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Task Force on
PPP and Infrastructure

Social Infrastructure: Financing and Use of Digital Technologies

Disclaimer

This work is published by the BRICS Taskforce on PPP and Infrastructure under the 2021 Indian Presidency and is based on best-effort responses provided by BRICS member countries to a questionnaire, Outcomes Report of the virtual seminar co-hosted by the Ministry of Finance, India and NDB in May, 2021 as well as information gathered from third-party sources. The findings, interpretations, and conclusions expressed in this Report do not necessarily reflect the official views/ stated positions of the BRICS countries. The Report is intended for knowledge sharing and future research in the social infrastructure space. This Report does not assure accuracy, completeness or currency of the data and information. The information not reflected in the Report should not be construed/ concluded as non-availability of any policies or action taken by the BRICS countries. The report should not be relied upon as a substitute for governmental guidelines or specific legal advice. It shall also be noted that the links to third-party websites/sources are provided for reference purpose only and do not imply that they are endorsed by the BRICS countries.

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Foreword

The world is still grappling with the COVID-19 pandemic and the adverse impact it has had on economies which were still coping with the global economic slowdown. As health and education sectors gained prominence and we all recognized the need to ramp up investment in social infrastructure, the BRICS Finance Ministers and Central Bank Governors, under India's 2021 BRICS Presidency, jointly recognized social infrastructure as a common strategic priority. Increased investment in social infrastructure would also help member countries to achieve the Sustainable Development Goals (SDGs) as delivery of inclusive and universal social services is at the very heart of these goals.

The governments' budgetary resources have further been constrained by the COVID-19 pandemic and therefore private sector participation is required not only in economic infrastructure but also in case of social infrastructure to bridge the financing gap as well as harness private sector efficiencies.

The COVID-19 pandemic resulted in rapid adoption of digital technologies, specifically, as delivery of social services at a fast pace became the need of the hour. With this in mind, the Presidency also laid emphasis on focusing on leveraging of digital technologies by the members with a view to learn from each other's experiences. Therefore, the work of preparing a collaborative report on 'Social Infrastructure: Financing and Use of Digital Technologies' was assigned to the BRICS Task Force on PPP and Infrastructure.

I am pleased to present this Report, which is perhaps one of the first endeavour to collate information and insights on BRICS countries' experiences in social infrastructure. The Report details the constituents of social infrastructure, outlines its broad characteristics, existing ways and means of funding and financing social infrastructure, as well as the policy and institutional framework at the national and subnational levels in BRICS countries. Notably, it also outlines how BRICS governments have leveraged digital technologies to enhance access and improve service delivery to meet the unprecedented challenges posed by the pandemic, especially in case of the health and education sectors. The Report also features key learnings that emanate from the experiences of the BRICS countries and suggests a way forward for furthering the work in social infrastructure space.

I hope this work, which is a shining example of BRICS collaboration and cooperation, not only promotes cross learnings to plan and implement the domestic policies better but also serves as a reference point for further research in this area.

I would like to place on record my gratitude to the member countries for their cooperation and support extended to the Indian Presidency in preparing this report.

I also appreciate the efforts of the team who worked tirelessly and devoted long working hours in preparing this report and to all those who contributed in accomplishing this work.

Nirmala Sitharaman

Minister of Finance

India

Acknowledgements

This Report has been prepared by the BRICS Task Force on PPP and Infrastructure under the 2021 BRICS Indian Presidency and is a result of extensive collaboration among the members of the BRICS Task Force.

The Report is based on BRICS members' responses to the questionnaire, the Outcomes Report of the virtual seminar on Social Infrastructure co-hosted by the Ministry of Finance, India and the New Development Bank (NDB) held on May 13 and publicly available information from third party agencies.

We express our gratitude to the officials from the Ministry of Economy, Brazil, Ministries of Finance of Russia, China and South Africa for their responses to the questionnaire, for sharing their feedback and insights on the earlier drafts of the Report and helping the Task Force in fulfilling the mandate assigned by the BRICS Finance Ministers and Central Bank Governors.

This work has been steered by the BRICS Task Force Team, Ministry of Finance, India led by Baldeo Purushartha, Joint Secretary, Ministry of Finance, India and the 2021 Chair at the BRICS Task Force on PPP and Infrastructure. We are grateful to Archana Mayaram, Director, Ministry of Finance, India for leading and overseeing the preparation of this Report from inception to delivery.

We are thankful to the Core Team of the Report comprising Archana Mayaram, Shreshtha Saraswat, Kushal Kumar Singh and Sonika Mittal for drafting, reviewing and editing the report. We also appreciate contributions made by Sreepadhaa CV and Aditya Duggirala.

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Glossary

For the purpose of this report, following may be referred:

- **Capital grants**, which are part of the Viability Gap Funding, are generally grants provided by the government for support during creation of the infrastructure.
- **Co-financing** generally uses sovereign funds or funds from Multilateral/Bilateral Development Institutions to make projects attractive to the private sector. Co-financing is used to adjust the risk-return profile to facilitate investment in projects that would not have otherwise received finance.
- **Credit guarantee schemes** are where a government or an international donor agrees to bear some downside risk, typically by assuming a borrower's debt obligation in the event of a default.
- **Financing** refers to money required at the outset of the project to begin implementation, primarily for asset construction.[1]
- **Funding** refers to money required to meet repayment obligations and remunerate the project financiers, namely debt and equity holders.[1]
- **Government grants** are non-returnable financial assistance provided by the Government (or its agencies) to an enterprise for compliance with certain conditions. Government grants generally exclude public equity.
- **IIFCL** refers to the India Infrastructure Finance Company Ltd., a wholly owned company of the Government of India, set up in 2006 to provide long-term financial assistance to infrastructure projects.
- **Infrastructure** can be broadly defined as long-term assets that enable provision of goods and services and includes roads, highways, railroads, airports, seaports, electricity, telecommunications, water supply, sanitation, health, education, etc. Infrastructure is further classified as economic infrastructure and social infrastructure.
- **Least Cost Based Selection** is a method where procurement is undertaken on the basis of the least financial costs subject to the offeror meeting a minimum experience. In this method, multiple entities are invited to submit their proposals.
- **Market sounding and/or assessment** refers to a procedure that evaluates potential interest from contractors, providing insight into the likely level of market interest and providing the procuring authority with an opportunity to adjust the project scope if necessary to ensure PSP/PPP and improve competition.
- **Operating grants**, which are part of Viability Gap Funding, are generally grants provided by the government for support during service delivery.
- **Policy making body** is an agency which formulates guiding policies for a sector or a domain. For example, in India, Department of Telecommunications is responsible for formulating guiding policies, licensing, and coordination matters for various forms of communications such as telegraphs, telephones, wireless, data, etc.
- **PISA** refers to OECD's Programme for International Student Assessment which measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges[2].
- **Private Sector Participation (PSP)** refers to any degree of involvement of the private sector in the provision of a public infrastructure/ service wherein the private party bears a

[1] Public Private Partnerships Reference Guide (2017) (https://library.pppknowledgelab.org/documents/4699/download)
[2] https://www.oecd.org/pisa/

share of the project's operating risk through contractual obligations.[3] **Public Private Partnership (PPP)** refers to a formal cooperative arrangement between the private and the public sector parties for providing a public asset and/or service over a defined term, with shared risks, responsibilities, and rewards between both the private and public sector parties.[4] For the purpose of this report, PSP and PPP have been used interchangeably and exclude completely private initiatives.

