learning, formative assessment will be integrated into teaching, and used to inform planning which is flexible to meet the needs of a diverse class of leaners.

Formative assessment will be critical in the aftermath of the pandemic, while learners return to school. This would form a major part of remediation strategies which are designed to help teachers plan their teaching according to the level of the child's skills and understanding.

Assessing progress on multiple, different learning modalities presents a huge challenge, and has to date yielded few good examples of best practice. However, UNICEF, in partnership with Cambridge Education, has produced guidance on how to assess learning against different modalities such as radio, TV, mobile phone, digital and paper.[222] The World Bank is also producing guides on digital assessment. Once finalized, these packs will help countries build a new model for monitoring and evaluation and assessing learning impact.

Outside the classroom, collection of education data will be critical so that there is an evidence of what works and where. This should be disaggregated so that marginalized communities and children can be effectively targeted and evidence-based solutions can be found.

Education investment

It is going to be extremely hard for governments, faced with the economic downturn created by COVID-19, to increase investment to education. The cost of not doing so needs to be carefully weighed, given the relationship between investment in human capital and economic growth. As Section 2.7 shows, the current commitments in the region to education are below the minimum recommended by UNESCO, and this challenge will increase as funds are re-allocated to other sectors such as health.

The findings from the financial modelling done as part of this Situation Analysis, confirm that COVID-19 has had a significant impact on education sector budgets. The average financial impact for the region under the baseline scenario is a 9.6 per cent increase in the required budget between 2020-2030 to attain SDG 4. This equates to almost 1-year of the education budget over the decade, which is a relatively large demand at a time when growth forecasts are weak and there are pressures to reprioritize budgets towards healthcare and social protection systems. To help manage these education funding pressures, planners can use the disaggregated results to prioritize specific interventions that are expected to have the largest impact (such as implementing hygiene standards) and those services which are an extension of their current obligations (remediation, accommodating students shifting from private to public schools, and re-enrolling students who have dropped out due to COVID-19). Moreover, planners can use the results of this analysis to advocate for the protection and extension of education budgets, as well as the fast-tracking of critical WASH investments. This is examined in more detail in the Finance Section (Chapter 2).

This section sets out a vision for the future which would change the way education is managed and delivered so that it reaches more learners, especially the most vulnerable and marginalized, with targeted interventions and teaching approaches. The next chapter sets out recommendations for steps that can be taken to work towards this vision which are in line with the context of the region.

05

Recommendations

The most important and urgent recommendation is to reopen schools safely and to enable all children to restart learning with their teachers.

This section presents recommendations for governments across the region to consider. The recommendations are brought together under the headings from the earlier sections. Where possible short- to medium- and medium- to long-term recommendations are made, yet this distinction will differ depending on the country situation. As demonstrated through this report, the sub-regional reports and the case studies, there have been some good responses to the pandemic in all countries and there are some examples of excellent initiatives that could be adapted and expanded to other contexts. It is recognized that budgets for investment are constrained, yet it is vital that children and young people, and especially the most marginalized, are prioritized, and so some of the recommendations are ambitious.

5.1 Recommendation 1: Reopening schools and ensure all children can learn safely as soon as possible

a. Strengthen evidence-based decision making on when to reopen schools. National governments need to consider the latest research and analyses on the impact of school closures versus other physical distancing measures in their decision making, balancing the risk level and broader health and psychosocial costs for pupils, especially pre-primary-age children. Cross-sector collaboration at all levels of the system from communities and schools, through all the subnational layers and to Ministries, will be required to cover health, education, social welfare and WASH aspects and provide any necessary support.

b. Decentralize decision making and provide support for safe reopening. Decentralization of decision making, planning and budgeting already exists in many countries across the region. During the pandemic, historical systemic weaknesses as well as fragile emerging systems struggled to cope with ensuring effective decentralized responses across all the levels of government. Further support needs to be given to subnational and school-level actors to develop and implement reopening plans that will keep their staff and learners safe while still enabling learning to continue.

Communication of safety measures with teachers (who will also need training on their implementation), parents and communities is essential to encourage hygiene behaviour change and to put local accountability measures in place for compliance. Schools should be supported to allocate funds according to their needs, particularly to address the challenges faced by the most marginalized children in their communities.

FIGURE 32 | DELIVERY APPROACH PROCESS

| Right data, presented in the right way | People who meet regulary to review evidence | People who are able to adjust planning, solve bottlenecks and find locally relevant solutions |

Source: Authors' adaptation of Cambridge Education's approach to delivery in education programmes

Depending on the severity and spread of infections, if schools need to close, closures should remain localized and temporary, with consideration given to intermediary solutions such as phasing, shifts or staggering opening so that as many children as possible can access education. Priority should be given to keeping early years children in school as long as is feasible (see d. below).

c. Strengthen monitoring and evaluation systems at all levels to provide timely data on which schools are operating safely, which ones are not and why. Countries need to address this information gap by integrating monitoring reforms into their national plans. The short-term priority will be to address data monitoring needs for the response gaps in regularly measuring attendance, compliance of schools with safety standard operating procedures (SOPs), infrastructure development especially WASH in Schools and learning. The second longer-term priority will be to link different data systems, especially health and education MIS systems, human resource management systems, learning data, household survey data from National Bureaus of Statistics, civil registration and any database that captures social protection benefit recipients.

Stakeholders such as teachers and parents should be involved in monitoring and evaluating the effects of the pandemic on families, schools and learners to improve local decision-making capacity. This will build resilience at the local level to handle future disruptions. Data should be disaggregated, and support should be targeted based on this data. Technology (such as SMS, phone surveys, etc.) should be harnessed to strengthen real-time national and local monitoring procedures.

Figure 32 shows how this delivery approach to the use of data can be used to improve decision making and implementation. This approach has been used in several countries including in Punjab in Pakistan[223] and also in Uganda[224] to overcome historical bottlenecks and make progress in delivering education programmes. This has

been shown to work at all levels, from the school level with communities up to the national level.

d. Prioritize WASH infrastructure and facility needs for ECE centres and schools serving the most marginalized groups and identify short- and long-term financing solutions to address these.
There will need to be the engagement of high-level cross-sector government officials to increase ringfencing of finance for the completion or improvement of school infrastructure and safe operations in all schools, particularly those that serve early learners and the most vulnerable populations. Chapter 2 estimates the funding that will be required by each country to meet their WASH infrastructure needs for safe operations in the future. Across the region, this will require an increase in the capital education budgets of between 4 per cent and 36 per cent, depending on the level of current WASH provision in each country. Education Ministries will need to work closely with agencies responsible for the provision of WASH infrastructure to prioritize this longer-term funding need and identify its potential funding source. These funds may be available internally by reallocating domestic revenue and budgets or externally through deficit financing and donor support (see Recommendation 5 below).

COVID-19 has shown that the possibilities for remote learning for ECE children are limited, therefore ECE centres should be opened safely as quickly as possible when similar situations occur in the future. From a health perspective, governments should utilize the WHO checklist on reopening schools[225] to ensure that schools can put in place protective measures. They must ensure that where schools do not have adequate WASH infrastructure, suitable alternative facilities or modalities are available and that budgets are prioritized towards those schools with inadequate facilities. Figure 33 shows some of the actions that need to be taken for safe opening of schools.

