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

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

Sub-regional Report
October 2021

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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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Acknowledgements

We would like to sincerely thank the following people who assisted with the development of this sub-regional report and the country case studies that formed much of the evidence on which it was written:

- Central and sub-national government stakeholders in each of the three case study countries, as well as other partners who gave their time to share the lessons they have learned during the COVID-19 pandemic;
- UNICEF and UNESCO colleagues from country offices in the three case study countries (China, Japan and the Republic of Korea), who arranged for interviews and shared data, key documents, and insights into their experiences and the topics selected for the deep dives;
- Ivan Coursac, Education specialist/Economist from the UNICEF Regional Office for South Asia (ROSA) for expertly leading this rapid situation analysis of the effect of COVID-19 in the education sector in Asia;
- Nyi Nyi Thaung, Programme Specialist, Amalia Miranda Serrano and Wang Shutong, Project Officers from the UNESCO Bangkok office, Akihiro Fushimi, Education Specialist, Dominik Koepl, Education in Emergency specialist and Maria Qureshi, Education Consultant, from the UNICEF East Asia and Pacific Regional Office (EAPRO), for their reviews and guidance in the finalization of this document;
- Emma Hamilton Clark, Knowledge Management Consultant for reviewing and providing quality assurance support;
- Emma Mba, Cambridge Education Project Director, Sue Williamson, Cambridge Education Team Leader and Lilian Breakell, Senior Education Consultant, who were the main authors for the report;
- Matthew Townshend, Cambridge Education Finance Consultant, for the design of the Covid-19 Financial Shock Model and financial analysis in the report;
- Ira Sangar, Cambridge Education Project Manager, for her coordination between authors and support in the finalization of the document.

Finally, we also wish to express special appreciation to the Global Partnership for Education (GPE) for their financial contribution to the production of this report.
List of acronyms

COVID-19
Coronavirus disease

CPD
Continuous professional development

DCUL
Disrupted Classes Undisrupted Learning

DoH
Department of Health

EA
East Asia

ECCD
Early Childhood Care and Development

EMIS
Education Management Information System

ESP
Education Sector/Strategic Plan

GDP
Gross Domestic Product

GEM
Global Education Monitoring

GIGA
Global and Innovation Gateway for All

ICT
Information and communications technology

IPC
Infection Prevention and Control

KCDC
Korean Centre for Disease Control and Prevention

LTR
Learner-teacher ratio

MEXT
(Japan’s) Ministry of Education, Culture, Sports, Science and Technology

MoE
Ministry of Education

MHPSS
Mental health and psychosocial support

MPI
Multidimensional Poverty Index

NGO
Non-governmental organization

ODA
Overseas Development Assistance

OECD
Organisation for Economic Co-operation and Development

OOSC
Out-of-school children

OPHI
Oxford Poverty and Human Development Initiative

PISA
OECD’s Programme for International Student Assessment

PPE
Personal protective equipment

SDG
Sustainable Development Goals

SOPs
Standard operating procedures

UNICEF
United Nations Children’s Fund

UNESCO
United Nations Educational, Scientific and Cultural Organization

UNHCR
United Nations High Commissioner for Refugees

WASH
Water, sanitation and hygiene

WFP
World Food Programme

WHO
World Health Organization
Executive summary

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. There will be a long-term negative impact 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 affected 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 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 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.

This report looks at East Asia (EA), a diverse group of countries by size and population. For the purposes of this study the countries considered are China, Japan, Mongolia and the Republic of Korea. The report draws on three in-depth case studies conducted on China, the Republic of Korea and Japan, as well as other resources. The region includes several of the world’s largest megacities and densely populated coastal and riparian areas as well as some of the world’s least densely populated areas in western China and Mongolia.

Countries in East Asia were the first to be impacted by COVID-19 and the ensuing health, and education, emergency. Table 1 shows that Japan had the highest proportion of infections per 100,000 of the population, and China, the least. The information in this table shows that the number of cases in East Asia remained relatively low compared to global figures throughout 2020. There was a spike in infections in December 2020 and January 2021 in the Republic of Korea and Japan which was quickly addressed, but cases in Mongolia have been rising since early March 2021. Since the end of February 2020, China has had very small localized spikes that have been quickly addressed.

### Table 1 | Number of COVID-19 Infections

<table>
<thead>
<tr>
<th>Country</th>
<th>Infections Per 100,000</th>
<th>Number of Infections</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>7</td>
<td>102,172</td>
</tr>
<tr>
<td>Japan</td>
<td>348</td>
<td>443,001</td>
</tr>
<tr>
<td>Mongolia</td>
<td>100</td>
<td>3,481</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>179</td>
<td>94,198</td>
</tr>
</tbody>
</table>

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

The first phase of the pandemic was relatively short throughout the region (except for Mongolia), with initial periods of full school closure of less than three months and with actual teaching time lost reduced by the timing of school holidays. In China, schools were fully closed for two months then partially opened until October and have been fully reopened since then. Japan had the shortest period of full closures in the region. After full closure they opened partially for just over a month and then remained fully open for all children. In Mongolia, schools were closed for an initial period of eight months, opened in September 2020 and closed again in November and are not due to reopen until March 2021. Despite a second surge in the Republic of Korea which again necessitated closures, the Government was quick to reopen schools based on experience from the first wave, opening them within a month (at least partially). No larger outbreaks were reported on school reopening.

Pre-COVID-19, the countries in the sub-region were on track to achieve SDG 4. Indicators of school effectiveness and quality were relatively high throughout the region in the period up to the outbreak, although there were significant inequalities within countries, nearly all at the expense of boys, children from rural areas and poor
levels of learning poverty, measured by the number of children at the age of ten who are unable to read and understand an age-appropriate text, vary between the diverse countries of the sub-region. Learning performance in China, Japan and the Republic of Korea is well above the average for higher middle-income countries, with parts of China (Beijing, Shanghai, Jiangsu and Guangdong) ranking first in reading, maths and science PISA scores. Mongolia did not take part in PISA, and at 38 per cent the learning poverty in the country is high but better than the average for lower-middle-income countries. China does not disaggregate data for learning poverty by gender, but for the remaining countries in the region, learning poverty is higher for boys than girls. Levels of learning poverty also vary within countries highlighting inequalities.

The quality of teaching is acknowledged as "the most important driver" in improving learning. The case studies for the countries of the sub-region showed that many teachers were well qualified, perceived as being effective, held to high standards and were socially and financially valued.

Effects of COVID-19

In all countries in the region schools were fully or partially closed for at least a quarter of the school year. In China and Mongolia, the length of full and partial school closures kept the majority of children out of school for over half of the school year (China 59 per cent and Mongolia 75 per cent). This is a significant amount of time for children to be out of school, relying on remote learning for which many were unprepared. It will have affected all learners, particularly those who were already struggling prior to school closures.

Despite having generally strong economies, countries in the region displayed some key vulnerabilities to the pandemic. The Oxford Poverty and Human Development Initiative (OPHI) developed a global Multidimensional Poverty Index (MPI) which looked at factors linked to increased vulnerability to COVID-19.

Children is among the 10 countries globally most vulnerable to COVID-19 according to three multidimensional poverty indicators: unsafe drinking water, associated with much of the global disease burden and weakened immune systems; deprivation in clean cooking fuel, associated with acute respiratory infections; and undernutrition associated with weakened immune systems, morbidity, and mortality, particularly among young people.

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

The region suffers from the double burden of malnutrition, i.e., stunting, which significantly reduces physical and mental capabilities of children, and obesity. 2018 data from UNICEF shows that close to 20 per cent of children under five in China and Mongolia are not growing well.

A strong health response therefore, was vital to education. This was 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. Disrupted and inaccessible school services have included school meals, mental health services, speech therapy, peer support groups, immunization and sexual reproductive health services as well as deworming programmes. WFP data in Table 2 shows the number of children missing out on school meals in April 2020 when the pandemic was at its peak.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>NUMBER OF CHILDREN MISSING SCHOOL MEALS</th>
</tr>
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<tbody>
<tr>
<td>China</td>
<td>38,433,984 (43% girls)</td>
</tr>
<tr>
<td>Japan</td>
<td>8,863,908 (48% girls)</td>
</tr>
<tr>
<td>Mongolia</td>
<td>280,400 (48% girls)</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>No data</td>
</tr>
</tbody>
</table>

Children with disabilities and underlying health conditions not only face an increased risk of serious complications from COVID-19 but are likely to face obstacles in accessing the support and response measures they need. Research has demonstrated that those with disabilities and their families are more likely to be subjected to hunger and poverty.

Challenges faced by countries due to COVID-19

There were four major challenges that governments in the region had to manage during the COVID-19 pandemic. The issue of marginalization and inequality are threads running through the narrative.
EXECUTIVE SUMMARY

Challenge 1: Reopening schools safely

The framework for reopening schools jointly developed by UNICEF, UNESCO, the World Bank, WFP and UNHCR provided a valuable guide for the development of Government guidelines and helped set out clear principles, procedures and responsibilities at the national, sub-national, school and community level for safely opening schools, including the situation where schools have to close again.

The number of out-of-school children was low across the sub-region before COVID-19, so re-enrolment was not seen as a major challenge. It was important however WASH facilities and the adherence to safety protocols and procedures in schools and communities. In the East Asia sub-region, a lack of WASH facilities was principally an issue for Western China and Mongolia. It was not a major constraint for reopening in countries such as Japan and Republic of Korea where facilities in schools are already adequate.

The safe reopening of schools requires adequate

COMMON CHALLENGES FACED BY COUNTRIES

1. Ensuring schools are safe to reopen
2. Delivering equitable and quality distance learning that reached the most marginalized
3. Supporting health, well-being and protection
4. Maintaining levels of learning
that teachers monitored pupils’ engagement with their distance learning to detect early signs of disengagement, which could ultimately lead to drop out from school. Strong communication strategies, which reached into communities, were important to spread the critical messages around safety and re-enrolment.

There were many positive responses from all the countries in the sub-region to the challenges of ensuring schools reopened safely, which included clear guidelines being put in place, staggered and phased openings and close collaboration between Ministries.

These were highlighted in the lessons learned, along with the importance of ensuring that WASH facilities for all schools were brought up to standard to reduce inequalities.

Challenge 2: Delivering equitable distance learning during full or partial school closures which reached the most marginalized

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 both highlighted and exacerbated. China and Republic of Korea and to a lesser degree Japan, moved swiftly to a remote mainly online model, enabled by their infrastructure, funding and capacity. These models were significantly different, but all required some level of accessibility and capacity to use technology.

All the countries in the sub-region had issues with ensuring equitable access to distance learning and students unable to access distance learning are at risk of further falling behind in their learning. Although overall levels of deprivation are lower in East Asia than in other sub-regions, each of the countries include groups of marginalized and vulnerable students, many of whom already experienced barriers to access learning pre-pandemic. COVID-19 is threatening to further widen the existing divide for vulnerable groups of children. Early Childhood Care and Development (ECCD) and the vital learning and social needs of young children received little attention during the pandemic, as they tended to be neglected rather than prioritized. Young children who were previously in childcare and kindergartens, found themselves at home with their caregivers, responsible to meet their developmental needs (physical, emotional, social and cognitive), for which many were not prepared.

While the pandemic has undoubtedly caused major disruption to education systems, schools and learners, there is also evidence from the case studies that COVID-19 has been seen in the region as a catalyst for change and improvement. All countries in the sub-region were relatively well prepared to deliver emergency distance teaching responses, using a range of learning materials, including those delivered online. However, the case studies show that many teachers struggled with the sudden shift to distance learning. This was despite the efforts over time of mature systems to digitalize education.

Positive responses: Across the sub-region, all countries have taken up very positive measures on safe operations for reopening. Japan produced a ‘Hygiene manual on the coronavirus infection in schools- A new way of life in schools’ which is available on their website. Republic of Korea has been acknowledged widely for its rapid and effective cross-sector and well-coordinated response.

Lessons learned on safe school reopening

- School reopening is possible if safe school protocols are in place
- Swift and effective action on developing response plans was critical
- Close cross-sector collaboration and coordination strengthened the response
- COVID-19 has shone a light on inequalities of WASH provision within countries
- Managing the transition back to school is vital to prevent dropout
EXECUTIVE SUMMARY

Challenge 3: Supporting health, well-being and protection

Globally, COVID-19 has had extremely severe financial consequences for families, although the East Asia sub-region has not suffered as much as many other regions.

The rapid flattening of the epidemic’s curve prevented widespread business closures and mass unemployment. Hardship has been caused either directly through loss of or reduction in parental income or indirectly through the loss of school-based social services. These impact most strongly on those children and families who were already vulnerable and marginalized before the pandemic.

Fear of COVID-19 and grief after experiencing sickness or loss together with increased stress within the family are likely to lead to increased levels of anxiety and depression. For many students, school itself can provide a haven from violence and abuse as well as providing access to services such as psychological support. 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. The degree to which these challenges have been addressed is mixed in the region.

Positive responses: Throughout the sub-region, countries have put in place robust financial and social support packages, such as cash transfers to households (China, Japan, Mongolia, Republic of Korea), food vouchers (Mongolia), national health care contributions and child care support (Republic of Korea) and social insurance for migrants (China).21

Lessons learned on delivering equitable and quality distance learning during full or partial school closures

- There is a need for explicit policies and targeted support to reach the marginalized to develop an equitable response.
- In countries where a range of alternative learning modalities (online, TV, radio and paper-based) were introduced, a larger share of children were able to access distance learning compared with countries relying on a single mode of alternative learning.

Positive responses: Each of the countries in this sub-region provided specific support to try and reduce inequalities in access and learning. These measures included:

Japan19 has addressed infrastructural weaknesses to improve connectivity and narrowed the digital divide. In Republic of Korea the MoE provided targeted support to meet the specific needs of some categories of students with disabilities. In Mongolia the UN worked with the Government to produce lessons in ethnic languages and for children with hearing problems.19

In China special initiatives were taken to include all children in learning including the migrant, disabled and other vulnerable groups.20

With schools closed students have reduced access to any protection teachers or peers could offer. With the increased use of online learning, cyberbullying22 and online abuse have become more prevalent, with girls being at greater risk.23

Less positive responses:

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Lessons learned on delivering equitable and quality distance learning during full or partial school closures

- There is a need for explicit policies and targeted support to reach the marginalized to develop an equitable response.
- In countries where a range of alternative learning modalities (online, TV, radio and paper-based) were introduced, a larger share of children were able to access distance learning compared with countries relying on a single mode of alternative learning.