- **Public equity** is a subset of budgetary allocation and refers to the total equity investment by the public entities.
- **Public long-term loans** include concessional lending by government agencies to the private sector partner.
- **Quality Based Selection** is a method where procurement is undertaken only on the basis of the quality of the proposal. In this method, multiple entities are invited to submit their proposals.
- **Quality Cost Based Selection** is a method where procurement is undertaken on the basis of the combined score calculated considering the quality of proposal and financial costs. In this method, multiple entities are invited to submit their proposals.
- **Regulatory body** is an agency which regulates a sector or industry. For example, the Telecom Regulatory Authority of India regulates telecom, broadcasting, and cable services sector, including fixation/revision of tariffs, interconnection, quality of service, etc.
- **Specific risk guarantee** such as a partial risk guarantee protects private lenders against debt service defaults on loans, normally for a private sector project, when the defaults are caused by a government's failure to meet specific obligations under project contracts to which it is a party.
- **Staple financing** is a financing approach is where government develops a financing package to be offered at the bidding stage. Bidders can opt for either the government financing strategy or develop one of its own.
- **Triage** refers to deciding of the order of treatment of (patients or casualties).
- **Use of digital interventions** refers to the use of any digital technology (including, but not limited to drones, Internet of Things (IOT), sensors, desktop/mobile applications, Data science tools, Business intelligence, Machine learning, Artificial Intelligence) for delivery of social services (includes enabling provision of social services, promoting access and affordability, and monitoring the status of delivery).
- **UNDP** refers to the United Nations Development Programme.
- For **tables and figures** in this report**:**
  - An empty cell denotes that the response has not been reflected in the country's comments to the questionnaire.
  - ⊗ denotes that the country response mentions that a particular option is not applicable/existent in the country.

[3] Private Participation in Infrastructure (PPI) as defined by the Private Participation in Infrastructure Database, World Bank (https://ppi.worldbank.org/en/methodology/ppi-methodology)
[4] Based on working definition of PPPs by UNCTAD

Executive Summary

1. Introduction

As per the mandate assigned by the BRICS Finance Ministers and Central Bank Governors, the Report has been prepared based on member countries' responses to a questionnaire, Outcomes Report of the Ministry of Finance, India and NDB virtual seminar and information gathered from third-party sources.

Rapid economic growth necessitates creation of new infrastructure as well as additional improvements to the existing and greying infrastructure. Infrastructure investments are therefore perceived as key enablers in laying the foundation for strong, sustainable and resilient economic growth.

The Report has been prepared based on members' responses to the questionnaire, Outcomes Report of the virtual seminar co-hosted by the Ministry of Finance, India and NDB and information from third-party sources.

While there have been extensive discussions on financing economic and social infrastructure after the adoption of the Sustainable Development Goals (SDGs) by the UN member countries, **the issue of financing social infrastructure has gained greater traction since COVID-19 pandemic,** which has demonstrated the inadequacy of economic infrastructure development sans a focus on affordable and resilient social infrastructure. Provision of quality infrastructure, encompassing both the economic and social aspects, is also at the heart of the Sustainable Development Goals (SDGs). For example, Goal 3[5] talks about ensuring healthy lives and promoting well-being for all at all ages. Goal 4[6] aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Goal 6[7] talks about providing access to clean water and sanitation as billions of people across the world, especially in rural areas, lack access to this basic amenity.

Therefore, it becomes imperative for the BRICS countries to focus on social infrastructure to facilitate the achievement of SDGs.

The aim of this Report is to enable knowledge sharing on social infrastructure, its constituents, characteristics, existing ways and means of financing and funding social infrastructure, use of digital technologies to enhance the accessibility and affordability with a view to provide quality services to all.

1.1. Social infrastructure is re-emerging as a priority area for the post-pandemic recovery

Although there is no universally applicable definition of social infrastructure, countries across the world have defined social infrastructure as per their own requirements. The term 'social infrastructure' is generally used to refer to those systems that deliver services upon which the health and well-being of societies depend. The term can be used to describe infrastructure that delivers services related to healthcare, education, housing, water and sanitation, rule of law, culture and recreation, among others.[8] COVID-19 has highlighted the need to expand access and ramp up investment in social infrastructure , especially in healthcare and education. Consequently, improving access to social infrastructure services is now recognized as a key step towards building a resilient and sustainable economic recovery plan to achieve SDGs.

2. Overview of social infrastructure in BRICS countries

Considering the accentuated focus on social infrastructure globally, there is merit in understanding the broad contours/characteristics of social infrastructure in BRICS countries.

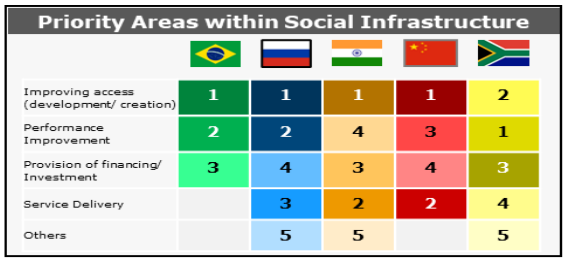
[5] United Nations (https://sdgs.un.org/goals/goal3)
[6] United Nations (https://sdgs.un.org/goals/goal4)
[7] United Nations (https://sdgs.un.org/goals/goal6)
[8] United Nations Environment Programme (2021): International Good Practice Principles for Sustainable Infrastructure.

2.1. Health and education emerge as common sectors under the purview of social infrastructure in all BRICS countries

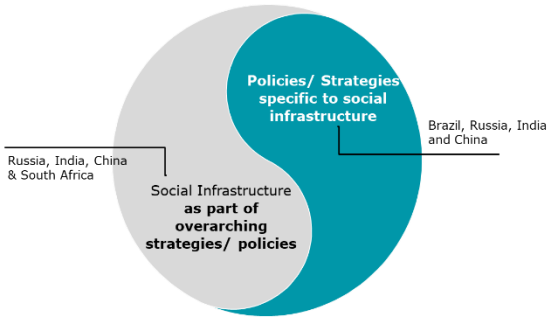
Additionally, sectors focused on wellbeing (for instance, sports and fitness, drinking water and sanitation), as well as social institutional systems (e.g., governmental and judicial facilities), housing (e.g., social dwellings) and municipal structures (e.g., parks, lightings, and recreational spaces) also feature under social infrastructure for most BRICS countries. All BRICS countries recognize the importance of social infrastructure and have consequently developed specific policies and programs to enhance social services in their countries. However, the coverage and priority areas vary across BRICS members.

2.2. Providing better access to social services emerges as a common priority for four out of five BRICS countries

Creation/development of infrastructure aimed at providing better access to social services, such as healthcare and education, emerges as a top priority for four out of five countries. Given the focus on healthcare facilities due to the pandemic, all BRICS members have heightened their focus on this sector. In the education sector, early childhood education features as the priority segment across all BRICS countries.