FIGURE 33 | WASH / INFECTION PREVENTION CONTROL (IPC) FACILITIES FOR REOPENING SCHOOLS

IMMEDIATE
- Handwashing with soap (preferred and prioritized option)
- Use of hand sanitiser where water availability is an issue
- Use of tippy tap/ improvising handwashing with local option
- Re-locating communal handwashing station
- Disinfection, provision of detergent and disinfectant, protective gear

SHORT TERM
- Rehab and maintenance of existing water supply
- Extension from nearby system
- Improved storage
- Improve sanitation, mainly toilet and solid waste management
- Monitoring- include private schools for adherence to SOP

LONG TERM
- Invest in system and institutional strengthening for improved WASH in Schools through public resources and private sector
- Support the implementation of the approved WASH in Schools strategy with the inclusion of WASH/IPC

School management committee engagement for improved WASH in Schools service provision and monitoring

Advocacy on hygiene promotion in coordination with Communication for Development (C4D) and Advocacy and Communication (A&C)

Cross-sector coordination with government departments at all levels

Source: UNICEF[226]

5.2 Recommendation 2: Delivering equitable and inclusive distance learning at scale to reach all children during full or partial school closures

a.Establish or strengthen real-time data collection systems and use continuous comprehensive monitoring. Whether schools are closed and distance learning mechanisms are in place, or whether schools are reopening, it is vital for communities, schools and health and social services to work together to identify children who are not participating or not re-enrolling as well as those who have never enrolled. This will help policy and decision makers to understand the challenges these children face and to develop strategies to address these, so that as many children as possible have opportunities to learn going forward. This needs to continue once schools have fully reopened as some children will continue to be at risk of dropping out even after re-enrolling such as those from poorer families, or suffering abuse, or those with disabilities. Indonesia's community-based Education Management Information System (EMIS) system provides a good model for a localized solution to this.[227] Local education, health and social welfare agencies should collaborate to develop individualized support plans for children in need, through current and extended services. The data should also be used at subnational and national level to enhance understanding of the issues affecting children, support policy formulation to address different types of marginalization, and for targeting budgetary allocations. Data also needs to capture information on the accessibility of different learning modalities to learners in each community and the extent to which learners are accessing these.

b.Improve access to different learning modalities. The COVID-19 pandemic has shown the importance of alternative learning modalities to ensure that all children can continue to have access to learning and support systems during times of crisis. As countries begin to develop comprehensive strategies for taking forward a blended approach to learning, it is essential that the lessons learned from the pandemic are used to tackle access for the most marginalized children to narrow the learning divide. One way to do this is to normalize aspects of distance learning within everyday teaching and learning. This may be through using technology during face-to-face lessons, encouraging more independent learning or through the use of alternative learning solutions, such as community learning hubs for remedial lessons, or for those who cannot return to normal school hours (such as child mothers). The countries that had the widest levels of access during the pandemic, were those who understood the challenges of marginalized children, and had access to the type of data described above. Another approach is to ensure that this information is available and that interventions are designed taking this into account.

To increase internet and mobile phone accessibility, public/ private partnerships with service providers, and cross-sector collaboration with other ministries and agencies will be needed. Many countries have Universal Service or Access Fund mechanisms in place "by which a national regulatory authority mandates, oversees and/ or coordinates a set of subsidies and fees designed to promote access to telecommunication services for all of a country's population."[228] Education Ministries cannot fund internet access across a country, and are

not responsible for doing this, but they can work with other partners to collectively look for and accelerate solutions. Many countries have already begun to address this as part of their longer-term strategy to build more resilient systems – for example, in Japan with the GIGA initiative.[229] This should also include subsidizing the provision of learning devices for those who need them most and initiating and upgrading privacy and protection regulations to keep children and young people safe online. If countries can begin to resolve the issue of access to internet and devices, then partnerships with the education technology private sector should be developed to look at cost-effective and competitive pricing models for learning platforms that are engaging, interactive and aligned to the revised curriculum (including online assessments and tracking of performance, individualized progression, and inclusive materials. In many places, children from richer households already have access to this technology, so the focus needs to be on making this accessible to all children, and especially the most marginalized children. In this way, the digital divide can be reduced, and the Matthew Effect (discussed under Challenge 2 in Chapter 3) addressed so that all students can learn at their own pace, anytime, anywhere and through any device and their progress can be tracked.

c. Strengthen provision for the most marginalized learners.
If access to internet, devices and electricity becomes more widely accessible, technology can be used to widen access to inclusive materials, such as minority language materials or materials developed for children with different types of disability. Offline and legacy technology solutions such as printed materials, radio provision or community-led learning clusters should also be considered and planned. These approaches can be used for when schools are closed as well as when schools reopen to reinforce learning in the classroom.

Schools should be supported to ensure that the most marginalized learners are prioritized in school reopening plans, both for re-enrolment and attendance (as discussed above), but also for the support services, such as school feeding and counselling, needed to support their continued participation and learning. Plans for those made more vulnerable through the pandemic (for example, through increased poverty or those unable to access learning during school closures), and those already out of school should be prioritized to reduce the learning divide. Learning for the youngest children during school closures is particularly difficult, with the most common response being TV shows or expectations that parents and caregivers will support learning at home. As discussed in Recommendation 1, the best approach is to ensure

that early childcare provision remains open for as long as possible while it is safe to do so. Headteachers should be given support on how to put these plans in place and implement them effectively using training and/or peer networks to share good practices and reach out for advice.

During the pandemic, many countries appreciated the value that parental support and community mobilization added in the development of local solutions. This needs to be harnessed as part of the approach to education going forward, through effective support to parents and caregivers in times of future school closures and inclusion of communities in school governance. This should include building capacity and providing resources for communities and schools to partner to enhance the outreach potential of the education system, especially to the most marginalized and vulnerable, who can often be found in remote and disconnected locations. As part of this collaborative effort, social norms and power relationships should be identified and steps taken to give voice to those suffering as a result of harmful social norms and break down power dynamics that are preventing local accountability.

Children with disabilities face a range of problems in accessing learning during school closures as discussed in Chapter 3. Plans need to be put in place to provide skills and support to teachers in integrated schools, and to parents and caregivers of children with disabilities to ensure that learning is inclusive and accessible, and support can be given in the home. Teachers will also need better training to identify children with disabilities. For children with certain types of disability, where a home-based option is not feasible, all measures possible should be put in place to ensure residential or specialized schools can safely remain open for as long as possible. This should be considered in budgeting and planning for WASH facility provision as well as for vaccination plans. Once integrated schools reopen, special attention needs to be given to ensuring that children are given individualized support, depending on the type of their disability, to help them follow hygiene and safe distancing guidelines.

d. Develop school, teacher, parent and student readiness for distance learning. It is likely that going forward, countries will put in place a range of alternative learning modalities such as blended learning, distance learning, learning online, etc. These modalities can be used during school closures, but also while schools are open. It is important for these to be aligned to each other and to the revised curricula, pedagogy and assessment that will need to be introduced to provide remediation (described further in the next recommendation). This will need to be supported with continuing professional development of

teachers and headteachers through peer networks, training and mentoring. Of equal importance is that parents and caregivers and students are also able to engage more effectively with these alternative learning modalities. This includes both the well-being element of working remotely and independently, of managing change while switching to different modalities and also the technical ability to work with different types of technology. These skills could be built through in-school training as well as through the use of videos, and peer networks.

5.3 Recommendation 3: Provide a package of support to ensure children's health, nutrition and well-being

a.Strengthen pandemic response planning and cross-sector collaboration. Use cross-sector collaboration to ensure the continuation of essential health, nutrition, well-being and protection services during school closures. Strengthen pandemic response plans through joint ministerial work to address the pathways for the delivery of these essential services to pre-school, primary and secondary school children and adolescents, ensuring these are secured, including school feeding, routine immunizations, support for children with disabilities, and meeting mental health needs. This cross-sector planning needs to be underpinned by shared data across agencies to ensure all children and their needs are identified and targeted and tracked.

b.Prioritize funding, policy development, data collection and use of cross-sector pre-primary child development. Developmental support for pre-primary children needs to include cross-sector alignment of nutritional and health services such as immunizations and development checks, as well as family welfare policies and education provision to ensure each child has the best possible start in life. In those countries where these programmes have been suspended due to school closures, catch-up programmes need to be implemented as soon as possible to get children back on track. This can only be done if there is concrete political will and increased investment and monitoring of ECE provision. The high rate of stunting (as much as 35 per cent in South Asia and 25 per cent in Southeast Asia) and lack of participation in at least one year of quality ECE needs to be tackled for longer-term benefits in terms of increased future earnings to be seen.[230] This message needs to be communicated to parents/caregivers so that demand increases as long

as it is matched by an associated increase in supply. Disaggregated and comparable data on ECE access and participation needs to be collected and used to inform policy and resourcing of both childcare and ECE, set targets and measure progress.

c.Promote and fund outreach services for teachers' and young people's mental health and psychosocial support services (MHPSS). COVID-19 has caused increased levels of anxiety and stress, which manifest in teachers, children and young people in different ways. School and community health and social services-based systems for assessing, identifying and referring MHPSS cases need to be established or strengthened so that issues can be addressed and coordinated support provided. This could be done in the short term, through conducting surveys, particularly among the most marginalized households to provide information on how future pandemic responses can be strengthened to meet their needs, and in the longer-term through a comprehensive review of child and adolescent mental health services. Teachers and community health workers need to be trained to observe, record and take action to support young people, particularly in the more remote locations, where services and awareness may be limited. Young people must have safe spaces and opportunities to positively interact and learn while supporting each other. Helplines and other forms of access to MHPSS support should also be funded so that information and advice is accessible.