Fear of COVID-19 and grief after experiencing sickness or loss together with increased stress within the family are likely to lead to increased levels of anxiety and depression. For many students, school itself can provide a haven from violence and abuse as well as providing access to services such as psychological support. 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. The degree to which these challenges have been addressed is mixed in the region.

With schools closed students have reduced access to any protection teachers or peers could offer. With the increased use of online learning, cyberbullying22 and online abuse have become more prevalent, with girls being at greater risk.23
Challenge 4: Maintaining learning levels

On return to school it is likely that the divide between learners will have increased significantly. Some learners will have missed out on learning altogether during school closures, while others will have embraced remote learning and may even have surpassed levels they would have achieved in face-to-face teaching.

This disparity needs to be addressed, but as learning was not systematically measured during school closures, many teachers have little knowledge of the extent of learning loss or gain. Traditional teaching styles will not be sufficient to meet the needs of all children and there will need to be more of a focus on developing skills such as reflection, critical thinking, problem-solving, communication, perseverance, practical skills including the use of technology, research and media literacy and social and emotional literacy.

This presents three major challenges for teachers and curriculum planners in terms of maintaining learning levels and developing essential skills to prepare students for the future.

1. How to assess what learners now understand and are able to do, then provide remediation which will enable targeted teaching.

2. How to adapt the curriculum so that there is provision for learners which meets their current needs and develops essential skills to prepare them for the future.

3. How to reorient teachers so that they are more focused on developing independent learning skills.

Positive responses: The way in which challenges surrounding student health and well-being have been addressed has been through a combination of direct support for individual students and taking steps within the curriculum to support positive mental health for all children.

In Republic of Korea psychological counselling is provided for students returning to school through Mental Health Promotion Centres to help them overcome anxiety and depression following prolonged distance learning.

In Mongolia UNICEF is providing training for school social workers and doctors in selected locations to enable them to provide psycho-social support to adolescents during the COVID-19 response.

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.

In China, schools leveraged resources at the national, local and school levels to organize a variety of face-to-face activities including lectures, class meetings, team activities, etc. and carry out counselling for those in need. They also organized a series of cultural, sports, art and outdoor activities and guide students to exercise more and enhance physical fitness.

Lessons learned on health, well-being and protection

- Neglect of broader health and nutritional issues has a potential long-term detrimental effect on learning and is of equal importance to pedagogical considerations.
- To provide targeted interventions to reach marginalized children, information on measures in place and the services they require as well as tracking their participation are essential.
- Much more needs to be done to understand age-specific mental health needs and to develop a full and tailored response to this complex and critical issue.
- Communities can make significant contributions as a collective to support measures within schools as well as providing support to more vulnerable households.
EXECUTIVE SUMMARY

Building back better

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. It needs to be more flexible and adaptable, providing a range of learning pathways, to meet the needs of all children, including those who are out of 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, and ensure equitable allocation 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.

Positive responses:

Countries in the sub-region have different approaches to remediation after school reopening.

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.

In Republic of Korea, schools had the autonomy to adjust curriculum implementation to meet student needs after principals and teachers had reviewed student progress from online learning with their teachers. During the first month of the return to schools in Mongolia, teachers spent time assessing children and providing support to progress through remedial programmes.

When China reopened schools they made system and countrywide attempts to identify learning levels and provide support to those who needed extra help.

Lessons learned on maintaining learning levels

- Not all children will have learned to equal levels during school closures, so managing the transition back to school will be critical.
- Revisiting and developing foundational skills, as well as focusing on health and well-being is important to recover learning and support student’s emotional needs.
- Giving a level of autonomy to schools to make evidence-based decisions about adjusting the curriculum will better help them meet the needs of students.
- Provision of more human resources could help those children who have ‘fallen behind’ by giving them extra support for learning both inside and outside the classroom. Developing and delivering an emergency response for young learners is not easy and needs further support.
- The importance of being able to learn independently was brought to the forefront during this crisis. Students needed to be able to read information, think critically and reflect on learning, as well as persevere with tasks, use their initiative and problem solve.
A new way of planning and working which will enable all children, including girls and the most marginalized children to access learning at the appropriate level and with appropriate help and support.

**Recommendations**

There are two overarching recommendations which are concerned with Education Sector planning and budgeting so that provision is focused on equity, ensuring that the needs of the most marginalized can be met.

Critically review the Education Sector/Strategic Plan (ESP) in light of the COVID-19 related impacts and situations, including challenges of dropout, learning loss/gaps, safe school operation, mental health, teacher training, technology (devices, connectivity) etc., in the context of need for more funding and reduced overall government revenue. The costing model described in Annex A can support this revision process.

Protect and enhance education funding, so that the countries in the sub-region can continue to build their education provision and develop innovative approaches that are equitable for all children, especially the most marginalized who are falling behind in their learning. Ensure that budget allocations are equitable and there is efficiency on spending.

The other recommendations are in line with the four challenges and aim to build on the lessons learned from each challenge. They are detailed in the main body of the report and include the following.
Recommendation 1: Reopening schools safely

Continue to build cross-sectoral collaboration, particularly between health and education so that information about infection in communities can be communicated quickly and enable immediate decisions to be taken around school closures.

Strengthen the monitoring of the implementation of safe operating measures, especially for remote rural areas and poorer urban areas to ensure decision makers are aware of long-term needs and can plan and budget accordingly to address these.

Strengthen WASH monitoring and planning in Western China and Mongolia. Use monitoring data to build plans for improvement into longer-term action plans, and budget allocations so that there is equitable access to adequate and sufficient water, sanitation and hygiene facilities.

Prioritize areas where the facilities are inadequate and contain a higher proportion of vulnerable families.

Recommendation 2: Delivering equitable and quality distance learning during full or partial school closures which reach the most marginalized

Develop specific programmes targeted at early years and consider how adults in the community (including parents and teachers) can be used and prepared to support their continued development during school closures. Provide support to enable appropriate provision to meet the needs of all children.

Build formative assessment processes into remote learning approaches so that students receive feedback and teachers know what has been learned. This will increase motivation and support a smooth transition between school and home learning.

Ensure that teachers receive adequate preparation for distance learning. Use CPD mechanisms accompanied by peer learning and support to develop digital learning skills and capacity.

Continue the push for connectivity for all children, ensuring universal access to digital infrastructure and devices, building on and extending public-private partnerships and cross-agency collaboration to enable this.

Recommendation 3: Supporting health and well-being and protection

Engage in cross-sector collaboration from central to grassroots level and conduct outreach with communities to ensure catch-up campaigns for school-based health services such as vaccinations, deworming, nutritional screening, and sexual and reproductive health services are implemented promptly.

Consider innovative ways to provide regular counselling and accessible psychosocial support for all children, through school groups and community support groups.

At the national level, consider the focus and design of examination systems and review how these could be made less stressful for children.

Collect and disaggregate data to identify those vulnerable children who have not accessed any needed services so they can be targeted with a different type of provision, adapted to their needs. Review the social norms that have been harmful to children during the pandemic so that longer-term solutions can be planned.

Strengthen pandemic response plans through joint ministerial work and cross sector collaboration to address the pathways for the delivery of essential health and social services to pre-school, primary and secondary school children and adolescents, ensuring these are secured, including meeting mental health needs.

Recommendation 4: Maintaining learning levels

Understand and mitigate learning loss by monitoring students’ participation and assessing their learning, providing remedial support, and making adaptations to the curriculum.

Modify the current high-stakes assessment processes, realigning them with the educational visions and priorities of the government. Use this modification as an opportunity to develop a more sustainable pedagogy, based on blended and individualized learning and which cultivates more independent learners who are better prepared for life-long learning. As part of this process, review the curriculum, moving towards skills and knowledge which will prepare students for their future lives.

Reorient the role of the teacher towards managing and facilitating individualized learning. This will require flexibility, enhanced ICT skills and mentoring as well as
providing direct teaching and provide appropriate training and support systems to enhance teacher confidence as well as capacity. Review and if necessary, adjust pre-service teacher training to make sure new recruits are well prepared to deliver ‘the new pedagogy’.

Review the role of principals/headteachers so they are fully able to lead and manage the school and support their teachers to develop and adapt to new roles. Delegated more decisions to school level so that headteacher are able to respond flexibly in a way that is appropriate to the situation and the context.

Conclusion

When the pandemic struck the region early in 2020, governments moved quickly to respond to the situation and mitigate against the negative impact of virus transmission. Schools were closed to protect children and prevent community transmission and systems provided alternative approaches to learning, mainly based around technology. These solutions reached the majority of the student population but exposed inequalities in access, the ability to use technology and levels of support for learning.

Across the region, SDG 4 targets pre-COVID-19 were generally on track to be achieved. The speed at which schools were reopened may have minimized the effects of the pandemic for some students, although there will still have been learning loss, as was shown by the Brookings simulation.29

Although COVID-19 has resulted in significant expenditure pressures on the education sector, it is critical that countries prioritize demands. In addition to strengthening the social contract between government and citizens by protecting access to education, which is a key social service, countries also risk the sustainability of their social protection systems if they fail to strengthen their education systems to catch up the lost learning and provide a safe environment for children to return to school.

In terms of building education systems back better, the negative budget shocks imposed by COVID-19 may provide the required impetus and financing to raise the historically low education budgets in some countries towards the 6 per cent of GDP targeted by UNESCO. This would rapidly shift the sub-region towards the social status achieved in Europe, where it took 100 years to increase education budgets from 2 per cent of national income in 1910 to 6 per cent in 2010.30

Generally, the response throughout the region to the pandemic was strong and there was a range of good practices, highlighted in this report and detailed in the country case studies, which can be shared, learned from and adapted to different contexts. These approaches had some common factors:

- High levels of cross-sector collaboration minimized the effects and enabled the response to be driven by the health, education and social needs of families. This was shown to be an effective approach to mitigate against the potential health effects, particularly in Republic of Korea and Japan.
- Strong social protection packages including provision of food packages and cash vouchers, mitigated against some of the longer-term health and nutrition issues for those families hardest hit by the economic effects of the pandemic.
- Committed teachers who had opportunities for peer support, access to resources and were able to adapt and innovate with support provided by the government.
- Data-driven responses specifically targeted at particular sections of the community increased participation and quality of response, such as in Gansu, China.
- Utilizing existing technology infrastructure which could be quickly scaled and adapted to respond to need.

All these good practices need to be built upon and further strengthened to heighten resilience and ‘build back better’ so that in future, the most marginalized children are able to equitably access learning and support.
01
Introduction
1.1 Background
The global nature of the COVID-19 pandemic makes it different, 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 affected the most vulnerable and marginalized members of society. The contexts within which people of South Asia, South East Asia and East Asia, are having to cope with the virus are vastly different, with a disparity 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 poor and therefore different levels of resilience to the shocks that this disease has brought, putting the poor at long-term risk far beyond contracting the virus. Countries in East Asia were the first to be impacted by COVID-19 and the ensuing health, and education emergency and our analysis derives from these early affected countries.

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 continue, 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 reopening and identifies the initial impact that this may have on learners, their families as well as on the overall education system. It seeks understanding on the contextual factors that may have supported or hindered learning with particular attention on the most disadvantaged groups who will be most affected by the pandemic, particularly highlighting 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
Three sub-regional reports provide an overview of the situation and are drawn from key documents, including 14 detailed country case studies, which provide a more in-depth look at specific areas. The sub-regional reports were developed with support from the regional UNICEF and UNESCO offices, and were presented to government and other stakeholders at two webinars. This report focuses on East Asia and includes feedback gathered from the webinar.

1.3 Structure of the report
The sub-regional report is structured in six chapters. After this 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 the education system 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 COVID-19 in East Asia

East Asia (EA) comprises a diverse group of countries by size and population. For the purposes of this study the countries covered are China, the world’s second-largest economy and largest education system, Japan, Mongolia and the Republic of Korea. The region includes several of the world’s largest megacities and densely populated coastal and riparian areas as well as some of the world’s least densely populated areas in western China and Mongolia. In terms of population profiles:

- The working age population for China, Mongolia and Republic of Korea ranges between 70 per cent and 72 per cent of the total population. In Japan the working-age population is much lower at 59 per cent.
- Mongolia has a relatively large under-15 population at 27 per cent compared with China, 18 per cent, Japan at 12.6 per cent and Republic of Korea, 13 per cent.
- More than a quarter of Japan’s population were aged 65 and over in 2019, and population growth has been declining since 2010.

Table 3 shows that Japan had the highest proportion of infections per 100,000 of the population, and China, the least, but compared to global figures, the number of cases in East Asia remains relatively low.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>INFECTIONS PER 100,000</th>
<th>NUMBER OF INFECTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japan</td>
<td>348</td>
<td>443,001</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>179</td>
<td>94,198</td>
</tr>
<tr>
<td>Mongolia</td>
<td>100</td>
<td>3,481</td>
</tr>
<tr>
<td>China</td>
<td>7</td>
<td>102,172</td>
</tr>
</tbody>
</table>

China went into strict lockdown in early 2020 to contain the spread of the virus. “The epidemic was regarded as a major public health emergency which experienced the fastest spread, the widest range of infections, and the most difficult prevention and control since the founding of People’s Republic of China in 1949.”

Mongolia also implemented strict measures to prevent community transmission. The small low-density population, along with existing mechanisms such as good hygiene practices and a track and trace system made it relatively straightforward to contain the virus. A series of preventative measures were adopted including continuing to encourage hand washing and instructing people to wear a mask.

“The epidemic was regarded as a major public health emergency which experienced the fastest spread, the widest range of infections, and the most difficult prevention and control since the founding of People’s Republic of China in 1949.”