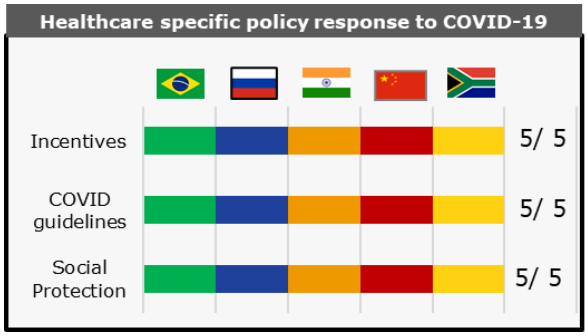
2.3. Policies and strategies for social infrastructure exist in all BRICS countries

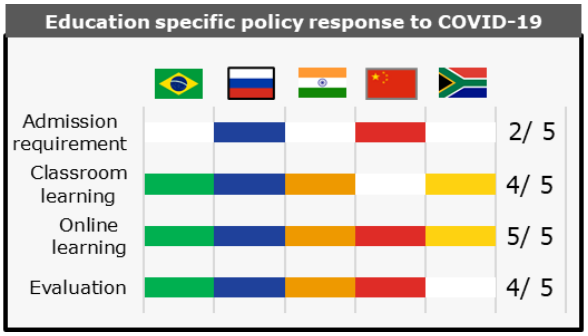


BRICS countries have adopted a two–pronged approach: (1) Including social infrastructure as part of their overarching infrastructure strategy; (2) Developing sector-specific policies to cater to those sectors under social infrastructure. While **Russia, India,** and **China** have adopted both these approaches in their policy, **South Africa** has included social sector as part of their overall infrastructure plan, while **Brazil** has adopted a policy framework targeted towards specific social infrastructure sectors.

2.4. Sector-specific policy interventions as a response to COVID-19

The pandemic has put several livelihoods at risk globally, directly impacting the social sectors of all nations and resulting in a setback on health gains and learning activities. As a response to COVID-19, countries have implemented various policy interventions to effectively manage the outbreak,

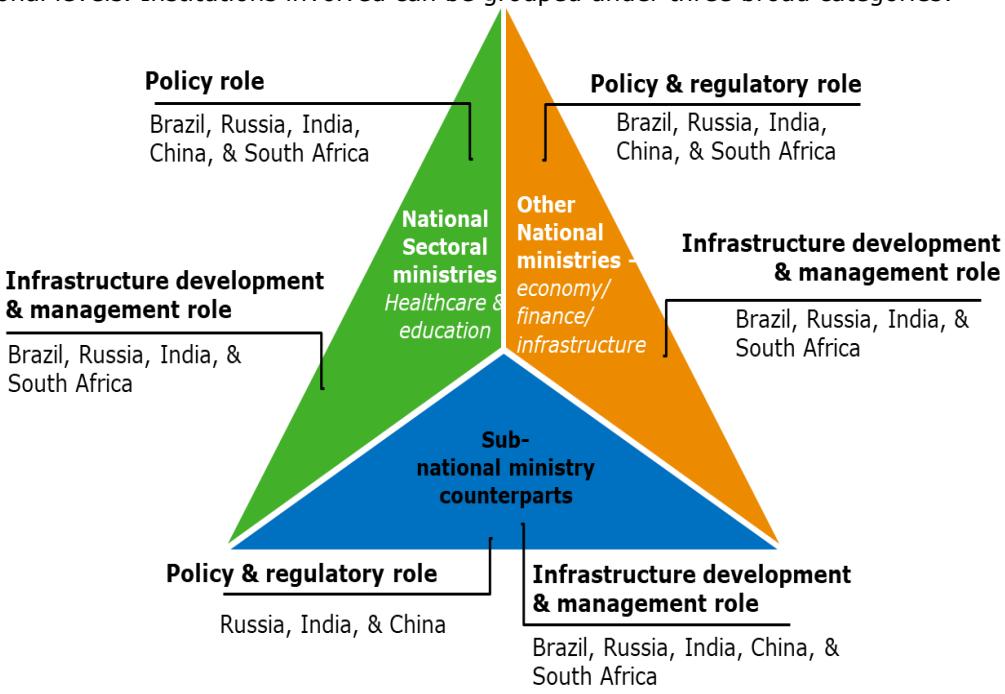




protect livelihoods, and enable continued learning. In an effort to mitigate the stress on healthcare facilities due to the pandemic, all members have implemented policy interventions across the board in the health sector. Further, in the education sector, all countries have enabled policies supporting online learning to ensure continued learning during the pandemic.

2.5. BRICS countries have a robust institutional framework to aid social infrastructure development

This report elaborates the institutional framework prevalent across BRICS countries at national and sub-national levels. Institutions involved can be grouped under three broad categories:



i. National ministries/departments (sectoral ministries of education, health, etc., and their organisations)
ii. Other national ministries/departments (ministries of finance/economy and development with an overarching infrastructure role)
iii. Subnational ministries/departments (sectoral).

2.6. Need for increasing investment as a percentage of GDP in social infrastructure

G20 countries, on an average, spent approximately 8%[9] of their GDP on health and 5%[6] of their GDP on education from 2016 to 2018. While all BRICS countries are members of the G20, they spent approximately 3%[6] of their GDP on health during the same period. However, there is a lack of comparable data for expenditure on education as a percentage of GDP in BRICS countries.

The data reinforces the need to ramp up investment in the social infrastructure sector. With COVID-19 directly impacting these sectors and resulting in setbacks, there is an urgent need to scale up investment in this sector.

3. Financing social infrastructure through Private Sector Participation (PSP)/Public Private Partnerships (PPPs) in BRICS countries

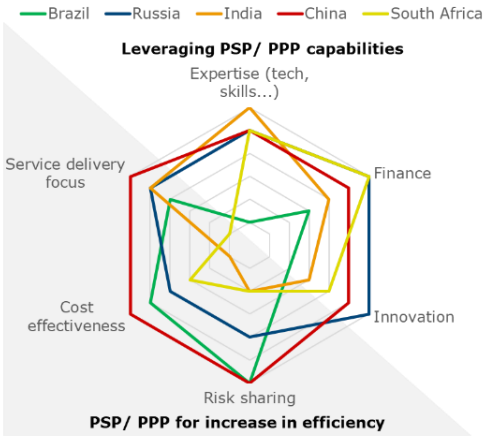
Most BRICS countries are grappling with the challenge of stretched public budgetary resources to fund social infrastructure projects. To accelerate investment in the sector, BRICS members appreciate the need for enabling PSP/PPPs to bridge the financing gap and bring in private sector efficiencies.

[9] https://data.worldbank.org/ (Domestic general government health expenditure (% of GDP), 2016-18)

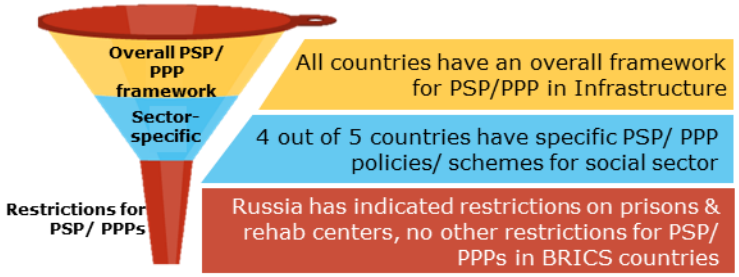
3.1. Need for PSP/PPPs to utilize their capabilities and increasing efficiency

From the responses of member countries, it appears that the public sector views private sector participation from two aspects: (1) Utilizing its technical and financial capabilities and (2) For increasing efficiency. BRICS countries have ranked their key drivers for encouraging PSP/PPPs in social infrastructure within these two broad categories.