Across much of Asia, considerable pressure is put on young people to pass high-stakes examinations. In countries where this is a particular issue, the national assessment systems should be reviewed to make them less stressful.

d.Identify, record and address protection issues especially for girls. Reports of gender-based violence, child marriage, physical and mental abuse and child labour have increased during the pandemic, especially for girls and for more marginalized children such as those with disabilities. Teachers should be trained to assess children who show signs of abuse, both during distance learning and once schools reopen. Then schools need to work with communities and health/social services to support appropriate responses to help these children. This may be through challenging social norms and engaging with parents/caregivers, or through more formal support systems, where children are removed from risk. Some examples of interventions include the widespread awareness around policies for educating child brides or girls who are pregnant, and working with internet providers on regulations for online safety. Comprehensive and disaggregated data collection will improve child and

adolescent safeguarding, if it is used to target resources to appropriate protection measures.

e. Address issues of household poverty and child labour through social welfare and child benefit. Many countries in the region have already provided social welfare to poor families especially in Southeast and East Asia and this needs to be continued and expanded for as long as poverty impacts on children's health and education. However, in most of South Asia, these systems do not exist and as a result marginalized groups and those living in poverty are more vulnerable to future pandemics. A cross-sector response is needed in terms of social protection measures for all families who live below the poverty line. Children living in poverty are likely to live with multiple disadvantages, such as malnutrition, stunting, poor health and perhaps often missing school because of a disability. Without a focus on reducing disadvantage, many children will lose years of learning and may drop out of school completely.

As much as possible, governments in the region must ensure that the poorest and most marginalized children do not disproportionately suffer long-term impacts from the pandemic. In the short term, they must prioritize providing social protection measures to the families most in need. This will require multi-sector collaboration between the health, education and social welfare ministries. Children, particularly girls or those with disabilities, that are most at risk of dropping out of school should be prioritized for cash transfers or other support to enable them to keep learning. Households should be surveyed to find out what immediate support they need and what could be done in the future to ensure better preparation in case of any emergency. Governments, particularly those with decentralized systems like Nepal and Pakistan, can look at how to work more collaboratively with local-level actors such as NGOs and community members to implement and monitor pro-poor policies. The pandemic has shown that local adaptations need to be made. In contexts were this is possible, these could include support to WASH in schools as mentioned above as well as partnerships with local volunteers to support community-based education initiatives.

In the longer-term, as part of these measures, governments, especially those in South Asia, can consider introducing an emergency Universal Child Benefit (UCB) which would ensure that families access a minimum level of income support. According to UNICEF, *"analysis across five countries in South Asia indicates that a UCB costing 2 per cent of GDP over six months would provide the recipient population with an average of between 18 and 46 per cent of their pre-COVID-19 expenditures, with particularly high benefits for the poorest members of society. More detailed analysis in*

Sri Lanka demonstrates that the scheme would more than replace the income losses experienced by many families as a result of the COVID-19 crisis, which is a very positive result."[231]

The provision of universal public services builds trust in government and increases government revenues. UCB could bring social cohesion and contribute to peacebuilding in a time of uncertainty, they can also help to break the vicious cycle of low investments in education, low participation in formal sector, low percentage of tax payers, low domestic revenues, leading to low investments. In Nepal, a steady increase in the scope and amount of social protection benefits over the last twenty years, such as child benefit, pensions, and widow and disability allowances, has increased domestic revenues as a percentage of GDP from around 11 per cent in 2000, to over 25 per cent in 2020.[232] In comparison, revenues in four other countries in the sub-region, which have not introduced similar programmes (Bangladesh, India, Pakistan and Sri Lanka) have stayed relatively flat during the same period.

5.4 Recommendation 4: Strengthen teaching and teacher support to address existing low levels of learning and help narrow the learning divide

a. Assess learning loss upon reopening and support teachers to ensure ongoing formative assessment of learning becomes integral to every lesson and activity. Teachers and schools will need to know the learning levels of their students once schools resume, and going forward as they begin to teach face-to-face again or when they need to implement distance learning in the future. The level of support required to do this will depend on the capacity of the teacher workforce, but there will need to be consistency in the diagnostic assessment on reopening so that results from schools can be aggregated and used to develop a revised curriculum. Therefore, this will need to be a centralized process and will need to be timely. Based on the results of the diagnostic test, teachers can begin to provide remediation and then their role will be to conduct ongoing formative assessment of learning so that no child is left behind and the pace and content of the remediation can be adjusted according to need.

Often the types of materials developed and sent out during the lockdowns reflected the one-way, rote-learning style

of education see across many countries in Asia. Yet, we know that the most successful systems focus on formative assessment and reflection among teachers and learners, such as the multi-level approach used in some provinces in Sri Lanka, which is built on the Activity Based Learning approach used in some states in India. It is recognized that teachers cannot mark assessment activities for all children in every lesson, but they can set activities so that children can see how they are progressing, use a variety of techniques to gauge understanding of the majority of learners and focus attention on those that are more in need. Support to teachers needs to be focused on improving assessment for learning skills and also utilizing digital solutions to do this where they are accessible and affordable, including during school closures.

b. Provide guidelines for schools and teachers on delivering long-term remediation based on a revised curriculum. Schools will need to focus on foundational skills (literacy and numeracy in primary schools) once schools reopen, especially in countries which had low levels of learning prior to the pandemic. There will need to be a thorough review of the curriculum by experts to provide guidance on what should and should not be included in the remediation support. The case studies showed that many teachers were unable to prioritize foundational skills themselves during remote learning, resulting in more inequalities as many teachers defaulted to trying to cover the normal curriculum, which put some students further behind.

Clear guidelines should be developed and provided to schools and teachers on how to take forward remediation at each level including how to conduct short-term accelerated learning as well as longer-term reorientation of pedagogy. This will include how to assess learning levels, group students, and how to decide which remediation approaches to use (one-to-one support, teaching at the right level, additional volunteer teachers, extended term time, revised timetabling, etc.). Some children may need catch-up programmes, accelerated learning (for over-age children), remedial support in foundation skills or bridging programmes for those whose circumstances have significantly changed during the pandemic. These guidelines should be produced where capacity is highest, but should be flexible to each context. It is strongly advised that government stakeholders continue to partner with development partners and implementers and NGOs/CSOs to ensure best practice and lessons from the field are incorporated into the revised curricula as well as the guidelines.

c. Develop comprehensive strategies and plans for taking forward blended learning. During this Situation Analysis, it became clear that most countries are planning to build on the lessons learned during the pandemic to plan for an education system that integrates technology and prepared for future crisis situations. These plans will need to consider all elements of the education system from pre-service teacher training, to facilities in schools, development of materials, assessment strategies, well-being and the use of technology discussed under recommendation 2. There will need to be a phased approach to introducing these changes that keeps pace with the development of headteachers' and teachers' skills along with the availability of good quality, curriculum-aligned digital materials and tools. This should build on

the stronger partnerships that have developed in many countries during the crisis, such as those between Ed Tech firms and government, NGOs and government and the increased autonomy and professionalism of teacher institutes, and professional development peer networks.

d. Review teacher development and support systems.
The demands placed on teachers over the last year have highlighted both their capacity gaps and the need for their roles to change. Teachers have had to ensure continuity of learning during school closures and to manage periods of reopening, partial closures and having some children in school and some studying remotely due to illness and quarantine rules. This will have an impact on teacher education from pre-service initial teacher training to in-service continuing professional development training and support. There is a need to review pre-service training to identify and address curricula content and implementation gaps that have resulted in the training of teachers who lack the skills to assess learning and to adapt to distance learning and the use of technology. This is best done by aligning pre- and in-service teacher development content and approaches and by ensuring that teacher recruitment practices provide a robust assessment of skills and knowledge.