The Republic of Korea took a different approach and introduced a pandemic preparedness response framework, with three phases, detection, containment and treatment, accompanied by a government information campaign. They had a sophisticated track and trace system and through these measures managed avoid closing businesses and shops.

Japan, despite having an older population deemed to be more at risk of developing severe forms of the virus, also did not go into an enforced national lockdown. Instead, a softer approach was introduced: shops and restaurants were kept open, people were asked to stay home and were encouraged to avoid crowded places, closed spaces with poor ventilation and close contact with people. These measures contained the virus in East Asia throughout 2020. However, there was a spike in infections in December 2020, January 2021 and April 2021 in Japan and Republic of Korea, and cases in Mongolia have been rising since early March 2021. China had very small localized spikes in February 2021 that have been quickly addressed.

2.2 How did the spread of the pandemic affect learning?

The risk to children in suffering a severe form of the virus is considered to be low, as shown in Figure 2.
The main policy response to the pandemic which affected children was the closure of schools to keep them safe and reduce community transmission.

When the pandemic struck it had a profound effect on education globally. As can be seen from Figure 3, education systems in the region responded rapidly with school closures, while planning for and safely reopening schools as quickly as possible.

Apart from in Mongolia, full school closures were for relatively short periods of time throughout the region, initially lasting approximately three months in China, Japan and Republic of Korea. Actual teaching time lost was reduced by the timing of school holidays. However, partial school closures were for much more significant periods of time.

- In China, after the initial closure, schools partially opened until October and have been fully reopened since then.
- In Japan, after the initial closure, schools partially opened until October and have been fully reopened since then.
- In Mongolia, schools were closed for an initial period of eight months, opened in September 2020 and closed again in November and are not due to reopen until March 2021.

- In Japan, elementary, junior high and senior high schools, schools for special needs education and upper secondary specialized training schools were requested to close temporarily from 2 March 2020, although the decision was left to local Governments on whether to proceed. Only once a National State of Emergency was declared on 7 April, did the Government mandate national school closures. 98 per cent of schools reopened from 1 June 2020, so most children were only out of school for 8 weeks.41
Even with measures in place to support distance learning, there is no substitution for face-to-face contact with a teacher, which encourages focus, interaction and the chance to get feedback on learning.

Pre-COVID-19, countries in the sub-region were generally on track to achieving SDG 4 by 2030. Despite a second surge in Republic of Korea which again brought closures, the Government was quick to reopen schools based on experience from the first wave, partially opening them again within a month. No larger outbreaks were reported on school reopening.

Pre-COVID-19 situation

Although indicators of school effectiveness and quality (discussed below) were relatively high throughout the region in the period up to the outbreak, there were persistent significant inequalities within countries, nearly all at the expense of boys, children from rural areas and poor children.

Were children in school and participating?

Several of the East Asian countries are widely regarded as education models, but there remained, even in the successful systems, some areas of concern, notably ensuring that students were equipped with problem solving, critical thinking and communication skills to prepare them to be productive and responsible members of their society in the 21st century.

Enrolment and completion levels were high across the sub-region prior to the outbreak of COVID-19, at primary, lower- and upper-secondary levels.

Reported rates for out-of-school primary and junior secondary students were between 0 per cent in China and 3 per cent in Republic of Korea. In primary and junior secondary completion was near-universal throughout the region in 2019. Upper-secondary GERs in 2019 were in the high 90s for Japan and Republic of Korea, 89.5 per cent in China, but only 77.29 per cent in Mongolia. China, Japan and Republic of Korea offer three years of pre-primary education, while Mongolia offers four. Pre-primary enrolment was high across the region; near-universal in Republic of Korea and Japan (2019); 83.4 per cent in China (2019); and 78 per cent in Mongolia (2015).

Were children learning prior to the pandemic?

This broad assessment of learning achievement in East Asia (Table 4) is based on:

- PISA scores for Reading and Maths (2018) and world rankings; and
- an indicator for Learning poverty, defined as the percentage of 10-year-old students who are unable to read and understand a short age-appropriate text. This measure is significant because deficits in literacy provide an early warning sign that all global educational goals are in jeopardy.

**TABLE 4 | LEARNING ACHIEVEMENT IN EAST ASIA**

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>PISA SCORES</th>
<th>LEARNING POVERTY</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>READING</td>
<td>MATH</td>
</tr>
<tr>
<td></td>
<td>SCORE RANK</td>
<td>SCORE RANK</td>
</tr>
<tr>
<td>China33,44</td>
<td>555 1</td>
<td>591 1</td>
</tr>
<tr>
<td>Japan</td>
<td>504 16</td>
<td>527 6</td>
</tr>
<tr>
<td>Mongolia</td>
<td>- -</td>
<td>- -</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>514 9</td>
<td>526 7</td>
</tr>
</tbody>
</table>

Gender disparities were declining throughout the region, with girls scoring slightly better on all indicators.

Despite these positive figures, there are challenges with aspects of quality education for different marginalized groups. Addressing these inequalities was part of each country’s development plans pre-pandemic. In China the high enrolment rates for basic education showed that education access is not a critical issue nationally, but the development of compulsory education in rural and urban areas is unbalanced. The quality of education in ethnic minority areas needs further development. In the Republic of Korea, some education inequality gaps in gender, socio-economic status and disabilities still exist and at a 2018 forum on the Sustainable Development Goals it was agreed that it is necessary to develop systematic national indicators for inclusive and equitable quality education and lifelong learning for all.
Table 4 shows that levels of learning poverty vary between the diverse countries of the sub-region, China (18 per cent), Japan (2 per cent) Mongolia (39 per cent) and Republic of Korea (3 per cent). All countries perform slightly better than the average for their income level.

Learning performance in Japan, Republic of Korea and selected urban areas in China is well above the average for higher-middle-income countries, with parts of China (Beijing, Shanghai, Jiangsu and Guangdong) ranking first in reading, maths and science PISA scores.

Mongolia did not take part in PISA, and at 39 per cent levels of learning poverty in the country is high but better than the average for lower-middle-income countries.

China does not disaggregate data for learning poverty by gender, but for the remaining countries in the region, learning poverty is higher for boys than girls. Levels of learning poverty also vary within countries highlighting inequalities.

Who will be most affected?

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. 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 5).

These characteristics intersect, and the most marginalized “are characterised by several combine 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,” and the most likely to be affected by the policy responses to the pandemic and vulnerability as a dynamic state which people could move in and out of during the course of the pandemic. Each of the case study countries have groups of marginalized and vulnerable students. Chapter 3 will consider the extent to which marginalized children may have been further disadvantaged during the pandemic as the region has seen a growing digital divide which has increased learning inequalities in all countries within the region.

Among the key drivers of learning it is worth singling out teachers, the quality of teaching being acknowledged as “the most important driver” in improving learning. In the sub-region case study countries, many teachers are well qualified, perceived as being effective, held to high standards and are socially and financially valued.

Republic of Korea’s teacher recruitment policies, for example, involve only recruiting from the best university-level candidates and having a rigorous appointment process so that teaching is seen as a career for the most talented young people.
In China, teachers are among the highest paid civil servants although there is a big difference between the salary of teachers in developed areas of eastern China and remote areas of central and western China. The government has tried to close the gap by providing additional incentives for teachers in rural areas.62

Effects of COVID-19 on learning

COVID-19 highlighted the inequalities in learning opportunities for children throughout the region, with those children already disadvantaged and in learning poverty predicted to be most severely affected. As discussed above, in all countries in the sub-region, schools were fully or partially closed for a substantial period of the school year (Table 6).

This is a significant amount of time for children to be out of school, relying on remote learning which did not reach all children and for which many were unprepared. This time out of school will have affected all learners, particularly those who were already struggling prior to school closures.

Even the high performers will have found the adjustment from face-to-face teaching to self-learning challenging, particularly in competitive systems where independent learning and an active pedagogy is not the norm.

Modelling has been conducted by the Brookings Institute to analyse the likely impact of different remediation methods on learning following school closures (Figure 4).63 The study found that three 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.

### TABLE 6 | PERCENTAGE OF ACADEMIC YEAR SCHOOLS WERE CLOSED

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>FULLY CLOSED</th>
<th>FULLY AND PARTIALLY CLOSED</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td></td>
<td>59%</td>
</tr>
<tr>
<td>Japan</td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Mongolia</td>
<td></td>
<td>75%</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td></td>
<td>39%</td>
</tr>
</tbody>
</table>

### FIGURE 4 | EFFECT OF REMEDIATION ON LONG-TERM LEARNING

- No remediation
- One year remediation
- One year remediation and instruction reorientation
In China children found it hard to learn effectively at home. Many lacked the skills for self-learning and struggled to self-regulate. Disrupted Classes Undisrupted Learning (DCUL) encouraged students to preview, review and complete tasks independently. It took time for learners to develop these online and independent learning skills, which resulted in poorer interaction and participation. The digital divide was a major factor as to whether children had equitable access to learning. Despite high levels of technology in the Republic of Korea, 4 per cent of children did not have access to digital devices in their household. "Reduced interaction with teachers, digital distractions and technical difficulties are widening the education achievement gap among students in Republic of Korea, leaving those less well off at even more of a disadvantage." 

In China the divide was bigger, "as shown in the recent statistics, Chinese households with internet access and a personal computer only accounted for 47.4 per cent and 46.7 per cent of all households respectively," and in Japan, only 61 per cent of students had a device they could use for schoolwork.

The challenge of the digital divide is discussed further in Chapter 3.

In order to keep children learning and minimize learning loss a series of measures were taken in the sub-region. Emergency alternatives for learning were established, in an attempt to reach all students. The case studies identified ways in which education systems attempted to ensure inclusion, including efforts to improve access by narrowing the digital divide. In China, fibre coverage was expanded quickly to support online teaching. Efforts were made to improve network connectivity and provide free devices. Discounted or free internet packages were offered for vulnerable groups mainly based on poverty. In Republic of Korea the Government and private companies provided digital devices to those who needed them, based on information from the Office of Education about home background receipt of state benefits.
Countries in East Asia were the first to be impacted by COVID-19 and the ensuing health and education emergency. Despite having generally strong economies, countries in the region displayed some key vulnerabilities.

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

Pre-COVID-19 situation

Health, well-being and protection

The Oxford Poverty and Human Development Initiative (OPHI) developed a global Multidimensional Poverty Index (MPI), which looked at factors linked to increased vulnerability to COVID-19.

China is among the 10 countries globally most vulnerable to COVID-19 according to three multidimensional poverty indicators: unsafe drinking water, associated with much of the global disease burden and weakened immune systems; deprivation in clean cooking fuel, associated with acute respiratory infections; and undernutrition associated with weakened immune systems, morbidity, and mortality, particularly among young people.

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

The region suffers from the double burden of malnutrition, i.e., stunting, which significantly reduces the physical and mental capabilities of children, and obesity. 2018 data from UNICEF shows that close to 20 per cent of children under five in China and Mongolia are not growing well.

China is in the top three of the highest remittance-from-migrant-workers receiving countries. 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.

It has been estimated that prior to COVID-19, around 10-20 per cent of children and adolescents worldwide experienced mental health challenges with half of these beginning by age 14. In East Asia and the Pacific, adolescents’ mental health and well-being, growing incidences of self-harm, and high suicide rates are of increasing concern.

Safe operations in schools

Adequate WASH facilitates are a prerequisite for the safe opening of schools, to reduce transmission of the virus. This section looks at the situation pre-COVID-19.
All schools in the Republic of Korea have basic hygiene and sanitation services and from a review of the latest survey of public school facilities in Japan, the same levels of service were found. However, basic WASH facilities required for hand hygiene remain out of reach for children in rural areas such as in Western China and Mongolia, presenting challenges for the safe reopening of schools.

In China from 2011 to 2017, in the basic education sector, the proportion of network-managed water supply schools increased from 54.2 per cent to 75.8 per cent; and the proportion of schools with sanitary toilets increased from 56.5 per cent to 80.1 per cent. Most schools with non-hygienic toilets are concentrated in the central and western regions. The school toilets are separated by gender, but there are often the same or fewer squatting seats for girls than boys, and it is more common for girls to wait in line. In addition, some school toilets are not conducive to privacy, and some schools do not provide accessible WASH facilities for children with disabilities.

Figure 6 shows that in Mongolia there are wide disparities of WASH provision between rural and urban areas with a quarter of schools in rural Mongolia having no sanitation.

<table>
<thead>
<tr>
<th>School data - Mongolia - 2019 - Service Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drinking Water</td>
</tr>
<tr>
<td>Rural: 72.24%</td>
</tr>
<tr>
<td>Urban: 61.40%</td>
</tr>
<tr>
<td>Total: 63.24%</td>
</tr>
<tr>
<td>Sanitation</td>
</tr>
<tr>
<td>Rural: 67.69%</td>
</tr>
<tr>
<td>Urban: 70.23%</td>
</tr>
<tr>
<td>Total: 69.46%</td>
</tr>
<tr>
<td>Hygiene</td>
</tr>
<tr>
<td>Rural: 41.40%</td>
</tr>
<tr>
<td>Urban: 35.20%</td>
</tr>
<tr>
<td>Total: 38.60%</td>
</tr>
</tbody>
</table>

- Only 35 per cent of schools in rural areas have basic hygiene facilities, compared to 53 per cent in urban areas.
- While 63 per cent of schools have basic sanitation facilities, this varies between 58 per cent in rural areas and 70 per cent in urban schools.
- Over 80 per cent of schools have access to drinking water in urban areas, while in rural areas the figure is around 70 per cent.

There are also disparities between levels of schooling for some indicators, with only 44 per cent of primary schools having basic hygiene facilities compared to 66 per cent of secondary schools. Slightly more primary schools have sanitation (70 per cent) than secondary schools (63 per cent). While, primary and secondary schools both have the same level of basic drinking water provision, four times as many primary schools have no drinking water (4 per cent) than secondary schools (1 per cent).
Effects of COVID-19 on health, well-being, protection and safe operations

A strong health response was vital to education, not only to protect children and their families against 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.