The adjacent figure depicts these two aspects where it can be seen that while **Brazil** is driven by the efficiency parameter, **India** and **South Africa** lean towards utilizing technical/financial capabilities of the private sector. **Russia** and **China** have indicated their preference for both these aspects.



3.2. All BRICS countries have a well-defined policy/legal framework for enabling PSP/PPPs in the infrastructure sector

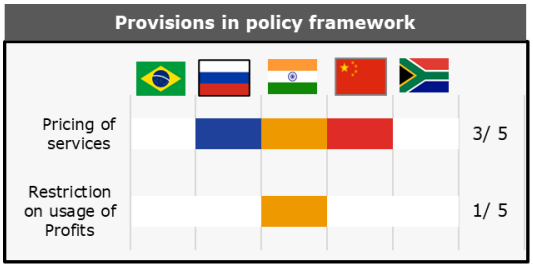


Given the necessity for enhancing PSP/PPPs, all BRICS countries have a well-defined policy/legal framework in place. However, considering the unique challenges in social infrastructure, Brazil, Russia, India, and China have also adopted sector-specific policies to promote PSP/PPPs in social infrastructure.

3.3. Specific regulations on pricing and profit usage

While pricing and profit utilization are essential aspects of economic infrastructure, these cannot be the governing factors for social infrastructure as affordability and accessibility are at the heart of the services provided under this sector.

Among BRICS members, Russia and India have policies/guidelines that outline the pricing of services in both health and education sectors, whereas, China has policies for pricing of services in the health sector. In Brazil, the spending floors for health and education are determined as per the Constitution under which services are freely provided to the citizens. The government also regulates the health insurance industry, including the pricing of private health insurance. There is no restriction on the usage of profits in four out of five countries, however, in case of India, there is a restriction on the usage of profits in the education sector.



3.4. In case of social infrastructure projects, risks should be largely borne by the government to attract PSP/PPPs

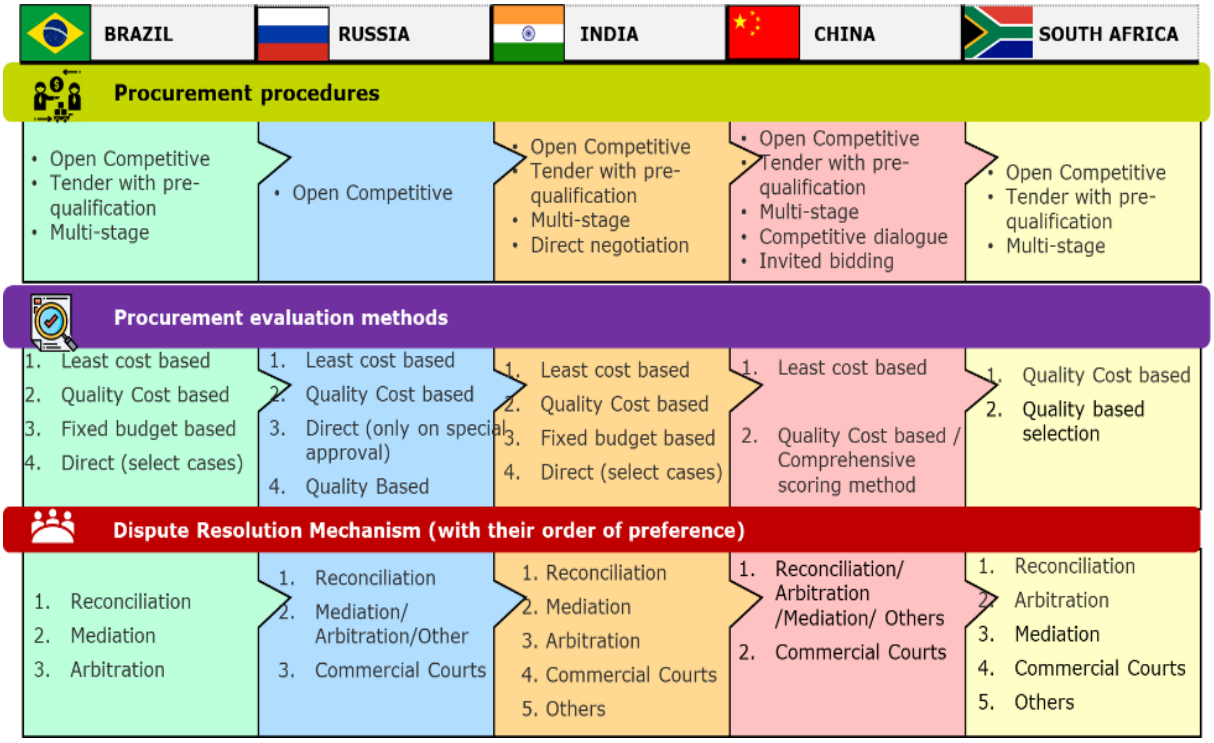
Risk sharing between the government and private sector is a prime feature of PSP/PPP arrangements. PSP/ PPP are frameworks where risks are allocated to the party best suited to manage and mitigate it. The key differentiator in social infrastructure as compared with economic infrastructure is the demand risk.

Phase	Type of Risk	B	R	I	C	S
Concept Phase	Land availability, access and site risk					
	Social risk					
	Environmental risk					
Development Phase	Design risk					
	Construction risk					
	Financial markets risk					
	Strategic/ partnering risk					
Implement Phase	Operating risk					
	Demand risk					
	Disruptive technology risk					
Project overall risk	Force majeure risk					
	Material adverse government action risk					
	Change in law risk					
Closure risk	Early termination risk					
	Condition at hand back risk					

Legend: Private risk | Shared risk | Public risk

In Brazil, Russia, and South Africa, it appears that the public sector bears demand risks in most of the PPP projects in the social sector. However, Russia has indicated that in some sectors, such as, sports and fitness, culture, leisure and tourism, demand risk is shared with the private sector where usually a minimum revenue guarantee is provided by the public sector to hedge the risk. In Brazil, private sector is expected to bear this risk in the sanitation sector. For India and China, the demand risk appears to be shared between the public and private sector.

3.5. Streamlined methods for selection and appointment of private players have been adopted by all BRICS countries



All BRICS members have well-defined processes for project selection, primarily defined for the overall infrastructure sector but also applicable for projects under social infrastructure. While all BRICS countries are guided by an overall framework for PSP/PPPs in the infrastructure sector, **Russia** and **India** have model documents designed for PSP/PPP projects under social sectors. Among procurement methods, an open-competitive process is applied across all nations, followed by two-stage and multi-stage bidding processes. While **South Africa** has indicated a preference for private sector partners on the basis of **Quality Cost Based Selection** (QCBS), Brazil, Russia, India, and China predominantly utilize a Least Cost Based Selection (LCBS) process for the selection of private sector partners. China has also indicated that they adopt a comprehensive scoring method as one of the available evaluation methods for selection of PSP / PPP partner. Brazil, Russia, India

and China have well-defined dispute resolution mechanisms, backed by suitable legal frameworks, whereas in South Africa, regulations on PSP/PPPs contain dispute resolution aspects.