All countries need to ensure that the structures for continuing professional development are in place and properly funded and supported. This includes provision for training (both online and face-to-face) but also provision for school-based support to teachers and the strengthening of head teacher capacity to lead teaching and learning in the school. Across the three sub-regions, due to social distancing measures and general lockdowns, there was a reliance on teachers accessing continuing professional development (CPD) materials and developing themselves, which creates its own Matthew Effect for teachers, as those with higher capacity will benefit more, and those with lower capacity will struggle to engage with self-learning.

Going forward, alternative approaches need to be developed for supporting and mentoring teachers (remotely and face-to-face), especially those in more remote areas, and those serving marginalized communities, to ensure that the new skills and knowledge they are expected to learn are put into practice. Teachers will need guidance and ongoing support to implement these changes, which may be given through local peer learning circles or by utilizing digital platforms such as WhatsApp, WeChat or Viber. This teacher peer cooperation will be important to develop reflective practice and mutual support for areas that teachers find difficult, such as assessment activities, communication with parents, lesson planning, etc. Videos of classroom practice can be

shared to demonstrate different classroom approaches. High-performing teachers at district levels can also work with teachers in their districts to provide mentoring and coaching support.

The content of teacher development will need to be expanded to include assessment, blended learning pedagogy and methods to build strategies which combines short-term remediation with long-term reorientation of instruction to children's learning levels. In addition, teachers will need to expand their knowledge of mental health and psychosocial support (MHPSS) issues and develop skills in identification and assessment (more detail is included in Chapter 4).

e. Increase student agency and make learning more relevant. Students need to be supported to take more responsibility for their learning, as well as learn how to collaborate with their peers. The strategy for a blended approach (discussed above) should consider student well-being and their need for interaction, especially for younger children. To prepare for emergencies where remote learning has to be implemented in the future, small student group learning 'bubbles' could be created, to reduce learning isolation and increase student interaction. If class sizes need to be reduced, these bubbles could attend school in rotation, to ensure that all children have access to some socialization with their peers. While studying from home, children can work independently, while this face-to-face contact time can be used to clarify concepts and provide time for collaborative problem solving and peer support.

To further enhance the development of 21st-century skills, teachers should be supported to use project-based learning methods to broaden the perspective of the curriculum and make education more interesting, engaging, and relevant to today's learners. Examples exist of school gardens becoming the starting points for exploring climate change and mitigation using science, technology, engineering and math (STEM) tools. Project-based learning activities with a focus on solving community problems can be supported by community volunteers, to provide closer links between communities and schools (see above). Parents and caregivers should be able to see a stronger connection between home and school. This can be done by building on the understanding gained during lockdown of learning at home using available activities and materials. Communities can be encouraged to see learning expand beyond formal school learning, which could open access to those who are unable to attend regular classes. This will entail parental education as well as school leaders reaching out to families and the community.

f.Increase provision and enrolment in quality pre-primary childcare and ECE, especially for the most marginalized children and communities.
Each country needs to plan to offer every child access to quality and relevant non-family-based childcare and ECE. Considerations such as language, timing and location of lessons, and provision of facilitators/teachers need to be taken into account especially in most marginalized communities. Community-based provision that responds to the income-generating activities of communities such as market- or plantation-based provision can improve participation and provide a cost-effective model to enhance supply of provision quickly. Decisions around the ECE workforce will need to be made in the short to medium and longer term, to be able to meet the needs of large numbers of uncatered for young children, and still provide high-quality stimulation and care. Although the longer-term aim may be to ensure equivalence of working conditions and minimum requirements for ECE teachers with other professionals working with children, in the short-term volunteer or parent-led facilitation can also be effective.

5.5 Recommendation 5: Prioritize education funding

Chapter 2 highlights the importance of increasing education funding to get back on track to meet SDG 4 targets. The solution will depend on the context of each country and options are provided in more detail in Chapter 2.

a.Consider the impact of COVID-19 on progress towards education targets and its implication on funding needs.
A country-specific review and utilization of the Shock Model presented in Chapter 2 would help governments to estimate their specific financial needs to ensure better quality education and learning of all children and adolescents particularly the most marginalized during and beyond the pandemic, based on their own priorities and needs. This will then provide an evidence base against which to advocate for additional funding and to allocate available resources.

b.Prioritize and increase funding to the education sector. Despite weak economic growth predictions, it is essential that countries look for additional education funding both internally (through increasing domestic revenues and reallocation of budgets) and externally through deficit financing and international donor funding.

c.Target funding so that it reaches the most marginalized children. Funding should be spent on addressing the needs of specific categories of children who are being left behind in learning poverty. For example, children with disabilities need to be supported with assistive devices, specialized training for their teachers and accessible materials. Children who speak minority languages need to be able to access materials in their language and teachers need to know how to teach using these languages.

d.Review education expenditure and make it more efficient. A review of education spending to identify inefficiencies such as duplicated activities or weak procurement systems that result in higher unit costs could help to save much-needed resources.

06
Conclusion

The purpose of this Situation Analysis was to assess the impact of COVID-19 on the education sector in the Asia-Pacific region to examine policy and financial implications on progress towards achieving SDG 4 in 2030 and identifying examples of promising responses to the pandemic which can be shared with other countries.

COVID-19 has had a severe impact on education sectors in the region, leading to long-lasting consequences on economic and social development. Although progress had been made in enrolment and completion pre-COVID-19, there remained vast inequalities in access to schools and education provision. There was a gap between countries in the region who were broadly on track to achieving SDG 4 and those countries in the region who still had significant progress to make before 2030. Systems facing high degrees of learning poverty and large numbers of marginalized and out-of-school children, contrasted with those who had achievement levels and near universal enrolment and completion. The closure of schools and the move to remote learning which highlighted the digital divide, further widened this gap between the advantaged and the disadvantaged members of society.

COVID-19 has pushed many families into poverty or deepened poverty, and it is likely that many children will not re-enrol when schools reopen. Negative coping strategies such as child labour, sexual exploitation and child marriage have increased during the pandemic. Parents, teachers and students have experienced mental health issues as a result of increased financial stress, demands to support their children's learning and concern about the risk from the virus. The reduction in essential services, including routine immunizations and school feeding programmes, as well as health provision for ill children and children with disabilities has put the long-term health of children at risk. This reduction in the quality and quantity of food and nutrition children receive will have a long-lasting impact on their capacity to grow, develop and learn.

These factors, added to the learning loss due to school closures, will result in reductions in future earnings of many of the region's children, particularly the most marginalized.

On the positive side, as a result of the pandemic, countries have begun to re-envisage education and reflect on these levels of marginalization and how to address them. Strengthened collaboration across sectors and deepened levels of partnerships at all levels have been in evidence in the response and can be built on in the future. Systems have started to see the opportunities that technology can create, when planned for in an inclusive way.

The financial implications of the pandemic on countries' GDP will be significant, which will have a resultant impact on education budgets. While some higher-income countries will be able to generate or re-allocate funds to education from domestic revenues, lower-income countries in the region will need to look externally to source for deficit financing or aid. One of the first steps countries will need to take, is to consider the long-term financial implication of the reforms that will need to be brought in to get them on track to meet SDG 4 in 2030. Underpinning these reforms will be the need to focus on the most marginalized, to support teachers to implement long-term remediation plans for their students and to integrate social protection and health programmes into education provision.