In Mongolia, the World Bank carried out a survey into the situation of households during the pandemic. During the second lockdown in December 2020, they found that decreasing income levels, coupled with higher food prices led to increasing food insecurity for the poorest families. "Shares of poor households who were uncertain about their ability to obtain enough, healthy and sufficient kinds of food increased from 39 per cent in September to 47 per cent three months later."84

Recent multi-province research in China during COVID-19 has showed that over 53 per cent of the villages surveyed reported that their local workers had lost approximately two months’ worth of income. Deficiencies of essential vitamins and minerals deplete children's vitality and undermine their health and well-being.85

FIGURE 7 | ECONOMIC BURDEN OF LOCKDOWN IN RURAL CHINA86
Disrupted school services have included school meals, mental health services, speech therapy, peer support groups, immunization, and sexual reproductive health as well as deworming programmes which prevent common parasitic worm infections. Accordingly, according to World Food Programme data, there are approximately 50 million children in China, Japan and Mongolia who normally rely on school meals for a reliable source of daily nutrition must now look to other food sources. WFP data in Table 7 shows the number of children missing out on school meals in April 2020 when the pandemic was at its peak.

Children with disabilities and underlying health conditions not only face increased risk of serious complications from COVID-19 but are likely to face obstacles in accessing the support and response measures they need. Research has demonstrated that those with disabilities and their families are more likely to be subjected to hunger and poverty. There is also a major risk that disabled children may not return to school or will return but with extended delay with their feeling of exclusion and isolation being magnified. This is further discussed in Chapter 3.

2.4 Finances

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 sub-region in Figure 8. The impact is striking, with an average -1.8 per cent real change in GDP. While China (1.9 per cent) managed to avoid a contraction in GDP, their GDP growth still slowed to significantly lower rates than before the pandemic. The other countries in the sub-region all experienced contractions in GDP, with Japan (-5.3 per cent) the worst affected.

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>NUMBER OF CHILDREN</th>
<th>PER CENT GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>38,433,984</td>
<td>43%</td>
</tr>
<tr>
<td>Japan</td>
<td>8,863,908</td>
<td>48%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>280,400</td>
<td>48%</td>
</tr>
<tr>
<td>Republic of Korea</td>
<td>No data</td>
<td>No data</td>
</tr>
</tbody>
</table>

Source: IMF, 2021
Among the implications of these macroeconomic shocks are downward pressure on government revenues, which reduce fiscal space and force governments to make difficult prioritization decisions. Governments’ top funding priorities include the health care 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 stressed the risk that other critical public expenditures, notably on education, are crowded out. In fact, UNICEF reported 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. 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. It is therefore 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 estimates the impact of COVID-19 on East Asian 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 Chapter 3. Stakeholders can apply the findings to reformulate education budgets to maintain progress towards achieving SDG 4 by 2030.

Pre-COVID-19 situation

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 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 9 presents the countries’ government education budgets relative to the recommendation in the Education 2030 Framework that governments commit at least 4 per cent to 6 per cent of GDP to education. Data was not available for China on the UNESCO Institute for Statistics database. Nevertheless, the outcomes for Japan and Mongolia compare relatively well to the minimum allocation target of 4 per cent of GDP to education. Japan was just below this level over the period, while Mongolia was within the 4 per cent to 6 per cent band for the whole period. Because of these sizeable allocations, the education sectors in Japan and Mongolia are better resourced to accommodate the COVID-19 shocks.

![Figure 9: Education Budgets Relative to UNESCO Recommendation, 2014-2018](source: UNESCO, 2021)
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 10 presents the sub-regional gross enrolment ratios in 2019. The weighted regional average gross enrolment ratios are 85.2 per cent for pre-primary school, 98.5 per cent for primary school, 96.6 per cent for lower-secondary school, and 94.2 per cent for upper-secondary school. This indicates that a large proportion of children in the sub-region attend all levels of school, especially primary and lower- and upper-secondary school which have a relatively narrow range of outcomes across the countries. The enrolment rate in pre-primary school is low in Republic of Korea at just 49.8 per cent which accounts for the wide range of sub-regional outcomes at that level.

The characteristics of the private education sector contribute 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 enroled students may return to the public education system.

Figure 11 presents the sub-regional enrolment in private schools in 2019. Overall, the public sector accommodates a high proportion of the students across the primary, lower-secondary, and upper-secondary school levels. However, the private sector fulfils a significant role in education provision at the pre-primary level, except in Mongolia where 85.7 per cent of pre-primary students were enroled in 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 12 presents the sub-regional LTR outcomes in 2019. The average LTR are relatively low across all of the school levels, but especially at the lower secondary and upper secondary school levels. However, there is a wide range of outcomes in the sub-region, as shown by the range of values taken by the learner-teacher ratios for each education level (Figure 12).

**FIGURE 11 | PRIVATE SECTOR SCHOOL ENROLMENT FOR EAST ASIAN COUNTRIES, 2019**

**FIGURE 12 | LEARNER-TEACHER RATIOS FOR EAST ASIAN COUNTRIES, 2019**

Source: UNESCO, 2021

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Estimated financial impact of COVID-19 on the education sector

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.103 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.104

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, 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 modelling exercise generates three potential scenarios to account for uncertainty: baseline; optimistic; and pessimistic. The baseline scenario should be viewed as the most likely and therefore the expected outcome, with the optimistic and pessimistic scenarios providing a range for the potential outcomes. The optimistic scenario assumes that COVID-19 has a less severe impact on the education sector. The pessimistic scenario assumes that COVID-19 has a severe impact on the education sector. While most countries in the region are preparing to include a blended approach to the delivery of education, making more effective use of technology going forward, technology costs have not been factored into the model due to uncertainty around how countries will take this forward and the range of inputs needed to achieve this.

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. The methodology is expanded on in Annex A.

Based on the model specifications detailed in Annex A we estimate the marginal impacts that COVID-19 will have on countries’ education budgets. It is important to highlight that the values presented in 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. Unfortunately, the results are not presented for the Republic of Korea due to missing data in the UNESCO database.105

Total budget impact

The estimated value of the additional budgets that countries require to respond to COVID-19 are shown in Table 8. This indicates the cumulative quantum of the COVID-19 shock, as it stood at the end of February 2021. The large variations across countries are representative of the relative size of the countries in the sub-region, as well as the particular impacts of COVID-19 on their education system. As previously noted, 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 $677 million in Mongolia to $315.8 billion in China in the baseline scenario.
The shocks are still large but less severe in the optimistic scenario, ranging from $498 million in Mongolia to $189.6 billion in China. The budget shocks severely increase in the pessimistic scenario relative to the baseline scenario, with a range of $1.1 billion in Mongolia to $671.1 billion in China. These variations between the scenarios signal the downside risks associated with the pandemic.

**Relative budget impact**

The budget shocks presented in Table 8 are contextualized in Figure 13 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 6.2 per cent in China, 7.4 per cent in Japan, and 7.5 per cent in Mongolia. The budget shocks are lower in the optimistic scenario, ranging from 3.7 per cent of the 2020-2030 budget in China, 4.6 per cent of the 2020-2030 budget in Japan, and 5.5 per cent of the 2020-2030 budget in Mongolia. The results from the optimistic scenario indicate that, although not insignificant, the shocks appear manageable relative to the previously planned budgets to achieve SDG 4 by 2030. However, the impacts increase dramatically if the pessimistic scenario is closest to the eventual outcome, with the budget shock rising to 13.1 per cent in China, 14.6 per cent in Japan, and 13 per cent in Mongolia. Overall, the average budget impact for the sub-region is 7 per cent in the baseline scenario, 4.6 per cent in the optimistic scenario, and 13.6 per cent in the pessimistic scenario.

**Table 8 | Estimated Marginal Budget Increase to Respond to COVID-19**

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>Baseline Scenario</th>
<th>Optimistic Scenario</th>
<th>Pessimistic Scenario</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>$315,816</td>
<td>$189,618</td>
<td>$671,080</td>
</tr>
<tr>
<td>Japan</td>
<td>$88,922</td>
<td>$54,920</td>
<td>$175,341</td>
</tr>
<tr>
<td>Mongolia</td>
<td>$677</td>
<td>$498</td>
<td>$1,176</td>
</tr>
</tbody>
</table>

**Figure 13 | Estimated Impact of COVID-19 on the Cumulative Education Budgets from 2020 to 2030**

**Source of the budget shocks**

The source of the budget shocks is explained in Figure 14 to 17 for the baseline scenario. Figure 14 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 large to the fact that this level only comprises 1-year of teaching. However, despite accounting for a small proportion of school years (typically one out of 12-13 years) the budget impacts at the pre-primary level are significant, especially in China (10.8 per cent) and Mongolia (11.9 per cent). The largest component of the budget shocks in China and Mongolia are primary school, reaching 53.8 per cent of the total budget shock in China. The proportion of the budget shocks attributable to lower secondary school range from 17.6 per cent in China to 26.7 per cent in Mongolia. The proportion of the budget shocks attributable to upper-secondary school range from 17.4 per cent in Mongolia and 17.8 per cent in China to 41.6 per cent in Japan. The explanation for the different distribution of the budget shocks in Japan, wherein the largest shock is for upper-secondary school, is mainly due to the relatively high degree of private provision (33.1 per cent) which poses a contingent liability to the public school system as COVID-19 causes students to shift back from private to public schools.

Figure 15 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 include 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, ranging from 84.5 per cent in Mongolia to 94.6 per cent in Japan. Capital expenditures are 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 large investment in WASH infrastructure.

**FIGURE 14 | ESTIMATED MARGINAL BUDGET IMPACT OF COVID-19 IN BASELINE SCENARIO, BY SCHOOL LEVEL**

![Figure 14](image_url)

Figure 16 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 in the sub-region. The most significant activities in descending order of impact are social distancing, accommodating students shifting back from private schools, remediation, and investment in WASH infrastructure. These four activities largely drive the budget impacts of COVID-19. For all countries the costs associated with re-enrolling students who have dropped out and hygiene standards are minor components of the overall budget impact. Japan has no remediation costs as, in the current setup of the model, the length of school closures has been short enough to catch up within the parameters of the existing budget allocations.

**FIGURE 15 | ECONOMIC CLASSIFICATION OF THE COVID-19 BUDGET IMPACTS IN BASELINE SCENARIO**

![Figure 15](https://example.com/fig15.png)


**FIGURE 16 | COVID-19 BUDGET IMPACTS DISAGGREGATED BY ACTIVITY IN BASELINE SCENARIO**

![Figure 16](https://example.com/fig16.png)

BACKGROUND AND CONTEXT

Figure 17 disaggregates the total budget impacts according to whether the expenditures are an extension of currently provided services or 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 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 approve the budget increases associated with new services, while the extension of previous services is in many ways a contingent liability. In general, the budget shocks are approximately evenly split between previous and new services. The proportion of the budget shocks attributable to previous services ranges from 31.6 per cent in Japan to 63.7 per cent in China. The higher proportion of new services in Japan is due to the fact that remediation is not a significant cost due to the relatively short length of the school closures.

Affordability of COVID-19 related expenditure

In line with the modelling results presented here, UNICEF highlights that 95 per cent of the 149 surveyed countries reported that additional financial resources were required to ensure an adequate response to COVID-19 for education. UNICEF noted that when these financing needs were fully or partially met, this was commonly funded in low- and lower-middle-income countries through a combination of additional domestic financing and external donors, and in high-income countries through budget reallocations. Given the need to accommodate these financial pressures on the education sector within the context of severe resource constraints, as per the weak economic growth outcomes shown in Table 9, it is important to review the fiscal space available to countries. To do so we apply the fiscal space framework developed by the IMF, which uses the following four pillars to explore the potential to finance the budget impacts of COVID-19 on the education sector: domestic revenues mobilization; deficit financing; official development assistance; and reprioritization and efficiency of expenditures.

Fiscal space studies generally develop a macro-model for forecasting fiscal space in a country under different scenarios, developing scenarios for correcting the fiscal under-performance related to each of the above pillars. The reliability of such forecasting models depends heavily on the rigour of the exercise, the quality of the macroeconomic and fiscal data, and the existence of predictable relationships between variables. Given the scope of this exercise, we limit our findings to a high-level assessment of key indicators associated with the pillars without proving a specific quantum for how much funding each pillar might generate.

FIGURE 17 | DISAGGREGATION OF THE COVID-19 BUDGET IMPACT BY EXISTING AND NEW SERVICES IN BASELINE SCENARIO

![Figure 17](source: Costing Model (COVID-19 Shock Model)).
Domestic revenues mobilization

Table 9 shows that all of the countries in the sub-region experienced a growth shock in 2020 due to the effects of the COVID-19 pandemic, ranging from -5.3 per cent in Japan to 1.9 per cent in China. Following this shock, all of the economies in the sub-region are forecast to partially rebound with 5.1 per cent average annual real GDP growth from 2021 to 2025. However, these levels of real GDP growth are subdued, and the associated macroeconomic outlooks dampen the potential that tax windfalls could finance the budget impacts of COVID-19 on the education sector.

In addition to potential tax windfalls associated with high rates of economic growth, countries may wish to investigate the option of financing the COVID-19 budget impacts through additional tax revenues. In this regard, Table 10 presents the relative size of tax revenue collections in each country. Given the size of the tax systems in the sub-region and the relatively modest quantum of the budget shocks, especially in the optimistic scenario, the tax systems would only need to be marginally extended to finance the COVID-19 impacts. However, the financing requirements become significantly more complicated in the pessimistic scenario. Nevertheless, tax collections in Mongolia have grown considerably since 2016. Moderate further extensions to this growth in tax collection in Mongolia may therefore be an option to generate the required revenue to finance the shock, and the subsequent ongoing development of the education sector. Japan has a mature tax system and China has seen revenue falling as a proportion of GDP since 2016, which both further complicate the political and practical use of tax revenue as a potential financing source.

Deficit financing

Deficit financing is another option to fund the COVID-19 budget impacts, especially the capital expenditure portions. The countries in the sub-region have moderate levels of gross government debt, except for Japan which is a peculiar case (Table 11). Importantly, the debt levels in China are forecast to grow at a relatively stable rate over the medium-term while the debt levels in Mongolia are forecast to fall. As such, deficit financing is an option to help these countries absorb the budget shock caused by COVID-19.