3.6. Social infrastructure has unique challenges, resulting in lower uptake of PSP/PPP projects in these sectors as against economic infrastructure. BRICS countries have tested several viable models and instruments to encourage PSP/PPPs in social sectors

While the projects covered under economic infrastructure are predominantly based on the user pay principle, in case of social infrastructure services, the government bears the cost to a large extent. This affects the expected cost recovery for private players resulting in their reduced participation. BRICS members have provided for several financing and funding schemes to reduce the risk burden of the private sector. All BRICS countries have mechanisms, such as public equity and bank lending to finance social infrastructure projects and also provide Viability Gap Funding (VGF) support to social infrastructure projects. Additionally, BRICS countries have varying credit enhancement mechanisms for social infrastructure projects. Brazil, Russia, and South Africa have also adopted co-development or blended finance models for social infrastructure projects.

4. Leveraging digital technologies for better service delivery in BRICS countries

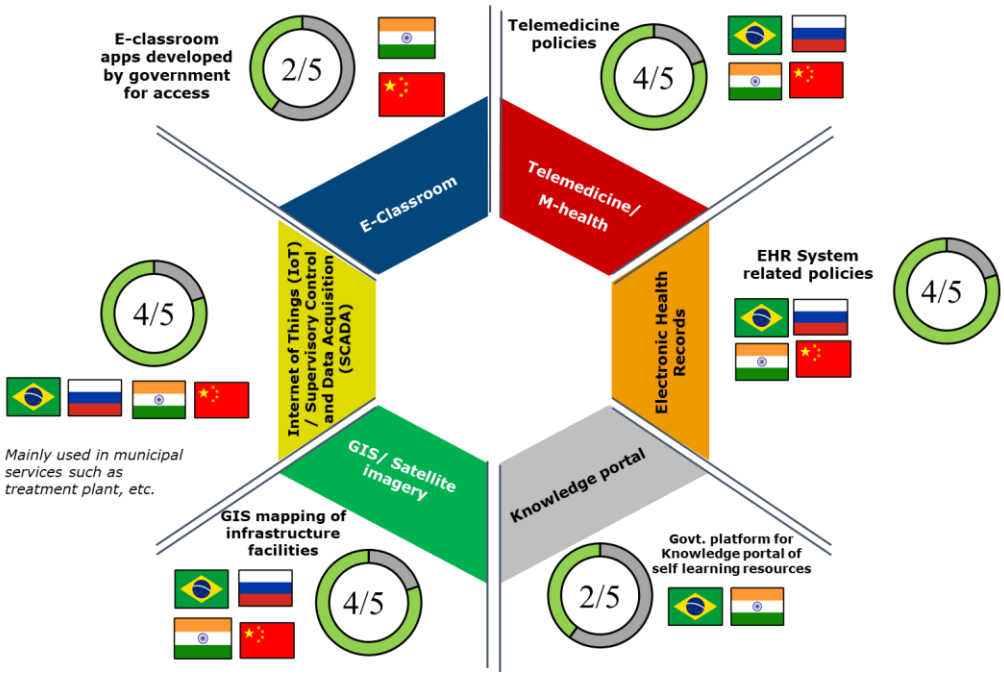
The world has transformed to one where private businesses and individual lives are being largely run digitally. Digital interventions have the potential to make social infrastructure services ubiquitous and affordable. The need and use of digital technologies as a facilitator for providing resilient services in the social sector, such as, health and education, has risen to prominence in the wake of COVID-19.

	National Strategy/Policy framework	Institutional framework
BRAZIL	**Digital Government Strategy** (2020-2022) (Estratégia de Governança Digital)- The EGD is organized around six principles: Citizen-driven, Integrated, Smart, Trustworthy, Open and transparent, and Efficient.	**Ministry of Economy** spearheaded by Secretariat of Digital Government
RUSSIA	**Strategy for development of Information Society 2017-2030** Digital Economy of the Russian Federation, Federal projects on Digital Education Environment, unified digital circuit in healthcare, Smart City project, etc.	**Government Sub-commissions** for the use of ICT in the provision of public and municipal services; on e-Health; on classification of technical, economic and social information
INDIA	**Digital India Strategy** (2015) Combined policy framework for adopting open- source software, open APIs, using IT resources, Application development for government use	**Central agencies supported by social sector bodies** – MeitY, CDAC,NIC, CSC at federal level, supported by National Digital Health Mission, NCERT, NSDC, etc.
CHINA	**Internet Plus social services** Promoting & standardizing Dev. of Application of HealthCare Big Data, 14th Five Year Plan	**Ministry of Industry and Information Technology,** National Development and Reform Commission with support from provincial government departments
SOUTH AFRICA	**South Africa Connect: Creating Opportunities** Ensuring Inclusion: **Broadband Policy**(2013) Draft National Policy on Data & Cloud(2021), Digital Economy Master Plan (2020) **National Digital & Future Skills Strategy** (2020) and **E-Government strategy** (2017)	**Department of Communications and Digital Technologies(DCDT)** supported by Department of Basic Education and the Department of Higher Education and Training

4.1. BRICS countries have national-level programs, focused on digital interventions

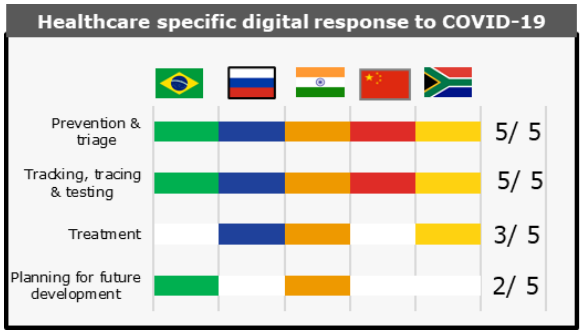
All BRICS countries have developed national digital strategies that aim to promote network connectivity and encourage open access. These strategies also include social sector-specific digital strategies and are primarily driven and monitored by federal-level agencies.

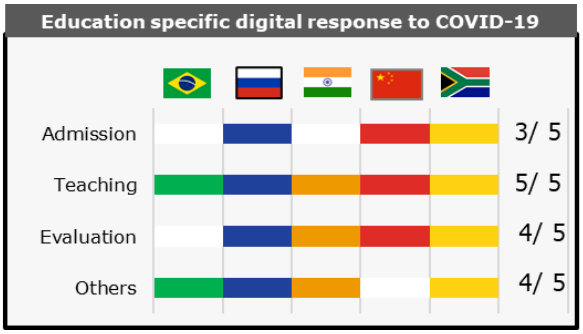
4.2. Sector-specific digital interventions for social infrastructure aimed at enhancing service delivery have gained traction in recent years



As part of their national digital agenda, BRICS countries have also undertaken specific initiatives in social sectors, such as, electronic health records, online knowledge portals, and specific guidelines for encouraging quality online education, GIS mapping of facilities, etc. While Russia, India, and China had developed schemes for telemedicine and online learning before the pandemic, the pace of adoption for these facilities has accelerated during the pandemic. In Brazil, formalized regulations on telemedicine and knowledge portals were finalized as a response to the pandemic.