Across the region, there has been immense effort to address the challenges raised by COVID-19 and many examples of good practice have emerged that can help to guide other countries as they begin to build the resilience of their education and emergency response systems. Social protection packages were provided to support the poorest families in all three sub-regions, including food vouchers, cash transfers and provision of meals. Teachers reorientated their work and supported remote learning through planning, developing materials, personal contact and delivering broadcast lessons. In many households, parents supported their children's learning despite increased stress levels and conflicting demands of managing childcare, learning and work responsibilities. Education systems responded quickly to provide remote learning opportunities to a vast number of children through broadcast lessons on TV and radio and printed materials. In many countries, national and local partnerships were formed and used to reach and support the most marginalized and vulnerable families.

If these levels of energy, commitment, effort and partnership are put into driving long-term reforms in the Asia-Pacific region, then countries will be better positioned to face, address and solve their existing challenges as well as the new challenges created by the COVID-19 pandemic, and be in a stronger position to face disruptions in the future. This is the only way to achieve the SDG 4 targets and to give opportunity to the millions of marginalized children to fulfil their potential in life.

Annex. Financial modelling methodology

A.1 Methodology to estimate the financial impacts of COVID-19 on education sectors

To estimate the marginal impact of COVID-19 on education sector budgets through to 2030, when SDG 4 is hoped to be achieved, we developed an interactive Excel modelling tool called the 'COVID-19 Shock Model' that forms part of the project outputs. In contrast to the World Bank's (2021) micro-model, this is a macrosimulation model – similar to that applied in the Global Education Monitoring (GEM) Report – designed to estimate scenarios for education budgets. The budget baselines for the model are set according to the pre-COVID-19 education budgets to achieve the SDG 4 targets by 2030, as generated by the UNESCO Education Costing Model 2020 for Asia and the Pacific Region.

The main purpose of the UNESCO Model is to estimate the costs to achieve SDG 4 targets in the Asia-Pacific region, specifically SDG 4 targets 4.1 (universal primary and secondary education), 4.2 (universal pre-primary education) and 4.5 (gender equality and inclusion). Like our model, it also aims to be an interactive advocacy and capacity development tool to support countries to understand and meet the financial commitment to achieve SDG 4. The UNESCO model forms an ideal basis for this exercise given that their model includes all of the necessary education-related and macroeconomic variables, such as GDP levels and long-term growth rates. The UNESCO model works from the pre-existing standards within the education sector to estimate the budget needs to achieve SDG 4, applying demographic changes and user-defined changes in school enrolment, completion rates, learner-teacher ratios, costs to reach marginalized children, and public versus private provision. We apply the "Base Test" scenario within the UNESCO model for this exercise, which references countries actual outcomes in 2019 and then estimates budget needs according to the standard SDG4 targets and variable

levels. Users can adjust the 2030 targets within the UNESCO model as per the instructions that accompany the model and the results, which may be less or perhaps more ambitious targets for 2030, will automatically pull through into the COVID-19 Shock Model.

Given that the UNESCO model was developed pre-COVID-19, it lacks the following variables that specifically account for the financial impacts of COVID-19: rolling school closures; shifts in teaching modalities; social distancing protocols; procurement of hygiene products and personal protective equipment; teacher training and support programmes; and expedited infrastructure (WASH) programmes. The modelling results therefore indicate just the increased financing gap due to COVID-19 to achieve SDG 4 by 2030. The model attributes this financing shock to specific services, which are disaggregated according to existing and new services (for example, remediation is an extension of existing services but the procurement of personal protective equipment for teachers is a new service). To help inform financing decisions, the results are also presented according to functional and economic classifications.

There is still a high degree of uncertainty about the pandemic. First, the outbreaks and resultant disruptions caused by COVID-19 are unpredictable. Second, the effectiveness and rollout (specifically to developing countries) of vaccines is still to be determined. Third, there are ongoing data collection and validation exercises that continuously improve our understanding of the impacts of COVID-19 on the education sector. As such, the model is designed so that the financing scenarios are flexible. Users can interact with each variable, either specifying the parameters based on: updated/verified data; an assumed baseline with stress tests; or a likely range. Given this functionality, although the parameters for the variables were fixed for this study, users can reapply the tool to effect any required changes. The financial scenarios presented below are therefore indicative of the potential magnitude of the impact of COVID-19 on education budgets.

The model obviously has its limitations. First, in order to remain both user-friendly and transparent the model relies on a limited number of variables. Although care was taken to select a comprehensive set of key variables, there may be some financial implications of COVID-19 that have been omitted. In this event, users should regard the results as a base for the financial impacts of COVID-19 from which to add the impact of missing variables. This point likely explains many of the estimation differences between this and other models. Second, the model is intended to approximately quantify the long-term budget needs to maintain progress towards SDG 4 by 2030 and therein guide investment cases. Hence, the model does not lend itself to in-year budget/programme planning. Third, the model's focus is limited to pre-primary, primary, lower-secondary, and upper-secondary education. This resulted in omissions to the SDG 4 targets related to tertiary education, skills for work, adult literacy, education for sustainable development and global citizenship, and scholarships.

A.2 Financial impact estimation procedure

The diagram shown in Figure 34 provides a schematic for the model. The white boxes list all of the variables, which users are able to set, and the blue boxes explain the calculation method. Users can reset and adjust all of the variables in the Excel model, simply by inputting the desired values. The calculations to estimate the financial impacts of the specified scenarios are all automated in the model. The following four cost categories are considered in the model:

Remediation costs

The remediation costs account for the days of lost learning, through both full and partial school closures, that must be caught up. The lost teaching days are adjusted to account for the percentage of learners who were effectively reached during school closures by alternative teaching modalities, such as online classes. The net number of lost teaching days is then multiplied by a setback factor, which accounts for skills depreciation among students due to disruptions in teaching continuity (for example, students may forget some acquired knowledge and thus 1.25 school days are required to catch-up every lost school day). The final step is to deduct the proportion of lost teaching days that can be caught up within the existing resource allocations, via increased

class time though shorter school holidays or extensions to the duration of school days. The cost to remediate the resultant total number of lost teaching days is calculated by multiplying the number of lost teaching days as a proportion of total teaching days within that calendar year by the respective annual education budget.

Example: Suppose Country X had 25 days of full school closures, that affected all students. If 50 per cent of students were effectively reached by alternative teaching methods during the closures then 25 days of lost school must still be caught up for 50 per cent of the students. Because these students were out of school for an extended period, they might have also lost/forgotten some of the learning they acquired before the school closure. Assuming a setback factor of 1.25, then 31.25 (25 x 1.25) school days must be caught up for these 50 per cent of students. However, some of these 31.25 school days could be caught up through extending the length of the school days or shorter school holidays. The remaining number of school days is what must be added to the existing programme to remediate lost learning.

Student enrolment and placement costs

The student enrolment and placement costs account for two important trends related to COVID-19 that exert financial pressure on public education systems:

- The first trend is for additional students to drop out of school, notably vulnerable children from poor households and marginalized groups.[233] These additional dropouts are due to the income shock channel, wherein households have less disposable income for out-of-pocket education expenses (like transport) and other household consumption. This places pressure on households to seek additional income, which can lead households to take children out of school to perform income-generating activities or household duties to free up the time of other household members to earn an income. Given the vulnerable status of many of these children, there is a cost premium to re-enrol them in terms of reaching them, communicating with their guardians to allow them to attend school, and then keeping them in school.

- The second trend is for students to shift between private and public schools. This is especially noticeable in countries with a high proportion of low-fee private schools. Income shocks are the main reason for students to shift from private to

public schools. The supply of private schools is also falling in many countries due to the reduced number of households that can afford private schooling in combination with higher operating costs associated with COVID-19. While it is most likely that children will be shifting from private back to public schools as a result of COVID-19, the model allows users to also account for the opposite trend. The main reason for students to shift from public to private schools is to try and avoid more rigid public school closure policies. The net change in students attending public schools is multiplied by the unit cost per student.

School and teacher management costs

The school and teacher management costs are disaggregated according to whether the responses are once off or recur until the end of the pandemic. The health and hygiene responses are critical to ensure the safe reopening of schools.