### TABLE 9 | REAL GDP GROWTH, 2019 – 2025

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>4.7%</td>
<td>0.3%</td>
<td>6.7%</td>
<td>4.9%</td>
<td>4.8%</td>
<td>4.7%</td>
<td>4.5%</td>
</tr>
<tr>
<td>China</td>
<td>6.1%</td>
<td>1.9%</td>
<td>8.2%</td>
<td>5.8%</td>
<td>5.7%</td>
<td>5.6%</td>
<td>5.5%</td>
</tr>
<tr>
<td>Japan</td>
<td>0.7%</td>
<td>-5.3%</td>
<td>2.3%</td>
<td>1.7%</td>
<td>1.2%</td>
<td>1%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>5.1%</td>
<td>-2%</td>
<td>6%</td>
<td>5.5%</td>
<td>5%</td>
<td>5%</td>
<td>4.5%</td>
</tr>
</tbody>
</table>

Source: IMF, 2021

### TABLE 10 | TAX REVENUE AS A PER CENT OF GDP, 2016 – 2019

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>2016</th>
<th>2017</th>
<th>2018</th>
<th>2019</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>17.5%</td>
<td>17.4%</td>
<td>17.1%</td>
<td>16%</td>
</tr>
<tr>
<td>Japan</td>
<td>18.3%</td>
<td>18.8%</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Mongolia</td>
<td>14.7%</td>
<td>17.2%</td>
<td>20.3%</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: IMF, 2021

### TABLE 11 | GOVERNMENT GROSS DEBT AS A PER CENT OF GDP, 2019-2025

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>2019</th>
<th>2020</th>
<th>2021</th>
<th>2022</th>
<th>2023</th>
<th>2024</th>
<th>2025</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>92.4%</td>
<td>103.3%</td>
<td>104.6%</td>
<td>106.8%</td>
<td>108.7%</td>
<td>109.4%</td>
<td>109.4%</td>
</tr>
<tr>
<td>China</td>
<td>52.6%</td>
<td>61.7%</td>
<td>66.5%</td>
<td>71.2%</td>
<td>74.6%</td>
<td>76.8%</td>
<td>78.1%</td>
</tr>
<tr>
<td>Japan</td>
<td>238%</td>
<td>266.2%</td>
<td>264%</td>
<td>263%</td>
<td>262.8%</td>
<td>263%</td>
<td>264%</td>
</tr>
<tr>
<td>Mongolia</td>
<td>73%</td>
<td>71%</td>
<td>66.2%</td>
<td>61.7%</td>
<td>58.9%</td>
<td>57.2%</td>
<td>-</td>
</tr>
</tbody>
</table>

Source: IMF, 2021
Official development assistance

Countries could either utilize official development assistance to directly fund the budget impacts caused by COVID-19 on the education sector, or to fund expenditure in another sector and then redirect those funds towards the education sector. Table 12 presents the official development assistance status for the countries in the sub-region. All countries within the sub-region are eligible for International Bank for Reconstruction and Development (IBRD) funding. However, none of the countries are eligible for International Development Assistance (IDA) funding due to their relatively high gross national income levels and creditworthiness to borrow on markets (especially Japan).

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>ELIGIBILITY FOR IDA FUNDING</th>
<th>ELIGIBILITY FOR IBRD FUNDING</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>Ineligible</td>
<td>Eligible</td>
</tr>
<tr>
<td>Japan</td>
<td>Ineligible</td>
<td>Eligible</td>
</tr>
<tr>
<td>Mongolia</td>
<td>Ineligible</td>
<td>Eligible</td>
</tr>
</tbody>
</table>

Source: UNESCO, 2021

The importance of education within the sub-regional development policy is emphasized by the demographic situation. Countries can be classified into four categories based on demographic characteristics and future development potential: pre-dividend (high fertility rates); early-dividend (declining fertility rates); late-dividend (low fertility rates); post-dividend (below-replacement fertility rates). Countries in the post-dividend stage have high dependency ratios, with a shrinking share of working-age people.

Dependency ratios are the ratio of those not in the labour force to those in the labour force – i.e., the pressure on the productive population. Figure 18 shows that the dependency ratios are already rising for the countries in the sub-region. The dependency ratios are set to stabilize around 2055. This places extreme importance on human capital development of the current cohort of children, who will begin to enter the labour force and remain part of the working-age population until up to 2082. These workers must generate sufficient output, and thereby tax revenue, to support increasing numbers of elderly citizens. The World Bank explain that education attainment is critical as it has implications for the future labour supply, and hence potential output. Potential output will be constrained if countries fail to ensure that children can access quality education and nutrition that enables them to be employed in high-productivity jobs. If countries fail to adequately invest in education, skills mismatches may result that undermine the potential productivity of workers or could force a high number of workers either into the informal sector or out of the labour force and thus out of the income tax net.

03
Challenges, positive responses and lessons learned during the pandemic
This section looks at four major challenges that governments in the region had to address in order to reduce the negative effects of the COVID-19 pandemic discussed in Chapter 2.

1. Reopening schools safely.
2. Delivering equitable distance learning during full or partial school closures which reached the most marginalized.
4. Maintaining levels of learning.

### 3.1 Reopening schools safely

The education system needed to put measures in place to ensure that schools could reopen safely and quickly. These included:

1. Making schools safe during the pandemic; and
2. Considering staggered and phased reopenings.

Improvements in school health and hygiene, a greater understanding between schools and families and better classroom assessment practices are all important, not only for school closures and reopenings during this pandemic or future ‘shocks’, but also for an improved education system.

The UNICEF / UNESCO / UNHCR / WFP / World Bank framework for reopening schools\(^\text{114}\) provided a valuable guide for the development of Government guidelines and helped set out clear principles and procedures for safely reopening schools and to support possible future closures. These guidelines included issues such as social distancing (phased reopening, staggering of attendance, safe spacing of desks) and provision and organization of WASH facilities. In December 2020 WHO published a further checklist\(^\text{115}\) for measures that could be taken to support schools to remain open as the situation evolved.

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**Why it is 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 and girls
- Children dropping out and not re-enrolling
- Increased mental health and well-being incidences
- Irreversible learning loss.
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 wellbeing 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.

As well as preparation of the environment, education systems had to make decisions about when and how to reopen schools. They needed to consider whether to target specific age groups for an initial return to school or whether to reopen schools fully from the start. Reopening for upper-secondary who were facing high-stakes exams would mean that they could be prepared for the tests, but younger children who were less likely to be able to work independently needed to get back into school so they did not lose vital skills. A recent report on lost learning and future income in Asia found that there is a risk that students who miss out on vital skill development at an early age will achieve lower levels of skills in their lifetime.

The safe reopening of schools requires adequate WASH facilities. In the sub-region, as noted in Section 2.4, this was principally an issue for Western China and Mongolia. It does not appear to have been a major constraint to reopening in countries such as Japan and Republic of Korea where facilities in schools are adequate.

An additional challenge in reopening schools, was ensuring that communities were aware of the COVID-19 prevention strategies to mitigate the further spread of infection and were adapting their behaviour accordingly.

Communication is also essential for re-enrolment and back-to-school campaigns for students who were already vulnerable to dropping out. As mentioned in Section 2.3, the number of out-of-school children was low across the sub-region prior to COVID-19 and therefore, re-enrolment was not seen as a major challenge. However, marginalized groups such as children with disabilities were less likely to be able to access distance education. This could become an issue over time as it leads to underachievement and children potentially dropping out after reopening. It was, therefore, important that teachers monitored pupils’ engagement with their distance learning to detect early signs of disengagement. Strong communication strategies, which reached into communities, were important to spread these critical messages.

Positive responses

Across the sub-region, all countries put positive measures on safe operations in place for reopening.

Japan developed a hygiene manual on the coronavirus infection in schools called ‘A new way of life in schools’, which is available on their website. The MEXT Strategy supported schools by providing extra funding to support reopening and enable swift action against the spread of COVID-19 if necessary.

The Republic of Korea experienced its first case of COVID-19 on 20 January 2020 and by March had the highest number of cases after China. There was a staggered return to school, starting with the return of the final year students and then allowing a week’s interval between returning grades between 20 May and 1 June. Lockdowns and restrictions were put in place to respond to localized COVID-19 outbreaks. Very close collaboration was established between the Education and Health authorities/ Korean Centre for Disease Control and Prevention (KCDC) to monitor infection trends and establish the necessary prevention and control systems.

Clear guidelines were put in place covering all aspects of school activities related to well-being and protection, such as social distancing, temperature checks, use of masks, checklists for teachers if a child showed any sign of illness or fever and the safe management of school meals. Decision making around safe school reopening was delegated to the municipal and local level, with monitoring from the MoE’s Distance Education Support Division. “There was flexibility in the local interpretation of the rules for opening schools, depending on enrolment numbers or local increases of COVID-19 cases (community transmission daily rate of less than 50 i.e., 1 case per million).”

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
To ensure protection measures the MoE hired more than 1,000 additional staff, including new graduates from educational institutes and retired teachers, to act as school quarantine officers, quarantine instructors, and healthcare teachers. The MoE conducted a phone survey of parents and a questionnaire for teachers to support the school reopening process. The survey focused on their experiences with remote learning, and the timing and order of school reopening.

China staggered school opening over the period of one month and took the following measures:

- There was collaboration between the schools, hospitals, communities, and disease control agencies. Plans on prevention, control and emergencies were developed, with drills regularly taking place in schools to prepare the staff for possible infections.122

- There was a comprehensive ‘Safe School’ communication campaign in close collaboration with the Ministry of Education (MoE) and the Chinese Centre for Disease Control and Prevention.123 The data of the most influential social media in China (Weibo) shows #SafeSchoolReturn, created by UNICEF China, has 130 million views.

- Schools introduced social distancing measures, strengthening school cleaning routines and cleaning the air-conditioning systems.

Mongolia waited until 1 September 2020 to reopen all its schools and kindergartens. The number of children in each class was restricted to less than 20 and blended learning was introduced in some areas.

Lessons learned

- It is possible to reopen schools safely if appropriate measures are put in place.

- Clear guidelines detailing the preparatory measures that schools needed to take, followed by swift and effective action in developing and implementing response plans was instrumental in the safe, inclusive and full reopening of schools.

- Close cross-sector collaboration was important for situation monitoring, decision making around school closure/reopening, preparation for and implementation of safe school operations.

- The need to ensure schools are able to reopen safely has shone a light on inequalities within countries (e.g., WASH service provision).

- Good communications and consultation with key groups such as parents and teachers develop an understanding of the level of risk involved in opening schools with the requisite safety measures, and in keeping them closed.

- Provision of additional human and financial resources helped schools to reopen safely and respond quickly to any potential outbreaks.
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 both exacerbated and highlighted.

3.2 Delivering equitable distance learning during full or partial school closures to reach the most marginalized

As described in Chapter 2, China and Republic of Korea and to a lesser degree Japan, moved swiftly to a remote mainly online model, enabled by their infrastructure, funding and capacity. These models were significantly different, but all required some level of accessibility and capacity to use technology.

In China, twenty-two online learning platforms and one national TV channel plus a number of provincial TV channels were coordinated by MoE to offer 24,000 free and open online courses at the national level. The National Network Cloud-Platform for Educational Resources and Public Service (http://www.eduyun.cn) was the biggest one to deliver and support DCUL, which was launched on 17 February, 2020. In Republic of Korea, with the wide internet coverage in the country, the shift to online learning was inevitable. In Japan, the MEXT launched an online platform (Children’s Learning Support Website) and provided online educational content. The portal site includes learning content for students from preschool to high school (videos, audio files, downloadable workbooks, useful links, materials for teachers, etc.). The content was collected from various sources, both from government sources and private sources (e.g., publishing companies, private education companies, education TV channels, museums, etc.).

The Mongolian Government prepared online courses and telecasts, supported by the uploading of digital content on the Ministry’s website. East Asia is home to the highest number of internet users in the world, but the move towards online learning revealed different challenges for each country. Twenty years of development and five Master Plans have helped Republic of Korea make significant advances in ICT policy formation and e-learning, but half the parents of primary and lower secondary were dissatisfied with online learning and felt that helping younger children was a burden.

In Japan, the major challenge they faced was the weak capacity of teachers and students to make the switch to online learning. In China, while the infrastructure was strong in some areas of the country, only 47 per cent of households had access to a computer and the internet. In Mongolia only 47 per cent of the population had access to the internet in 2018; indeed in 2016 just under 20 per cent had no access to electricity.

All the countries in the sub-region had issues with ensuring equitable access to distance learning and students unable to access distance learning are at risk of falling further behind in their learning. This digital disadvantage is usually linked with other forms of marginalization. Although overall levels of deprivation are lower in East Asia than in other sub-regions, each of the countries include groups of marginalized and vulnerable students, many of whom already experienced barriers to access learning pre-pandemic. COVID-19 is threatening to further widen
the existing divide for vulnerable groups of children for example:

- Children, usually in mountainous or otherwise remote areas such as Mongolia and Western China, who are unable to access the internet. In Mongolia reaching children in remote and Nomadic communities proved problematic, with children travelling long distances and using unreliable power sources and many falling further behind in their studies.132

- Children who have to rely on mobile phone technology, on- or off-line, have two main types of problems. The lack of devices with some students having to ‘compete’ with other family members for use of the device, is associated with families in poverty, or even relative poverty. Data is expensive and even where collaboration with providers have reduced the cost, access for all is not guaranteed. For example, in Pingliang Prefecture, Gansu, a province classified as remote, the China Case Study reports that 5 per cent of students were unable to access learning as the family phone was not compatible to the technical requirements of the learning platform.133

- Many children with disabilities required adapted resources to enable them to participate in remote learning, for example children with reduced visibility may need audio provision. The social isolation suffered by many after the closure of special education provision is exacerbated for those whose disability prevents the use of education technology.

- Children who were already relatively low achievers: both the China and 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 Republic of Korea attribute the difference to students’ self-motivation and independent learning skills. These skills are by and large not developed by the current curriculum, assessment processes or predominant teaching style.