4.3. BRICS members leveraged digital technologies in the healthcare sector to effectively manage the response to COVID-19 and ensure continued learning for students during the pandemic





In the healthcare sector, all BRICS countries implemented digital interventions for prevention & - triage, and tracking, tracing, and testing of COVID-19 patients. Brazil and India also utilized digital interventions to assess requirements of beds and vaccines.

All countries ensured continued access to learning opportunities through online learning platforms whereas, Russia, China, and South Africa also adopted digital interventions to facilitate admissions.

5. Key learnings and way forward

5.1. Key learnings

All BRICS countries recognize the importance of social infrastructure to meet the SDGs and priority that needs to be accorded to health and education sectors.

It is important to **improve the risk-return framework and de-risk PSP/PPP projects** to attract greater private sector participation in social infrastructure projects.

- ✓ PPPs are not privatization
- ✓ Effective communication strategy
- ✓ Capacity building

Streamlined methods for selection and appointment of private players have been adopted by all the BRICS countries. An important learning that emerges from the report is the adoption of QCBS by South Africa as a preferred method as against LCBS in the other countries.

Countries are open to innovation in structuring PSP/PPP models for social infrastructure and are **evaluating a shift from output-based financing to outcome-based financing,** such as Social Impact Bonds.

While countries have been utilizing digital technologies over the past several years to enhance reliability, accessibility, as well as affordability of social sector services, COVID-19 pandemic has heightened the pace of adoption for digital interventions.

5.2. Way forward

To meet SDGs, countries could also consider raising finances for social infrastructure projects through sector specific bond issuances like sewage bonds or issuer specific bonds, such as, municipal bonds.

Well-structured projects are fundamental to the success of PSP/PPP framework. While structuring a PSP/PPP project, it is important to undertake need analysis, market assessment, feedback from market soundings, and specifications that are 'fit for purpose' rather than 'state of the art'.

Countries need to **re-think the methods of procurement** in case of social infrastructure projects as lowest bid may not always be the best bet in this case.

Psychological assessment exercises could also be undertaken by the governments to ensure mental well-being in the wake of challenges that have emanated from the pandemic in terms of increased screen time, isolated environment due to reduction in socialization and recreation activities, etc.

Going forward, countries would need to **bridge the digital divide and increase digital literacy to ensure inclusiveness**. Governments could also consider introducing various applications (digital apps) in local languages in different regions for wider coverage and adoption of digital modes.

1 Introduction

Rapid economic growth necessitates creation of new infrastructure as well as additional improvements to the existing and greying infrastructure. Infrastructure investments are therefore perceived as key enablers in laying the foundation for strong, sustainable, and resilient economic growth. As per the S&P Global Report[10], multiplier effect of spending additional 1% of real GDP can lead to an increase in GDP between 1% to 2.5%. The report brings out the multiplier effect for several countries, thereby, reiterating that infrastructure generates economic activity by creating jobs and stimulating demand.

This Report is published by the BRICS Taskforce on PPP and Infrastructure under the 2021 Indian Presidency and is based on the responses provided by BRICS member countries to a questionnaire, the Outcomes Report of the virtual seminar co-hosted by the Ministry of Finance, India and NDB and information gathered from third-party sources.

Infrastructure can broadly be classified into economic infrastructure (typically including sectors like transport, energy and telecommunications) and social infrastructure (which covers sectors, such as, education, health, and affordable housing).[11]

Considering the acute infrastructure financing gap witnessed across countries, coupled with the global economic slowdown exhibited in the past few years and exacerbated in 2020 and 2021 due to the COVID-19 pandemic, it has become imperative for economies to prioritize infrastructure investments to drive and bolster economic growth.

While there have been extensive discussions on financing economic and social infrastructure after the adoption of the Sustainable Development Goals (SDGs) by the UN member countries, **the issue of financing social infrastructure has gained greater traction since the COVID-19 pandemic,** which has demonstrated the inadequacy of economic infrastructure development sans a focus on affordable and resilient social infrastructure. Provision of quality infrastructure, encompassing both the economic and social aspects is also at the heart of the Sustainable Development Goals (SDGs). For example, Goal 3[12] talks about ensuring healthy lives and promoting well-being for all at all ages. Goal 4[13] aims to ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. Goal 6[14] talks about providing access to clean water and sanitation as billions of people across the world, especially in rural areas, lack access to this basic amenity. Therefore, it becomes imperative for the BRICS countries to focus on social infrastructure to facilitate the achievement of SDGs.

Table 1: Private infrastructure investment by sector, USD billion[15]

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Aggregate value	156.2	131.3	105.4	103.0	123.7	118.0	118.7	93.2	99.9	105.9
By sector										
Power (non-renewable)	46.1	35.2	32.7	29.0	31.1	23.6	36.1	35.7	23.3	22.6
Renewable	31.3	36.6	28.1	26.5	34.7	43.5	30.9	26.1	38.1	43.3
Social	19.2	16.4	10.1	9.2	8.3	9.1	5.8	5.6	4.1	2.6
Telecom	13.1	4.5	0.5	2.2	3.5	2.5	1.8	3.1	1.3	2.0
Transport	44.0	36.2	28.8	31.4	43.5	34.8	39.2	21.7	31.7	31.8
Water & Waste	2.5	2.4	5.2	4.7	2.7	4.3	5.0	1.0	1.4	3.6

[10] https://www.spglobal.com/en/research-insights/articles/the-missing-piece-in-indias-economic-growth-story-robust-infrastructure
[11] Asian Development Bank (2018): Closing the financing gap in Asian Infrastructure, ADB South Asia Working Paper Series
[12] United Nations (https://sdgs.un.org/goals/goal3)
[13] United Nations (https://sdgs.un.org/goals/goal4)
[14] United Nations (https://sdgs.un.org/goals/goal6)
[15] Global Infrastructure Hub Report: Infrastructure Monitor 2020

As outlined in Table 1 above, during 2010-2019, private investment in infrastructure was mainly concentrated in the transport and the power sectors (both non-renewables and renewables), which together constituted 77.7% (USD 121.4 billion) of the total infrastructure investment in 2010 and 92.2% (USD 97.7 billion) in 2019. It is worthwhile to note that private investment in social infrastructure declined by 20% from USD 19.2 billion (12.3%) in 2010 to less than USD 2.6 billion (2.45%) in 2019.[16]

1.1 Social infrastructure and definitions

Although there is no universal definition of social infrastructure, several definitions exist across countries, some of which are presented below:

According to the New Zealand Social Infrastructure Fund, **social infrastructure** is defined as a subset of the infrastructure sector, which typically includes assets that accommodate social services. Examples of social infrastructure assets include schools, universities, hospitals, prisons, and community housing.

As per the United Nations Environment Programme (UNEP), the term **social infrastructure** is generally used to refer to those systems that deliver services upon which the health and well-being of societies depend. The term can be used to describe infrastructure that delivers services related to healthcare, education, housing, water and sanitation, rule of law, culture, and recreation, among others.[17]

According to the Economic Survey of India (2020-21) makes a mention of **social services** that broadly includes education, sports, art and culture, medical and public health, family welfare, water supply and sanitation, housing, labor welfare, social security and welfare, and nutrition.