- The once off responses cover training teachers about how to deliver lessons through distance learning and also COVID-19 awareness, practices, and procedures. The cost is calculated by multiplying the number of teachers by the unit cost for the training.

- The recurring costs are repeated for the forecast duration of the pandemic, and include: social distancing protocols in classrooms; the procurement of personal protective equipment for the teachers; the procurement of hygiene products for students/ teachers and monitoring hygiene protocols; teacher support programmes; and school feeding programmes for vulnerable children. The cost of the responses is calculated by multiplying the relevant target group by the respective unit cost and the expected duration of the pandemic.

Infrastructure costs

The infrastructure costs also address the safe reopening of schools through provision of WASH facilities. WASH facilities are already included in countries' 2020-2030 budget plans; however, COVID-19 has raised the need to expedite certain of these investments. The UNESCO model captures an aggregated capital budget, so users must set the proportion of the capital budget comprised by WASH. Users must also set the proportion of the 2020-2030 WASH investment programme that will be completed during the pandemic period. These expedited WASH investments are then subject to the additional years of maintenance, costed as a percentage of the replacement value of the infrastructure.

FIGURE 34 | SCHEMATIC FOR THE COVID-19 FINANCIAL SHOCK MODEL
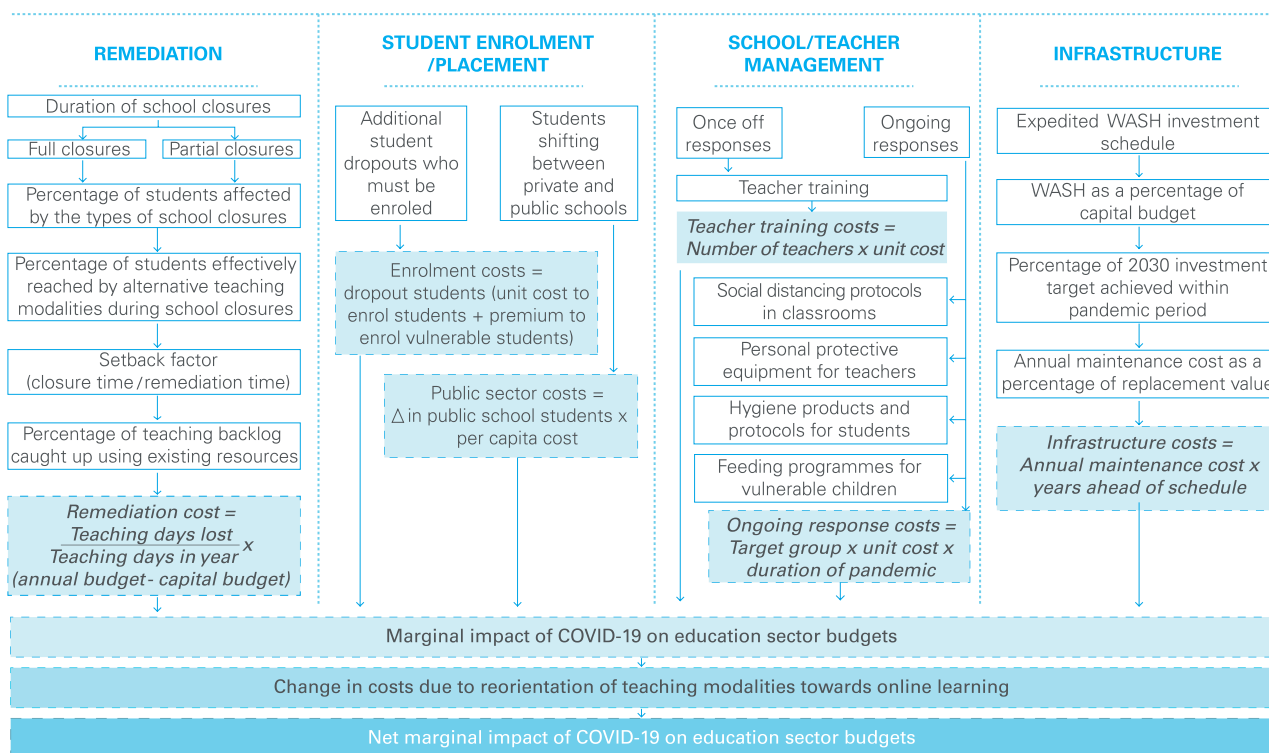
Source: COVID-19 Financial Shock Model, 2021.

The model includes the functionality to account for shifts in the composition of learning modalities, which forms a critical part of efforts to build back better. As online learning technologies and systems are strengthened, it is expected than an increasing number of students will shift to online learning or at least a hybrid model of classroom and online learning. However, the likely trajectory of this trend is not yet certain for many countries. Moreover, the cost implications of a shift from classroom to online learning are also uncertain given the supplementary investments that are required, for instance in electricity and information and communication technologies. This element of the financial simulations is therefore not considered as part of this report. But once more data is available, users can factor in the potential financial implications of shifts towards online learning systems.

A.3 Financial model specification

The variables and the parameters specified for this study are detailed in Table 6 to 8 according to the remediation, student enrolment and placement, school and teacher management, and infrastructure variables. Where possible, the parameters for the variables are specified using either real data or relevant studies. In the absence of this data, we have applied best estimates and undertaken sensitivity analysis. As such, the estimated financial impacts of COVID-19 should be interpreted as likely outcomes rather than precise forecasts.

The modelling exercise generates 3 potential scenarios to account for uncertainty: baseline; optimistic; and pessimistic. The baseline scenario applies the most likely value for each variable. The baseline scenario should therefore be viewed as the expected outcome, with the optimistic and pessimistic scenarios providing a range for the potential outcomes. The optimistic scenario parametrizes the variables based on favourable outcomes, wherein COVID-19 has a less severe impact on the education sector. The pessimistic scenario parametrizes the variables based on poor outcomes, wherein COVID-19 has a severe impact on the education sector. The variations between scenarios are detailed further below, with corresponding variables settings presented in the following Tables.

Since the COVID-19 Financial Shock Model, developed as part of this situation analysis, was first calibrated and run for three different scenarios (baseline, optimistic and pessimistic), the pandemic has taken a turn for the worse in most countries in the region. At the time of writing, many countries in the region are experiencing a new wave of infections in 2021, spurring further school closures and negatively affecting the economies. It is therefore likely that the pessimistic scenario cost estimates of the impacts of the response and recovery packages in education will be more realistic than the optimistic or baseline scenario.

Further details are provided below, with the variable settings summarized in the tables.

Remediation variables: Table 6 presents the modelled parameters for the remediation variables, with each explained as follows:

- The duration of full and partial school closures is presented in Figure 35 and reflect the February 2021 data from UNESCO.[234] Although some of the school closures fall in 2021, the school closures are assigned to the 2020 academic year. The model will be updated in subsequent versions to account for the annual disaggregation of school closures.

- All students are assumed to be affected by full school closures, given that these are national policies.

- The Centre for Global Development has compiled a description of the school closures enacted by countries.[235] The typical arrangement for partial school closures has been to keep public schools open for the grade levels sitting important exams, which are usually the highest grades of primary, lower secondary, and upper secondary school. UNICEF confirm that 44 per cent of countries based partial school closures on priority grades, with 42 per cent of countries also applying student rotation (which similarly limits the number of grades returning to school).[236] As such, it is assumed that the partial school closures affect all students except those in the highest grades of primary, lower-secondary, and upper-secondary school (or an equivalent number of students through grade rotations). The optimistic scenario extends the number of grades that returned to school under partial school closures to 5, whereas the number of returning grades is reduced to just 1 (the highest grade of upper secondary school) in the pessimistic scenario. Follow-up country-level applications of the model can be used to account for the geographic prioritization of school reopening,

which has been applied in 13 per cent of countries, by re-estimating the proportion of the student body that returned to school and when based on the specific reopening schedules.[237]