- Young learners spent the most time out of school across the sub-region, and so were reliant for longest time on distance learning. However, across the sub-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.

**Early years**

“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”.134

Early Childhood Care and Development (ECCD) and the vital learning and social needs of young children received little attention during the pandemic, as they tended to be neglected rather than prioritized. Young children who were previously in child care and kindergartens, found themselves at home with their caregivers, responsible to meet their developmental needs (physical, emotional, social and cognitive), for which many were not prepared.135 Children in early, foundational stages of learning need a different type of input than older children, including increased adult support for home learning for the development of language and motor skills, and a play-based approach reliant on interaction with others or physical equipment that they can manipulate. These experiences cannot be provided solely through online learning or TV broadcasts. With care centres and kindergartens closed young children relied on their parents for care and developmental support. Parental economic obligations, stress or the absence of a child-friendly home environment, including early learning materials during school closures disproportionately affected those young children from disadvantaged backgrounds.136

“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 foundation 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.”137 Loss of learning estimates (see RISE simulation138) will be higher for younger children than secondary students as their foundational learning has already been achieved.”139

**Family capacity to support student learning at home**

Evidence from the case studies shows that many families faced multiple challenges to provide support for their children’s learning. These included balancing working with day-to-day life, limited digital skills and low levels of
literacy and numeracy. The China case study mentioned how it was hard for parents to support any anxieties that their children had around online learning. 140 This was particularly difficult for parents who were themselves suffering from anxiety because of the virus, salary cuts, job losses or the prolonged lockdown at home.

In countries such as Republic of Korea, where passing high stakes exams is regarded as key to a successful future life, tutoring (the demand for which has increased since school closures) is the prerogative of children from higher socioeconomic-level families, disadvantaging those students from lower socio-economic groups and further widening the learning divide.

Supporting teachers to deliver distance learning

Many teachers struggled with the sudden shift to distance learning, especially where it involved technology, and required them to use new skills, competencies and pedagogical approaches. Teachers needed time to adjust to the necessary change in their role. Many went from being transmitters of knowledge to facilitators of remote learning. 141

Low teacher confidence, and negative attitudes towards digital education was identified as an issue in all case study countries which affected their ability to adapt. The Japan case study describes Japan’s teachers being below-OECD average in their use of and confidence with ICT in education. 142 The China case study highlighted older teachers and those working in the less-developed western regions who were not used to using digital devices, so were not as confident as those in well-developed urban areas. ICT training had previously been provided for teachers as part of a national programme, but this was not sufficient to prepare them for the switch to digital learning. The Republic of Korea case study reported that, while there is a high level of internet coverage, using devices for personal and social reasons was very different from online learning and many teachers felt inadequately prepared.

One of the factors that had contributed to the quality of teaching in Republic of Korea and Japan prior to the pandemic was the recognition that teachers need time out of class for preparation, etc. Teachers in both these countries reported a lack of time to adjust to the demands of distance learning and the difficulties of having to replan their lessons and track and assess student progress remotely.

Positive responses

Japan 143 has addressed infrastructural weaknesses to improve connectivity and narrow the digital divide. GIGA (Global and Innovation Gateway for All School project, launched in 2019 and accelerated as a result of the COVID-19 pandemic aimed to strengthen digital and remote learning approaches. GIGA formed one pillar of Japan’s Ministry of Education, Culture, Sports, Science and Technology’s (MEXT), Leave No One Behind approach, demonstrating the commitment of the Ministry to the core principle of the SDGs – equity and inclusion in learning.

“For all children, including those who have special needs, namely, disabled children/students and children/ students in low-income households. For instance, MEXT provides assistive computers which support input/output for children with visual, auditory, and physical disabilities. In addition, MEXT supports rental of high-speed communications equipment (mobile routers) by local governments to households that do not have Wi-Fi facilities. Moreover, to support children/students in low-income households, special additional payments have been made to help cover communication costs using existing subsidy programmes so that they can continue studying at home.” 144

In Republic of Korea the MoE provided targeted support to meet the specific needs of some categories of students with disabilities. For example, the Education Broadcast Service’s online content is provided in braille with learning materials customized and developed in larger fonts and in braille. Table 13 details those responses. Further details can be found in the case study.

In Mongolia the UN worked with the Government to produce lessons in ethnic languages and for children with hearing problems. “Kazakh and Tuva children are now able to receive lessons in their ethnic languages, while all contents are supported with sign language. Meanwhile, UNESCO is working with the Mongolian authorities to harness the potential of ICT to ensure equitable and inclusive learning opportunities for all.” 145
In China special initiatives were taken to include all children in learning including the migrant, disabled and other vulnerable groups. Students without access to online learning, could go to school to pick up free textbooks and learning packages or ask the school to courier the materials to them. Take-away packages were posted to these out-of-reach children. In Pingliang City, Gansu, the Local Education Bureau, anticipating that equity issues might enlarge the learning divide and further disadvantage pupils in remote areas, conducted an online survey of learning conditions before implementing their remote learning programme. As a result of findings, distance learning was provided through dedicated TV channels, free textbooks and printed learning packages collected from schools, or in the most extreme cases, couriered to homes to reach all children.147

In Republic of Korea collaboration between MoE and the Ministry of Gender Equality and Family supported vulnerable families (such as multicultural families, single-parent/grandparent-grandchild families, migrant families) with online learning.148 For example, “students from multicultural families were supported by a system which interpreted and translated materials into various languages and circulated these where needed.”149 Added to this teachers also volunteered to translate for language minority students and posted translations on YouTube”.150

In Mongolia, the UN and the Government developed online learning resources with e-content for the core curriculum subjects. For pre-primary this included animated cartoons and activities such as making paper planes. These were received well by parents and caregivers as children commented that they felt like they were playing when doing the activities.151 UNICEF supported the Government to produce and distribute 81,000 copies to a workbook for 5-year-old to support school readiness.152

The ability of families to support children to learn is highlighted as a challenge in all the case studies. There were some initiatives to support parents, but it is not clear how systematic and comprehensive these were across the sub-region. In Japan, parents were consulted about supporting their children, but there is insufficient evidence to say that they received any help to do this, “schools, in coordination with the authorities, staff and parents, mobilised during this period to fill the gap with online learning and home schooling facilitated by teachers and parents”153

In China, “online trainings and guidance were sent to parents through schools and committees, to help them pay attention to their children’s physical and mental health”.154

Republic of Korea’s155 MoE response gave a high level of importance to teachers, and like many of the best responses involved peer support. It includes:

- designating pilot schools to model online learning and share best practices;
- ‘the 10,000 community’, which mobilized experienced teachers to support other teachers;
- the School-On website, which provides teachers with information on how to use online platforms;
- the Teacher-On trouble-shooting service, which provides remote support to teachers via chatrooms or voice calls, run by teacher volunteer groups.

In China, peer support for teachers was also a feature in the response. The DCUL used filmed lessons by experienced or ‘guru’ teachers to support other teachers. Another example was Qiantang primary school who “organized an online training on how to address the main challenges in online teaching for English lessons. It was part of their support for 300 teachers from 3 low-performing primary schools in two remote provinces.”156

### TABLE 13 | CUSTOMIZED SUPPORT FOR CHILDREN WITH DISABILITIES IN REPUBLIC OF KOREA

<table>
<thead>
<tr>
<th>TYPE OF DISABILITY</th>
<th>CUSTOMIZED SUPPORT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visual Impairment</td>
<td>Educational Broadcasting System (EBS) online content is provided in braille, with learning materials customized and developed in larger fonts and in braille.</td>
</tr>
<tr>
<td>Hearing Impairment</td>
<td>Newly developed EBS lectures include subtitles, and the educational content on the Eduable website includes sign language and subtitles, with regional support centres providing sign language and stenography services.</td>
</tr>
<tr>
<td>Physical Impairment</td>
<td>Learning devices and assistive technology devices are provided.</td>
</tr>
<tr>
<td>Developmental Impairment</td>
<td>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.</td>
</tr>
</tbody>
</table>
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.

Lessons learned

All countries in the sub-region were relatively well prepared to deliver emergency distance teaching responses, using a range of learning materials, including those delivered online. Although Mongolia was less digitally well prepared, it has moved rapidly to catch up. What has been learned about both the equity and quality of these responses?

- Monitoring of access to and participation in learning is critical so that the response can be adapted to meet the needs of all children. All countries have groups of vulnerable and marginalized students who were already suffering educational disadvantage and this learning divide will continue to widen unless there is sufficient information about the types of remote learning which will reach different groups of children.

- A specific focus on reaching the most marginalized can facilitate a comprehensive approach to reach more students. This includes supporting them to buy data, providing materials in different languages, adapting materials for children with disabilities and considering the needs of younger learners.

- Countries using information were able to address the digital divide and deliver distance learning through multiple modalities including high, low and no-tech, so that more children were able to learn remotely through a medium that suited their circumstances and context.

- Early years children need a programme, planned for their specific social, physical and development needs.

- It is not sufficient to ensure learning continuity without measuring participation and learning (loss).

Building formative assessment into remote learning will assist with transitioning back to school, enabling teachers to determine levels of remediation required. Formative classroom assessment should then be fully incorporated into blended teaching and learning.

- Cross-sector collaboration between Ministries, strengthens the response, enabling support to be given to the most vulnerable families and students.

- Guidance for parents and caregivers can help prepare them to support their children’s learning, however they face added pressures which need addressing if they are expected to play a significant role in remote learning.

- Distance education is not a substitute for face-to-face education, which relies on independent learning and critical thinking, and requires a new set of skills from both students and teachers. ICT is a valuable tool for ensuring continued, distance, learning, but it is only part of the solution, with “ICT being regarded as a set of innovative tools that can expand education and open up opportunities.”

- Well trained, supported and remunerated teachers are key to quality education, and they become arguably more important rather than less when delivering distance or blended learning. Teachers were not well prepared for this challenge and need relevant continuing professional development and support. There is evidence in the China and Republic of Korea case studies of teachers themselves offering peer training and this proved successful.

- The teachers’ role is changing with the increasing use of education technology, from transmitters...
of knowledge to mediators of learning and this attitudinal change will take time. The teachers’ role became even more complex during the pandemic (key for delivering health messages within the community, greater community liaison role particularly in rural areas as described in the China case study; through messaging, phone calls or home visits). “A high-performing workforce can form part of an adaptable and resilient system and respond to an emergency situation. With more skills, teachers, if well prepared and supported, will become more resilient to changes to teaching delivery methods and their quality will be visible more consistently.”

3.3 Supporting health, well-being and protection

This section looks at two challenges faced by pupils and their families during COVID-19, and how this has impacted on student learning:

1. Families falling back into poverty; and

2. Issues facing students’ health, well-being and protection.

Globally, COVID-19 has had extremely severe financial consequences for families, although the East Asia sub-region has not suffered as much as many other regions. The rapid flattening of the pandemic’s curve prevented widespread business closures and mass unemployment. However, for some children, hardship has been caused either directly through loss or reduction of parental income or indirectly through the loss of school-based services, all exacerbated by the additional costs incurred to keep students learning (such as the cost of additional mobile data). Economic and health worries, parenting responsibilities and uncertainty about the future led to increased parental stress during the pandemic.

Although evidence specific to the sub-region is limited, there is growing global evidence linking parental stress with child abuse, neglect and domestic violence. With schools closed, students have reduced access to any protection teachers or peers could offer. In Republic of Korea, when families were isolated at home, with little income there were more cases of domestic violence and child abuse reported in the news. In Mongolia, more women have fled to shelters as a result of gender-based violence, “Police and NGO-run helplines report an increase in calls of 19 per cent and 30 per cent, respectively. Women constituted 93 per cent of the victims and about 90 per cent of the crimes were committed in a household setting.”

All these factors impact hardest on the already vulnerable and marginalized increasing the risk of non-participation in learning during school closures and drop out once they reopen. All evidence shows that children learn better when they are physically and mentally well. The World Bank has estimated that between 10-20 per cent of children and adolescents around the world suffered from mental disorders before the pandemic. In the East Asia Pacific region male adolescents are more likely to commit suicide as a result of stress than girls. During the pandemic many students in the region suffered from mental health problems.

With the increased use of online learning, cyberbullying and online abuse, particularly for girls, have become more prevalent. A survey in the Republic of Korea Case Study reports a significant increase in hate mail since the beginning of the pandemic.

In China, 93 per cent of parents reported, in a survey of over 1,000 parents of primary and secondary school students, that they were concerned about the negative impact the pandemic had on their child’s mental health. While the evidence suggests that in the Republic of Korea and China reasonable measures have been taken in addressing the mental and psychosocial needs of children and adolescents, understanding the age-specific issues would help develop a full and tailored response to this complex and critical need.

Positive responses

Throughout the sub-region countries have put in place robust financial and social support packages to prevent families falling back into poverty, such as cash transfers to households (China, Japan, Mongolia and Republic of Korea), food vouchers (Mongolia), national healthcare contributions and child care support (Republic of Korea) and social insurance for migrants (China).

In Japan assistance is offered to help low-income households with additional costs incurred as a result of children learning from home, to top-up payments towards communications costs and waiving tuition fees when returning to school. The city of Osaka is offering free lunches for all 165,000 students at Government-run elementary and junior high schools at a cost of $72 million, with plans to continue beyond the next fiscal year.

Republic of Korea is offering universal emergency relief payments to roughly 21.71 million households to reach the bottom 70 per cent income bracket. Households were given four months-worth of food purchase...
vouchers, received child and social assistance and utility waivers were given to low-income households.

In Mongolia a ‘Child Money’ monthly allowance was given for a total of 1.14 million children and increased to MNT 100,000 (about $32.80) for six months to October, while monthly food stamps for adults and children with food shortages was doubled from May to October 2020. To supplement this, international organizations have contributed to relief efforts. For example, in Mongolia, World Vision International Mongolia (WVIM) launched a direct distribution of food packages, hygiene supplies and multi-purpose cash assistance to families who had lost their livelihoods, reaching around 30,000 children.