According to the Economic Survey of India (2020-21) '**social services'** broadly include education, sports, art and culture, medical and public health, family welfare, water supply and sanitation, housing, labor welfare, social security and welfare, and nutrition.[18]

1.2 Key differences between 'economic' and 'social' infrastructure

The **key differences** that **emerge between social and economic infrastructure** are listed as follows:

(i) **Elements of economic change versus social change:** Elements of economic infrastructure spur economic activity and stimulate demand. For example, investment in sectors, such as, power, transport, and communications act as growth enablers. **The core elements of social infrastructure include investments in schools, hospitals, water and sanitation, etc., which act as agents of social change.**

(ii) **Commercial aspect vs. social considerations:** Economic infrastructure is usually guided by a "user pay" principle or demand-based revenue streams, whereas **social infrastructure is largely funded by public resources**. Therefore, creation and maintenance of economic infrastructure has witnessed participation from the private sector which is guided by profit motives. As financial returns from projects under social infrastructure are poor, these are largely supported and funded by the government's budgetary resources.

(iii) **Risk allocation:** A typical approach to risk management involves identification, evaluation, mitigation and allocation. Ideally, risks should be allocated to the party that is best suited to manage it. In case of economic infrastructure, it is possible to have a shared risk

[16] Global Infrastructure Hub (2020): Infrastructure Monitor 2020 (https://cdn.gihub.org/umbraco/media/3241/gih_monitorreport_final.pdf)
[17] United Nations Environment Programme (2021): International Good Practice Principles for Sustainable Infrastructure. (https://wedocs.unep.org/bitstream/handle/20.500.11822/34853/GPSI.pdf)
[18] Department of Economic Affairs (2021), Economic Survey of India (2020-21), Ministry of Finance, Government of India(https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap10_vol2.pdf)

framework with certain risks being transferred to the private sector, whereas, for social infrastructure projects, **risks are largely borne/retained by the public sector**.

(iv) **Standard of living vs. quality of life: Social infrastructure supports the delivery of social services which improves the quality of life of citizens**, whereas economic infrastructure focuses on aspects that contribute to providing a better standard of living. The United Nations 2020 Human Development Report ranking of BRICS countries on HDI (Brazil – 84, Russia – 52, India – 131, China – 85, South Africa – 114)[19] highlights the need to sharpen the focus on investment in human capital, which could be achieved by providing social services covered under social infrastructure.

(v) **Economic growth vs. human capital:** Economic infrastructure largely helps achieve growth objectives of nations, whereas **social infrastructure focuses on the economic development that encapsulates human resource development**.

While comparable estimates for social infrastructure investment needs are not readily available, as per available estimates for health and education sectors, there are substantial investment gaps as a percentage of GDP across the world, ranging from 0.3 to 0.6% in Europe and the USA, 0.5% in developing Asia, and 1.2% in developing countries worldwide.[20] The investment requirement would be much higher when other social infrastructure subsectors such as community housing, culture, and recreation are also taken into consideration. This requirement will be further compounded if we add the debilitating effects of COVID-19 on economies globally and the additional strain posed on government resources.

Therefore, **the need to engage with the private sector has regained center stage**, pushing governments across the world to think and adopt approaches that would provide comfort to the private sector in partnering with the government in this area.

BRICS countries' response to the pandemic also highlights the positive role of digital technologies (telemedicine, e-health initiatives, digital classrooms, etc.) in ensuring continued and inclusive access to social services. However, a large segment of the population has been deprived of education and health services due to poor or non-existent digital infrastructure, including the lack of/unavailability of personal devices and internet access. Therefore, **digital technology adoption to facilitate access to social services can be agreed to be a strategic priority for BRICS countries**.

To this end, the aim of this report is to enable knowledge sharing on social infrastructure, its constituents, characteristics, existing ways and means of financing and funding social infrastructure, use of digital technologies to enhance the accessibility and affordability with a view to provide quality services to the people.

The report predominantly relies on BRICS countries' responses to a questionnaire , aimed at gathering insights, inferences, data, and case studies with regards to their respective social infrastructure sectors. The questionnaire is placed as an annex to the report. Further, publicly available information from various agencies has also been used to bridge the information gaps.

The report also incorporates key learnings from the virtual seminar on 'Social Infrastructure: Financing and Use of Digital Technologies' co-hosted by the Ministry of Finance, India and the New Development Bank (NDB) in May 2021. The seminar witnessed participation from the governments of BRICS countries, national and multilateral development institutions, private sector and academia in the social infrastructure space, and saw deliberations on ways to enhance financing of social infrastructure and utilize digital technologies to improve the delivery and quality of social services.

[19] United Nations Human Development Index (HDI) Ranking of 189 countries (http://hdr.undp.org/en/content/latest-human-development-index-ranking)
[20] Inderst, George (2020), Social Infrastructure Finance and Institutional Investors. A Global Perspective. Inderst Advisory Discussion Paper, September 2020.

2 Overview of social infrastructure

This chapter aims to identify coverage of social infrastructure across BRICS countries, lists priority areas including in health and education and attempts to understand policies/strategies and the institutional framework adopted by BRICS countries. It also encapsulates the status of public budget allocation and spend in social infrastructure amongst the countries.

2.1 Coverage of social infrastructure

The figure below depicts the coverage of social infrastructure across BRICS countries. **Health and education emerge as common sectors classified under social infrastructure.**

Figure 1: Coverage of social infrastructure in BRICS countries

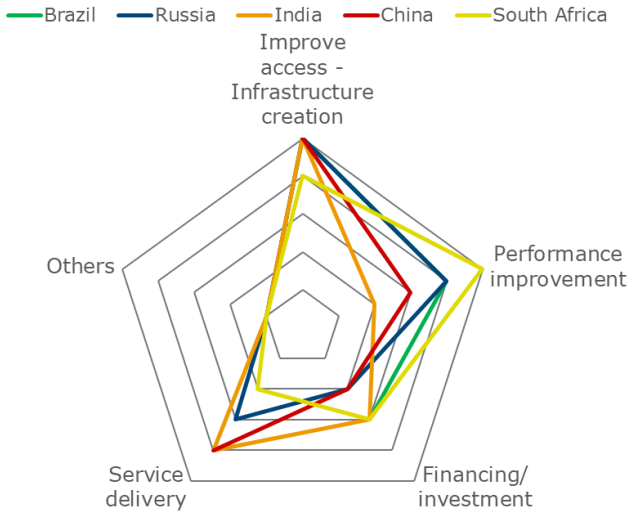
Prisons and public lighting in Brazil, children's recreation (including children's summer camps) in Russia, care for the disabled in China, and civic facilities (including community halls and libraries) in South Africa are sectors unique to these countries and are considered under social infrastructure.