- The effectiveness of remote learning modalities has varied widely across countries and income groups. Research by UNICEF highlights two general facts related to the reach and effectiveness of alternative teaching modalities.[238] First, almost all countries implemented digital and/or broadcast remote learning policies. However, many of the ideal pre-conditions for the rapid roll-out of these policies were not in place. Second, at the global and regional levels approximately 70 per cent of students have assets at home (e.g., internet, television, tablet, smartphone) that allow them to learn remotely through digital or broadcast classes. Of these 70 per cent of students who can access remote learning, the World Bank estimates that the effectiveness of these alternative modalities is only around 40 per cent as many children lack regular access to these assets and have not been prepared/enabled to learn remotely.[239] Applying this supply rate of 70 per cent and effectiveness rate of 40 per cent, only 28 per cent of students are effectively reached by alternative teaching modalities. World Bank simulation models also specify 'mitigation effectiveness' (the effectiveness of measures to address lost learning days from school closures) in lower-middle-income countries at 28 per cent.[240] This figure is increased to 40 per cent in the optimistic scenario as per outcomes in middle-income countries, and proportionally reduced to 16 per cent in the pessimistic scenario.[241]

- Countries have applied a variety of mechanisms to catch up the lost teaching days. The main mechanisms include increased class time, accelerated programmes, and remedial programmes.[242] In terms of the amount of lost learning days caught up using existing resources, the model focusses on increased class time as this extends existing resources within the education system rather than adding new resources to the education system. 26 per cent of low-income countries, 18 per cent of lower-middle-income countries, 10 per cent of upper-middle-income countries, and 6 per cent of high-income countries have attempted to mitigate learning losses through increased class time.[243] Extending school hours by 1-hour per day would enable countries to catch up approximately 35 days of lost schooling per annum,

depending on the number of school days per annum. Moreover, school holidays could be shortened to catch up further lost school days. We assume zero days are caught up through these mechanisms in the pessimistic scenario, 35 days are caught up through longer school days in the baseline scenario, and that 50 days are caught up through longer school days and shorter school holidays in the optimistic scenario.

- There are two components to the expected learning loss among students. First, learning will not occur during lost school days (i.e., days that schools are closed, and students are not effectively reached via an alternative modality). Second, some already acquired learning is lost or forgotten when students lose their engagement with the education

system.[244] This second component means that proportionally more teaching days are required to catch up lost teaching time. Research shows that lengthy interruptions to schooling can lead to a 25 per cent to 30 per cent loss of learning.[245] This estimate was applied in the World Bank simulation model to simulate the potential impacts of COVID-19 school closures on schooling and learning outcomes. The setback factor, which presents the ratio of lost teaching days to the number of required catchup teaching days, is therefore set at 1:1.25 in the baseline scenario. The setback factor is set at a lower rate of 1:1.1 in the optimistic scenario based on research for Organization for Economic Co-operation and Development (OECD) countries, and proportionally scaled up to 1:1.4 for the pessimistic scenario.[246]

FIGURE 35 | DURATION OF SCHOOL CLOSURES UP TO FEBRUARY 2021
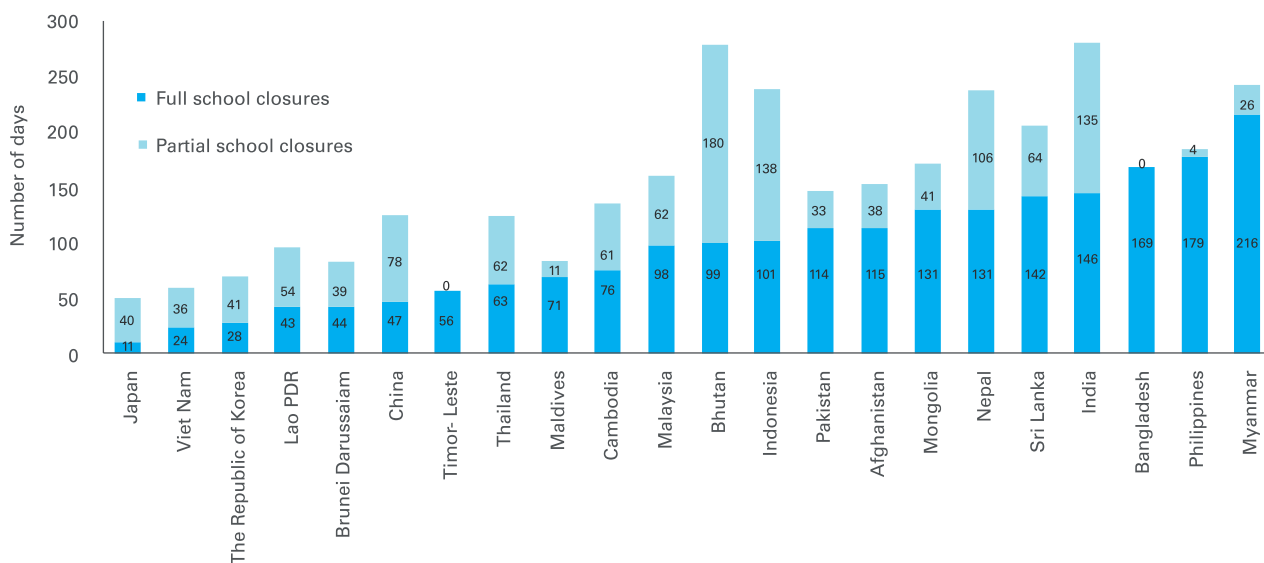
NB: The simulation exercise using the COVID-19 Shock Model was done prior to the latest update of school closures presented in Chapter 2 Figures 6,7 and 8. Hence the numbers shown here in Appendix for the duration of school closures, which were used for the model simulations and cover a shorter period of time overall, are slightly lower than the ones from Chapter 2.

Source: UNESCO[247]

TABLE 6 | REMEDIATION VARIABLES AND PARAMETERS APPLIED IN THE MODEL

VARIABLE	PARAMETERS		
	BASELINE	OPTIMISTIC	PESSIMISTIC
% students affected by full school closures	100%	100%	100%
Number of grades not affected by partial school closures	3	5	1
% students effectively reached by alternative teaching modes	28%	40%	16%
School days caught up through longer hours/shorter holidays	35	50	0
Setback factor (school closure time/learning remediation time)	1.25	1.1	1.4

Source: COVID-19 Financial Shock Model, 2021

- The Global Schools Forum conducted a review of the impact of COVID-19 on the non-state education sector in low- and middle-income countries.[248] The findings indicate that many low-fee private schools, which are common in many countries in the sub-region, are being forced to close due to the negative financial impact of COVID-19. Initial data from India and Mexico reveal a 20 per cent to 30 per cent reduction in private school enrolment. It is therefore assumed that 20 per cent of students in private schools will shift back to the public schooling system in the baseline scenario. This is reduced to 10 per cent in the optimistic scenario and increased to 30 per cent in the pessimistic scenario. The impact of this variable depends on the prevalence of private school enrolment in each country.

- Experience from previous crises and economic shocks suggest that not all students will be able to return to school due to financial constraints, pressures to take up employment or household responsibilities, early or forced marriage, fear of resurgence of the virus, and discouragement due to learning loss and learning gaps incurred during the school closures.[249] UNESCO estimates that 2 per cent of children globally and between 0.92 per cent and 1.4 per cent of children in the region are at risk of dropping out of school due to the shocks caused by COVID-19.[250] The additional student dropouts is therefore set at 1.4 per cent in the baseline scenario, 2 per cent in the pessimistic scenario, and 1 per cent in the optimistic scenario.

- The model also accounts for the fact that it is more expensive to re-enrol these vulnerable children who have dropped out of school. In line with the Global Education Monitoring (GEM) report, the baseline scenario applies a 40 per cent marginal cost premium to attract and retain vulnerable children in the education system.[251] This cost premium is decreased to 30 per cent in the optimistic scenario and increased to 50 per cent in the pessimistic scenario. This premium accounts for interventions to reduce the barriers to school access (nutrition programmes, free uniforms, tuition support, etc.); mother-tongue instruction in regions where children do not speak the majority or school language; remote or mobile schools for hard-to-reach children; health interventions against illness; interventions for children with disabilities; and programmes for children in emergencies.[252]

School management variables: Table 8 presents the variables and parameters related to school management, with each explained as follows:

- According to UNICEF, 66 per cent of countries provided instruction on how to deliver lessons via distance learning and training on COVID-19 classroom protocols.[253] The model therefore accounts for once-off teaching training. For the baseline scenario we apply a unit cost of $6 based on a study done for Pakistan.[254] This unit cost is proportionally scaled down to $4 in the optimistic scenario and up to $8 in the pessimistic scenario.