The way in which challenges surrounding student health and well-being have been addressed has been through a combination of direct support for individual students and taking steps within the curriculum to support positive mental health for all children. In Republic of Korea psychological counselling is provided for students returning to school through mental Health Promotion Centres to help them overcome anxiety and depression following prolonged distance learning. In Mongolia UNICEF is providing training for school social workers and doctors in selected locations to enable them to provide psychosocial support to adolescents during the COVID-19 response.

In China, once schools had been reopened there was a strong emphasis on the mental health and well-being of students, providing immediate support, preventative measures and establishing new long-term mechanisms to support all students. Schools leveraged resources at the national, local and school levels to organize a variety of face-to-face activities including lectures, class meetings, team activities, etc. and carry out counselling for those in need. Special attention and support were provided to help those with learning difficulties keep up with the learning progress and relieve pressure and anxiety. They also organized a series of cultural, sports, art and outdoor activities and guide students to exercise more, enhance physical fitness, and get used to school life as soon as possible. In addition, the home-school cooperation was further strengthened to establish a long-term working mechanism and model for psychological health among schools, communities and families.

Lessons learned

- Good cross-sector collaboration, particularly between 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 that response, especially from the Republic of Korea.
- Prioritizing mental health, planning provision and mobilizing services to support students who were suffering from stress and anxiety was important to enable them to participate in learning opportunities.
- As the decrease in household finances was a reason for increased anxiety and stress levels among parents, which had an impact on the well-being of children, it was important to have robust social safety nets which reduced economic worries.

3.4 Maintaining learning levels

On return to school, it is likely that the divide between learners will have increased significantly. Some learners will have missed out on learning altogether during school closures, while others will have embraced remote learning and may even have surpassed levels they would have achieved in face-to-face teaching.

- The Japan case study highlights that although schools were closed for only a short period of time it was still likely that some students will have suffered learning loss. This is due to them being unable to access digital learning content and for some understanding learning content proved to be challenging.
- In China students were not accustomed to online and independent learning which led to poorer participation, affecting their learning outcomes.

In Republic of Korea a survey by the Korea Education and Research Information Service stated that eight out of 10 teachers believe that the gap between high and low achievers in their classes was widening as a result of online learning. 64.9 per cent attributed the gap to differences in student self-motivation and independent learning skills. This disparity needs to be addressed, but as learning was not systematically measured during school closures many teachers have little knowledge of the extent of
learning loss or gain. Traditional teaching styles will not be sufficient to meet the needs of all children and there will need to be more of a focus on developing on both skills such as reflection, critical thinking, problem solving, communication, perseverance, practical skills including the use of technology, research and media literacy and social and emotional literacy. Adjusting teaching in this way emphasizes the importance of students learning how to learn which will better equip them for independent learning. Moving towards a blended learning approach would help develop these skills and also refocus the role of the teacher towards being more of a facilitator of learning, then a transmitter of knowledge and information.

This presents three major challenges for teachers and curriculum planners in terms of maintaining learning levels and developing essential skills to prepare students for the future.

1. How to assess to identify what learners now understand and are able to do, then provide remediation which will enable targeted teaching.

2. How to adapt the curriculum so that there is provision for learners which meets their current needs and develops essential skills to prepare them for the future.

3. How to reorient teachers so that they are more focused on developing independent learning skills.

Formative assessment is critical so that teachers can understand what students are able to do on their return to schools and plan remediation programmes accordingly. Remediation, as shown in Figure 19, is a 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.

- Once teachers know what children understand and are able to do, they will need to use a flexible way of planning and teaching which caters to a wide range of learning levels.

- While much of the curriculum was covered through remote learning, evidence shows that not all children accessed the full learning programme. Decisions needed to be made about whether to continue with the curriculum as it was before COVID-19, repeat sections of the curriculum or focus on basic skills of literacy and numeracy which are the foundation for all learning. At the same time, a review of the curriculum would enable lessons learned from this situation to be actioned so that teaching is strengthened and students are better equipped for any future shocks. Training for teachers will also be essential to ensure that they are fully prepared to meet the demands of an adjusted curriculum and the learning needs of all students.

**FIGURE 19 | A ROADMAP FOR REMEDIATION**
Positive responses

- Countries in the sub-region have different approaches to remediation after school reopening.
- 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.

“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.”

In addition, with the intention to ‘provide schools across the country with the necessary human and material resources for ensuring effective learning’, MEXT has assigned large numbers of additional teachers, school support staff, and more. MEXT is also providing all elementary, junior high, and high schools nationwide with funding to support reopening in order to take quick, flexible countermeasures against COVID-19.181

In Republic of Korea, principals and teachers reviewed student progress from online learning with their teachers. As a result of the review, they adjusted the implementation of the curriculum for the face-to-face classes. The autonomy to do this enabled schools to be more flexible when there was further disruption to school schedules.

- During the first month of the return to schools in Mongolia, teachers spent time assessing children and providing support to progress through remedial programmes.182

When China reopened schools, they made system and countrywide attempts to identify learning levels and provide support to those who needed extra help.

Lessons learned

- The importance of being able to learn independently was brought to the forefront during this crisis. Students needed to be able to read information, think critically and reflect on learning, as well as persevere with tasks, use their initiative and problem solve.
- Not all children will have learned to equal levels during school closures, so managing the transition back to school will be critical. Time spent assessing children is essential to identify appropriate remediation measures to ensure equitable curriculum provision. The curriculum may not be sufficient in its’ current form to manage the return to school. Revisiting and developing foundational skills, as well as focusing on health and well-being is important to recover learning and support student’s emotional needs.

- Giving a level of autonomy to schools to make evidence-based decisions about adjusting the curriculum will better help them meet the needs of students.

- Provision of more human resources to support the return to school could help support those children who have ‘fallen behind’.
04

Building back better and building resilience
A new way of planning and working which will enable all children, including the most marginalized 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 learning within and outside formal school settings. While the overall broad vision described lays out a common way forward for education, each country 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 some children may not return to school and that the learning gap has increased as result of inequalities. It needs to be more flexible and adaptable, providing a range of learning pathways, to meet the needs of all children, including those who are out of school, reducing inequalities. 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 and ensure equitable allocation for basic education and be more efficient in spending, 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?

The COVID-19 pandemic has magnified the weaknesses of systems, highlighted strengths and ironically provided a pivotal moment in history to reimagine education. 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 cross-sector collaboration, responses have been strongest and minimized the negative effects of the pandemic on education. Applying this learning to future education planning means that the vision for building back better needs to be shared and developed through cross-government cooperation, not be the sole responsibility of the Ministry of Education. 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 women and children.

Across the three country studies from East Asia there is such a significant range of different experiences, 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 review to identify their priorities, sequence these and revisit their Education Sector Plans to integrate sustaining school safety, better quality distance-learning strategies 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 budget availability. 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.

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, 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 independent, autonomous, encouraged to persevere and socially engaging and collaborating.183

The overarching theme for this vision is that the most marginalized children should be at the forefront of all decision making (Figure 20). This will require extra investment, and innovative solutions, which if 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 the development of appropriate teaching and learning materials and the strengthening of systems supporting teachers and students. For example, during COVID-19, China identified different challenges facing learners in accessing distance learning, which led to the development of targeted interventions to respond to the needs of specific groups of learners as described in section 3.2 of this report.

Each country will need to strengthen the provision of early childhood education, with the aim 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 case studies showed, cross-sector collaboration results in more effective child support. This can be seen when services coordinate so that for example vaccines and feeding programmes are 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.
Investment in teachers

Teachers are the bedrock of any education system.

As this report has shown, teachers in East Asia were highly valued prior to COVID-19. As schools reopen, teachers will need new skills and additional support to address the challenges caused by the pandemic. A global framework for countries to strengthen teacher support systems is set out in the World Bank’s Global Platform for Successful Teachers. 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. 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. 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. For example, in the China case study leading teachers worked hard to establish communication mechanisms with parents and students and make sure that children were not left out of Disrupted Classes Undisrupted Learning (DCUL).

Teachers need to understand they have a new leadership role in building back better. They have responsibility for providing continuity 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. School principals/headteachers have critical roles to play in supporting teachers and as a leaders and managers of schools, to navigate the continuous and evolving processes of building back better. More decisions need to be delegated to the school level so that headteachers and teachers are able to respond flexibly in a way that is appropriate to the situation and the context.
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.

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

This will take time to develop but will be well worth the investment.
Building back better must impact the traditional view of the curriculum. As schools reopen, there will need to be a prioritization and simplification of the curriculum so that children (particularly young ones) are thoroughly learning the numeracy and literacy skills, that will build the foundation for all other learning.

Curriculum reform

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 migrant children and minority language groups were excluded from remote learning due to a lack of materials in their language, along with children with disabilities for whom few materials were adapted. 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 while most programmes were designed at national level, the solutions which best reached the most marginalized have taken place at the local level (many of which were described in the case studies). 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. As mentioned above, headteachers/school principals will have an important role to play in this.

“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.”

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 can take 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 devices, giving flexibility in learning locations. 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 competencies can help students to become certified over time 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 in their learning journey, 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.

**Establishing a blended learning strategy**

UNICEF’s Remote Learning Advice COVID-19 examines a total of twelve different learning modalities across four learning classifications. 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. 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.

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 they have been using 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). 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.
There is an opportunity to rethink school spaces so that they are safer and better meet the needs of a more open learning style.

Safe schools

As well as considering alternative learning solutions and centres, a longer-term vision 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. Some countries have enacted new regulations which require improved safety and well-being before they reopen, so that schools are built back better. Many countries are following the recommendations included in the WHO checklists such as 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.

Use of data – Building a new monitoring, evaluation and assessment framework for the new vision

The new vision for teaching and learning will require a new Monitoring, Evaluation and Assessment framework. 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 her teaching 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 learners.

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 (Figure 19). 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. 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 around use and participation will be critical so that there is evidence of what works and where. Monitoring and tracking individual student learning in register-based EMIS will help work towards personalized learning which takes individual characteristics into account, e.g., language, disability, etc. All data 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. The four countries in East Asia spend between 2 per cent and 4 per cent of GDP on education, which is short of the 4 per cent to 6 per cent of GDP, recommended by UNESCO. This is examined in more detail in the Finance Section 2.4. The challenge most countries face, is decreased domestic revenues at a time when there are rising needs in health and education, in particular to fund the response and recovery activities.

For many countries, the issue is not just insufficient funding, but how the funding is allocated and spent. To reach the most marginalized children and address the learning divide, funding needs to be allocated equitably by deliberately targeting communities and groups that are falling behind. Governments need to look at how they spend their funds and identify how they can do this more efficiently. One of the most effective ways to do this is to ensure cross-sector and multi-level collaboration in planning, budgeting and implementation to prevent duplication of activities.

This section described 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
This section presents recommendations for governments across the region to consider. The recommendations are brought together under the headings from the earlier sections.

1. Reopening schools safely.
2. Delivering equitable and quality distance learning during full or partial school closures.
4. Maintaining learning levels.

As demonstrated through this report 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 are prioritized. Consideration of the challenges, lessons learned and the vision for building back better has led to the development of the following recommendations.

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

While schools in the sub-regions were closed nationwide for relatively short periods of time, some countries in the region have entered further spikes and may need to consider closing some schools again. The recommendations below are related to some of the factors that would help keep schools open, or support a quick and safe reopening if they have to be closed again for a period of time in the future.

**Short – medium term**

Continue building cross-sectoral collaboration, particularly between health and education so that information about infection in communities can be communicated quickly and enable immediate decisions to be taken around school closures.

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. Prioritize keeping early years children in school as long as is feasible.

Establish and maintain Monitoring and Evaluation systems to track school closures, reopening and numbers of drop-outs which can enable targeted support and communication.

Strengthen the monitoring of the implementation of safe operating measures, especially for remote rural areas and poorer urban areas to ensure decision makers are aware of long-term needs and can plan and budget accordingly to address these.

Strengthen communication and consultation around schools closures and reopening with teachers and parents so that they are aware of the level of risk involved in opening schools with the requisite safety measures, and in keeping them closed.

**Medium – long term**

Review the effectiveness of monitoring, evaluation and accountability systems and plans for the implementation of safe operation measures in schools. Use the findings to strengthen the system so that it becomes more resilient with more equitable provision.

Strengthen WASH monitoring and planning in Western China and Mongolia. Use monitoring data to build plans for improvement into longer-term action plans, and budget allocations so that there is equitable access to adequate and sufficient water, sanitation and hygiene facilities. Prioritize areas where the facilities are inadequate and contain a higher proportion of vulnerable families.
5.2 Delivering equitable and quality distance learning during full or partial school closures which reach the most marginalized

Most countries in the sub-region responded quickly to deliver an emergency response through the use of distance learning. The response relied heavily on students and teachers having access to technology. In every country, there were some children who, through lack of access, were at risk of being left behind or further disadvantaged. This resulted in lost opportunities for learning during school closures. The recommendations in this section consider how the region can learn from good practices in the region and make any future distance learning response more equitable, reaching all children.

Monitor access and participation in distance learning. Gather and use data about effectiveness of materials, reach of modalities and levels of learning to strengthen approaches to distance learning to reach all children.

Develop specific programmes targeted at early years and consider how adults in the community (including parents and teachers) can be used and prepared to support their continued development during school closures and how parents and the community can be given support to enable appropriate provision for all which meets their needs. Build formative assessment processes into remote learning approaches so that students receive feedback and teachers know what has been learned. This will increase motivation and support a smooth transition between school and home learning.

Ensure that teachers receive adequate preparation for distance learning. Use CPD mechanisms accompanied by peer learning and support to develop digital learning skills and capacity.

Continue the push for connectivity for all children, ensuring universal access to digital infrastructure and devices, building on and extending public-private partnership and cross-agency collaborations to enable this.

Collect and use data and evidence to review the current understanding of the needs, of vulnerable and marginalized groups. This will enable targeted resource planning and budgeting, focused on the most marginalized children in the community. This planning should be supported by explicit policies which prioritize funding to ensure reach to the most marginalized to develop an equitable approach to all learning, including distance learning.