- Given that (seemingly) effective vaccines have been produced but are not yet readily available at a global scale, it is assumed that the major COVID-19 related disruptions will ease by the end of 2021. Herd immunity may be reached in specific countries before the end of 2021, but it may also turn out that the virus mutates to evade vaccines and COVID-19 becomes a recurring threat. As such, the pandemic length is set at 2 years in the baseline scenario, 1.5 years in the optimistic scenario, and 3 years in the pessimistic scenario. The estimated pandemic length is separate to the 'duration of school closures' variable and rather affects the implementation period of the school management variables listed below.

  » Almost all countries have prepared health and hygiene guidelines to support safe school reopening, which include social distancing in classrooms. According to UNICEF, 96 per cent of countries reported that policies for the safe reopening of schools included physical distancing.[255] To affect these policies, 33 per cent of countries have already recruited new teachers in order to safely reopen schools. Many countries that did not employ new teachers did so only due to insufficient resources. The social distancing variable is based on the learner-teacher ratios in classrooms, which are set at 20:1 according to UNICEF targets.[256] Because of the inconsistent adherence to social distancing guidelines by countries, either because of policy issues or resource constraints, this variable is included in the financial simulations but presented in the results as part of a set of discretionary 'new services'.

  » According to UNICEF[257], 86 per cent of countries have improved handwashing facilities

at schools, 74 per cent have increased cleaning and disinfection of schools, and 48 per cent have improved management of infectious wastes at schools. Based on a costing for the safe reopening of schools in Pakistan, the annual cost for face masks, soap, and sanitizer is approximately $10.6 per student/teacher.[258] An extra annual cost of $1.1 per student/teacher applies for school cleaning and disinfection services. The unit cost is thus set at $11.7 in the baseline scenario, decreased to $8.4 in the optimistic scenario, and increased to $15 in the pessimistic scenario. This variable is also presented in the results as part of the set of discretionary 'new services'.

» According to UNICEF, 43 per cent of countries provided teachers professional, psychological, and emotional support.[259] While this is a common response by governments to stresses placed on teachers by COVID-19, there are various delivery options ranging from peer support groups on social media platforms to more sophisticated programmes that offer professional psychological support to teachers. Given that many countries have established very low-cost structured peer-support groups

for teachers using free social media platforms, the baseline and optimistic scenarios assume zero cost for this service.[260] The pessimistic scenario assumes that teachers require professional psychological support, with 1 psychologist counselling 40 teachers (one 1-hour session per teacher per week) at the same average salary as teachers. The average unit cost therefore varies per country depending on average teacher salaries.

» As part of the multidimensional impacts of COVID-19 the model includes school feeding programmes for vulnerable children. Although food prices differ across countries, the World Food Programme reports that the median annual cost of a school feeding programme per child in 2020 was $55 in low-income countries and $41 in lower middle-income countries.[261] The baseline scenario applies the higher unit cost of $55 to all children living in households that fall below the poverty line in 2020 (or if no data are available for 2020 then 2015), which is captured in the UNESCO database.[262] The optimistic scenario applies the lower unit cost of $41. The unit cost is proportionally increased to $69 in the pessimistic scenario.

TABLE 7 | STUDENT ENROLMENT AND PLACEMENT VARIABLES AND PARAMETERS APPLIED IN THE MODEL

VARIABLE	PARAMETER		
	BASELINE	OPTIMISTIC	PESSIMISTIC
Students shifting from private to public schools	20%	10%	30%
Additional student dropouts	1.4%	1%	2%
Unit cost premium to re-enrol students who have dropped out	40%	30%	50%

Source: COVID-19 Financial Shock Model, 2021.

TABLE 8 | SCHOOL MANAGEMENT RELATED COVID-19 SHOCK MODEL VARIABLES AND PARAMETERS

VARIABLE	PARAMETERS		
	BASELINE	OPTIMISTIC	PESSIMISTIC
Once-off responses			
Teachers retrained on distance learning and COVID-19 protocols	Yes	Yes	Yes
Unit cost of teacher training	$6	$4	$8
Annual responses			
Estimated epidemic length (years)	2	1.5	3
Social distancing preventative measures	Yes	Yes	Yes
Ideal learner-teacher ratio	20:1	20:1	20:1
Hygiene preventative measures	Yes	Yes	Yes
Annual Personal Protective Equipment (PPE) unit cost per teacher	$11.7	$8.4	$15
Annual hygiene product cost per student	$11.7	$8.4	$15
Support systems for teachers	Yes	Yes	Yes
Annual unit cost of teacher support systems	$0	$0	Variable
Feeding programmes for vulnerable children	Yes	Yes	Yes
Per cent poor	2015/2020 outcome	2015/2020 outcome	2015/2020 outcome
Annual feeding scheme unit cost	$72	$50	$100

Source: COVID-19 Financial Shock Model, 2021.

WASH infrastructure variables: Table 9 presents the variables and parameters related to school water, sanitation, and hygiene (WASH) infrastructure, with each explained as follows:

- UNICEF notes that almost all countries have identified the importance of hygiene and handwashing in their COVID-19 responses.[263] As such, the model accounts for the costs to complete a portion of the planned 2020-2030 WASH investments within the pandemic period as part of plans to support the safe reopening of schools.

  » Limited data was available on the proportion of WASH within countries' capital budgets. The baseline scenario sets WASH as 7.6 per cent of the capital budget based on country data from Nepal. This proportion is decreased to 5 per cent in the optimistic scenario (assuming that more essential WASH infrastructure is already in place) and increased to 10 per cent in the pessimistic scenario (assuming that less essential WASH infrastructure is already in place).

  » There was also limited information regarding the speed at which countries are expediting their 2020-2030 WASH investment programmes. As such, it was assumed in the baseline scenario

that 40 per cent of the 2020-2030 WASH investment programme is achieved within the pandemic period. This assumption is increased to 60 per cent in the optimistic scenario and decreased to 20 per cent in the pessimistic scenario. As with all the variables, users can simply update these parameters within the Excel model once actual data are available to reference.

  » An additional annual maintenance cost is levied to the expedited WASH infrastructure investments. This annual cost is set at 5 per cent of the replacement cost of the infrastructure for all scenarios.

TABLE 9 | SCHOOL INFRASTRUCTURE-RELATED COVID-19 SHOCK MODEL VARIABLES AND PARAMETERS

VARIABLE	PARAMETER		
	BASELINE	OPTIMISTIC	PESSIMISTIC
Expedited WASH investment	Yes	Yes	Yes
WASH as a % of capital budget	7.6%	5%	10%
Percentage of 2030 target achieved within pandemic period	40%	60%	20%
Annual maintenance cost (% of replacement value)	5%	5%	5%

Source: COVID-19 Financial Shock Model, 2021.

Endnotes

1   Afghanistan, Bangladesh, Bhutan, Brunei Darussalam, Cambodia, China, India, Indonesia, Japan, Nepal, Lao PDR, Malaysia, Maldives, Mongolia, Myanmar, Pakistan, Philippines, the Republic of Korea, Singapore, Sri Lanka, Thailand, Timor-Leste and Viet Nam

2   Median Income By Country 2021 (worldpopulationreview.com)

3   Poverty headcount ratio at $1.90 a day (2011 PPP) (% of population) - Latin America & Caribbean, South Asia, East Asia & Pacific, Europe & Central Asia, Middle East & North Africa, Sub-Saharan Africa, World | Data (worldbank.org) latest figures for East Asia and Pacific are from 2019, and for South Asia are from 2014.

4   Updated estimates of the impact of COVID-19 on global poverty: The effect of new data (worldbank.org)

5   East Asia Pacific (worldbank.org) accessed on 15 April 2021

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