5.3 Enhancing support to health, well-being and protection

Short – medium term

Further strengthen collaboration between the education, health and social welfare ministries and other relevant stakeholders to review the gaps in the pandemic response plan concerning the health, welfare and nutritional needs of pre-school and school-age children.

Use the data to assess and rank priorities for action and develop a costed plan to address these, identifying where provision of each measure best lies.

Engage in cross-sector collaboration from central to grassroots level and conduct outreach with communities to ensure catch-up campaigns for school-based health services such as vaccinations, deworming, nutritional screening, and sexual and reproductive health services are implemented promptly.

Consider innovative ways to provide regular counselling and accessible psychosocial support for all children, through school groups and community support groups. At the national level, consider the focus and design of examination systems and review how these could be made less stressful for children.

Review current pandemic response plans in light of the latest evidence from research on COVID-19 (as relevant to children’s health) and carry out a cost-benefit analysis of health measures, the recommendations made from recent pandemics and lessons from the COVID-19 response.

Conduct surveys particularly among the most marginalized households (including those with disability and special needs) to provide information on how future pandemic response can be strengthened to meet their needs.

Collect and disaggregate data to identify those vulnerable children who have not accessed any needed services so they can be targeted with a different type of provision, adapted to their needs. Review the social norms that have been harmful to children during the pandemic so that longer-term solutions can be planned.
Medium – long term

Conduct a comprehensive review of child and adolescent mental health and mental health services and devise a national plan for the provision of outreach mental health services. Support schools to develop a strategy to address students’ anxieties, stress and self-esteem.

Strengthen pandemic response plans through joint ministerial work and cross sector collaboration to address the pathways for the delivery of essential health and social services to pre-school, primary and secondary school children and adolescents, ensuring these are secured, including meeting mental health needs.

Use the review of harmful social norms to develop targeted interventions and systems to identify, refer and support those who have been affected as well as longer-term behavioural change programmes.

Ringfence finances for ongoing pandemic preparedness to secure essential health and nutrition services for the most vulnerable.

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

Short – medium term

Introduction and strengthening of formative assessment processes, on return to school will develop teachers’ knowledge of learners, enable them to target learners and be more immediately responsive to student’s learning needs.

Understand and mitigate learning loss by monitoring students’ participation and assessing their learning, providing remedial support, and making adaptations to the curriculum. Alongside this, enhance teachers’ capacity to assess students’ learning and deliver remote teaching, especially developing the skills needed for online teaching and support student well-being.

Medium- long term

Modify the current high-stakes assessment processes, realigning them with the educational visions and priorities of the government. Use this modification as an opportunity to develop a more sustainable pedagogy, based on blended and individualized learning and which cultivates more independent learners who are better prepared for life-long learning. As part of this process, review the curriculum, moving towards skills and knowledge which will prepare students for their future lives.

Develop learning platforms that are more engaging and interactive (including an online dashboard, students can watch video lessons, submit assignments, access relevant reading materials and review their performance). This way, students can track and learn at their own pace, anywhere and through any device.

Reorient the role of the teacher towards managing and facilitating individualized learning. This will require flexibility, enhanced ICT skills and mentoring as well as providing direct teaching and provide appropriate training and support systems to enhance teacher confidence as well as capacity. Review and if necessary, adjust pre-service teacher training to make sure new recruits are well prepared to deliver ‘the new pedagogy’.

Review the role of principals/headteachers so they are fully able to lead and manage the school and support their teachers to develop and adapt to new roles. Delegate more decisions to the school level so that headteachers are able to respond flexibly in a way that is appropriate to the situation and the context.

**5.5 Overarching recommendation**

Critically review the Education Sector/Strategic Plan (ESP) in light of the COVID-19 related impacts and situations, including challenges of dropout, learning loss/gaps, safe school operation, mental health, teacher training, technology (devices, connectivity), etc.

In the context of the need for more funding and reduced overall government revenue, consider the financial needs of each country to meet the SDG 4 target. The costing model described in Annex A can support this analysis process and help to identify likely sources of additional funding, or how funding inefficiencies could be reduced.

Protect and enhance education funding, so that the countries in the sub-region can continue to build their education provision and develop innovative approaches that are equitable for all children, especially the most marginalized who are falling behind in their learning.
Conclusion
When the pandemic struck the region early in 2020, governments moved quickly to respond to the situation and mitigate against the negative impact of virus transmission. Schools were closed to protect children and prevent community transmission and systems provided alternative approaches to learning, mainly based around technology. These solutions reached the majority of the student population but exposed inequalities in access, the ability to use technology and levels of support for learning. Learning was additionally affected for many children because of added family pressures and increased levels of anxiety. This impacted most on already marginalized children, and those with pre-existing low levels of learning.

Across the region, SDG 4 targets pre-COVID-19 were generally on track to be achieved. However, there is little evidence on current learning levels to show whether or not this has changed as a result of the pandemic. The speed at which schools were reopened may have minimized the effects of the pandemic for some students, although there will still have been learning loss, as was shown by the Brookings simulation.190

One challenge for teachers in the region, particularly mentioned in the Japan and Republic of Korea case studies was the transition from face-to-face teaching to remote learning. While teachers in these two countries had been accustomed to using technology for social purposes and in the classroom, they found themselves having to learn a new set of skills to manage remote learning and many were lacking in confidence to do this. The post-pandemic period provides a good opportunity to build teachers’ capacity to manage learning online and doing so would facilitate the switch to remote learning in the future if necessary.

Although COVID-19 has resulted in significant expenditure pressures on the education sector, it is critical that countries prioritize demands. In addition to strengthening the social contract between government and citizens by protecting access to education, which is a key social service, countries also risk the sustainability of their social protection systems if they fail to strengthen their education systems to catch up the lost learning and provide a safe environment for children to return to school. The improvement in human capital and a strong social contract will help to generate additional future tax revenues, which will offset (if not fully cover) the financing currently required to respond to COVID-19. Moreover, supporting quality education may generate potential expenditure savings by avoiding costly alternative welfare support programmes. Given these considerations, the countries should investigate all available revenue sources – even deficit financing – to ensure that the education sector has sufficient resources to respond to the shocks presented by COVID-19.

In terms of building education systems back better, the negative budget shocks imposed by COVID-19 may provide the required impetus and financing to raise the historically low education budgets in some countries towards the 6 per cent of GDP targeted by UNESCO. This would rapidly shift the sub-region towards the social states achieved in Europe, where it took 100-years to increase education budgets from 2 per cent of national income in 1910 to 6 per cent in 2010.191

Generally, the response throughout the region to the pandemic was strong and there was a range of good practice, highlighted in this report and detailed in the country case studies, which can be shared, learned from and adapted to different contexts. These approaches had some common factors:

All this good practice needs to be built upon and further strengthened to heighten resilience and ‘build back better’ so that in future, the most marginalized children are able to equitably access learning and support.
• High levels of cross-sector collaboration minimized the effects and enabled the response to be driven by the health, education and social needs of families. This was shown to be an effective approach to mitigating against the potential health effects, particularly in Republic of Korea and Japan.

• Strong social protection packages including provision of food packages and cash vouchers, mitigated against some of the longer-term health and nutrition issues for those families hardest hit by the economic effects of the pandemic.

• Committed teachers who had opportunities for peer support, access to resources and were able to adapt and innovate with support provided by the government.

• Data-driven responses specifically targeted at particular sections of the community increased participation and quality of response, such as in Gansu, China.

• Utilizing existing technology infrastructure which could be quickly scaled and adapted to respond to need.
A.1 Background

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 SDG 4 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 21 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. 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.
SITUATION ANALYSIS

- 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.
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 that 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 are 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 14 to Table 17 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 these data, we have applied best estimates and undertake 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 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 severe impact on the education sector.

Table 14 presents the modelled parameters for the remediation variables, with each explained as follows:

- The duration of full and partial school closures are based on the February 2021 data from UNESCO. 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 Center for Global Development have compiled a description of the school closures enacted by countries.196 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 confirmed 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).197 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 five, whereas the number of returning grades is reduced to just one (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.198

• 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.199 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, etc.) 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.200 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.201 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.202

• Countries have applied a variety of mechanisms to catchup the lost teaching days. The main mechanisms include increased class time, accelerated programmes, and remedial programmes.203 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.204 Extending school hours by one-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.205 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.206 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 OECD countries, and proportionally scaled up to 1:1.4 for the pessimistic scenario. Table 15 presents the modelled parameters for the student enrolment and placement variables, with each explained as follows:

- 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. 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. UNESCO estimate that 2 per cent of children globally and 0.9 per cent of children in East Asia are at risk of dropping out of school due to the shocks caused by COVID-19. The additional student dropouts are therefore set at 0.9 per cent in the baseline scenario, 2 per cent in the pessimistic scenario, and lowered to 0.5 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 GEM report, the baseline scenario applies a 40 per cent marginal cost premium to attract and retain vulnerable children in the education system. This 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.

### Table 14 | Remediation Variables and Parameters Applied in the Model

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>BASELINE</th>
<th>OPTIMISTIC</th>
<th>PESSIMISTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration of school closures up to February 2021 (days)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>China</td>
<td>47 Full</td>
<td>78 Partial</td>
<td>47 Full</td>
</tr>
<tr>
<td>Japan</td>
<td>11 Full</td>
<td>40 Partial</td>
<td>11 Full</td>
</tr>
<tr>
<td>South Korea</td>
<td>28 Full</td>
<td>41 Partial</td>
<td>28 Full</td>
</tr>
<tr>
<td>Mongolia</td>
<td>131 Full</td>
<td>41 Partial</td>
<td>131 Full</td>
</tr>
<tr>
<td>% students affected by full school closures</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Number of grades not affected by partial school closures</td>
<td>3</td>
<td>5</td>
<td>1</td>
</tr>
<tr>
<td>% students effectively reached by alternative teaching modes</td>
<td>28%</td>
<td>40%</td>
<td>16%</td>
</tr>
<tr>
<td>School days caught up through longer hours/shorter holidays</td>
<td>35</td>
<td>50</td>
<td>0</td>
</tr>
<tr>
<td>Setback factor (school closure time: learning remediation time)</td>
<td>1.25</td>
<td>1.1</td>
<td>1.4</td>
</tr>
</tbody>
</table>

Table 16 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. 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. 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 two years in the baseline scenario, 1.5 years in the optimistic scenario, and three years in the pessimistic scenario. The estimated pandemic length 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. 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 (2019) targets. 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, 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 (UNICEF, 2020c). 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. 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

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### Table 16 | Student Enrolment and Placement Variables and Parameters Applied in the Model

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>PARAMETER</th>
<th>BASELINE</th>
<th>OPTIMISTIC</th>
<th>PESSIMISTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students shifting from private to public schools</td>
<td>20%</td>
<td>10%</td>
<td>30%</td>
<td></td>
</tr>
<tr>
<td>Additional student dropouts</td>
<td>0.9%</td>
<td>0.5%</td>
<td>2%</td>
<td></td>
</tr>
<tr>
<td>Unit cost premium to re-enrol students who have dropped out</td>
<td>40%</td>
<td>30%</td>
<td>50%</td>
<td></td>
</tr>
</tbody>
</table>

media platforms, the baseline and optimistic scenarios assume zero cost for this service.\textsuperscript{218} The pessimistic scenario assumes that teachers require professional psychological support, with 1 psychologist counselling 40 teachers (one one-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 report 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.\textsuperscript{219} 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.\textsuperscript{220} The optimistic scenario applies the lower unit cost of $41. The unit cost is proportionally increased to $69 in the pessimistic scenario.

<table>
<thead>
<tr>
<th>VARIABLE</th>
<th>PARAMETER</th>
<th>BASELINE</th>
<th>OPTIMISTIC</th>
<th>PESSIMISTIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once-off responses</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Teachers retrained on distance learning and COVID-19 protocols</td>
<td></td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>Unit cost of teacher training</td>
<td>$6</td>
<td>$4</td>
<td>$8</td>
<td></td>
</tr>
<tr>
<td>Annual responses</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Estimated pandemic length (years)</td>
<td>2</td>
<td>1.5</td>
<td>3</td>
<td></td>
</tr>
<tr>
<td>Social distancing preventative measures</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Ideal learner-teacher ratio</td>
<td>20:1</td>
<td>20:1</td>
<td>20:1</td>
<td></td>
</tr>
<tr>
<td>Hygiene preventative measures</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Annual PPE unit cost per teacher</td>
<td>$11.7</td>
<td>$8.4</td>
<td>$15</td>
<td></td>
</tr>
<tr>
<td>Annual hygiene product cost per student</td>
<td>$11.7</td>
<td>$8.4</td>
<td>$15</td>
<td></td>
</tr>
<tr>
<td>Support systems for teachers</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Annual unit cost of teacher support systems</td>
<td>$0</td>
<td>$0</td>
<td>Variable</td>
<td></td>
</tr>
<tr>
<td>Feeding programmes for vulnerable children</td>
<td>Yes</td>
<td>Yes</td>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>Annual feeding scheme unit cost</td>
<td>$72</td>
<td>$50</td>
<td>$100</td>
<td></td>
</tr>
</tbody>
</table>

Table 17 presents the variables and parameters related to school water, sanitation, and hygiene (WASH) infrastructure, with each explained as follows:

- UNICEF note that almost all countries have identified the importance of hygiene and handwashing in their COVID-19 responses. 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 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>
<thead>
<tr>
<th>TABLE 17</th>
<th>SCHOOL INFRASTRUCTURE-RELATED COVID-19 SHOCK MODEL VARIABLES AND PARAMETERS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VARIABLE</td>
<td>PARAMETER</td>
</tr>
<tr>
<td>Expedited WASH investment</td>
<td>Yes</td>
</tr>
<tr>
<td>WASH as a per cent of capital budget</td>
<td>76%</td>
</tr>
<tr>
<td>Percentage of 2030 target achieved within pandemic period</td>
<td>40%</td>
</tr>
<tr>
<td>Annual maintenance cost (per cent of replacement value)</td>
<td>5%</td>
</tr>
</tbody>
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This report was supported with funding from the Global Partnership for Education.