Russia: Construction and operation of the State Philharmonic Society of Yakutia and the Arctic Center of Epos and Arts in the Republic of Sakha (Yakutia)
Context: To fill the infrastructure gaps in the sphere of culture and leisure, the Republic of Sakha (Yakutia) partnered with private entity, LLC Seventeenth Concession Company, to construct and operate the *State Philharmonic Society of Yakutia and the Arctic Center of Epos and Arts.*
Mode of the project: Design-Build-Finance-Operate-Maintain (DBFOM)
Features of the project: The private partner is expected to finance and execute the design, build, operate, and maintain the facilities, of the State Philharmonic Society of Yakutia which has a capacity of 700 seats and the Arctic Epic and Arts Centre with a capacity of 800 seats. **Quality Cost Based Selection was adopted** for selection of the concessionaire.
Financing model: Financed by availability-based payment from the state budget, the PPP model facilitated financing to improve the quality of operations and maintenance of the project. The project used direct agreement of the public party with the lender as a credit enhancement mechanism.
Benefits: On completion, the project is expected to provide additional opportunities for creative development and self-realization in modern cultural institutions as well as greater access to cultural values.

2.2 Priority areas

All countries have identified areas of focus for the next five to seven years, which also feature in their national/sub-national plans.

Figure 2: Ranking of priority areas



Creation/ development of infrastructure with a view to provide better access to social services emerges as a common thread among 4 out of 5 BRICS countries[21].

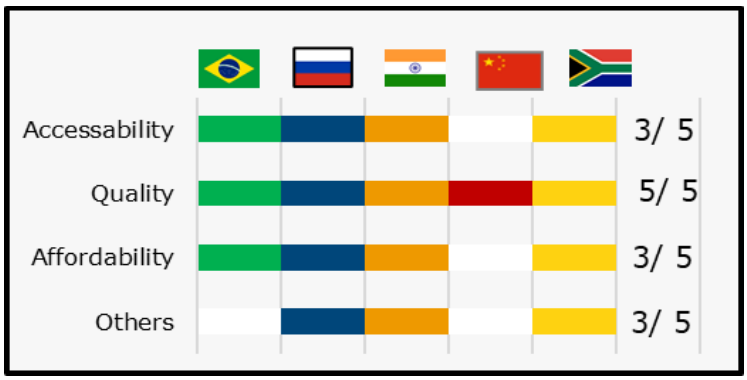
In South Africa, the focus is on performance improvement. Performance improvement and service delivery depict varying degrees of priorities for each country. These priorities also emerge as part of the overall policy framework at a national and sub-national level for Russia and India, whereas, for China and South Africa the overall policy framework is prevalent at the national level.

COVID-19 has accentuated the focus on healthcare and associated activities in all the countries.

Figure 3 depicts that all BRICS countries are prioritizing provision of physical access to infrastructure, care access through services, improving quality of health infrastructure and services and strengthening digital infrastructure. As part of other priorities, Russia has identified development of a network of national medical research centres as a focus area. In 2020, Brazil launched a partnership between the Federal Government and subnational governments aimed at integrating health information from across the country ("Conecte SUS"). For India and China, these priorities are mentioned in an overarching infrastructure strategy/policy document that is also applicable to the health sector. Additionally, these priorities are also outlined in the health-sector-specific policy or strategy in Brazil, Russia, India, and South Africa.

Figure 3: Area wise priorities in Health

Figure 4: Area wise priorities in Education



In **education** sector, priorities have been assessed in terms of areas and segments. In the former, countries have identified their priorities in terms of accessibility, quality, affordability, and other priority areas. In the latter, priorities have been ascertained in terms of education segments, such as, early childhood education, kindergarten to grade 12 (K-12), higher education, professional education, and Technical and Vocational Education and Training (TVET).

[21] In Brazil, official guidelines do not provide ranking of social infrastructure priorities.

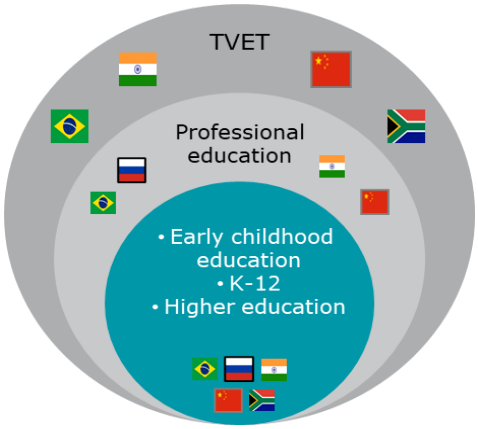
Quality of education is the primary focus across BRICS countries.

Russia has also indicated construction of schools in rural areas and modernization of schools in general as part of other priorities.

Both school and higher education feature as a priority across all BRICS nations.

Professional education emerges as a focus in Brazil, Russia, India, and China. Technical and Vocational Education and Training (TVET) is a priority for Brazil, India, China, and South Africa. India is also focusing on foundational learning and numeracy, adult education, and teachers' training. These priorities are also outlined in the sector-specific policies/strategies in the cases of India and South Africa.

Figure 5: Segment wise priorities in Education



2.3 Strategies/policies for social infrastructure

BRICS countries have adopted a two-fold approach to develop a robust policy framework to aid development of the sector, which are clubbed as follows:

i. An overarching infrastructure strategy/policy(ies): This includes policies/strategies, such as, National Infrastructure Plan, Five Year Plans, etc.
ii. Sector specific policies: This includes policies which are specific to sectors under social infrastructure, for instance, sector specific PSP/PPP promotion policies, sector development strategy/ policy, reform implementation plans, etc.

Table 2: Policies and strategies for social infrastructure

Policy Type	Brazil	Russia	India	China	South Africa
Overarching Strategy/ Policy	Federal Development Strategy for Brazil 2020-2031	Spatial Development Strategy until 2025	National Infrastructure Pipeline	The Fourteenth Five-year Plan of China	National Infrastructure Plan
	Integrated Infrastructure Long Term Plan	Socio-Economic Development Strategy until 2035	Scheme for Financial Support to PPPs in Infrastructure: Viability Gap Funding	Opinions of the General Office of the State Council on Further Stimulating the Vitality of Investment in the Social Field	Framework for Infrastructure Development and Delivery Management
Sector Specific Policies	Public Private Partnership for sub-national children's education policy	Physical culture and sports development strategy until 2030	National Health Policy (2017) and related sub-national level policies, for example, states of Madhya Pradesh and Gujarat	Opinions of the General Office of the State Council on Supporting Market Forces to Provide Multi-level and Diversified Medical Services	
	Public Private Partnership for sub-national prison systems policy	Education development strategy until 2025	National Education Policy (NEP), 2020	Opinions of the Central Committee of the Communist Party of China and the State Council on Deepening Education and Teaching Reform and Comprehensively Improving the Quality of Compulsory Education	
		Healthcare development strategy until 2030			
	Public Private Partnership for basic sanitation policy	Tourism development strategy until 2035	Jal Jeevan Mission & Swachh Bharat Mission at the national level. These policies are used as guidelines for formulation of policies at sub-national level	Notice of the State Council on Issuing the Implementation Plan of National Vocational Education Reform	
	Public Private Partnership for public lighting policy	State cultural policy strategy until 2030			

Four out of five countries have adopted both an overarching infrastructure strategy/policy as well as sector-specific policies. South Africa has a National Infrastructure Plan that also covers projects under social infrastructure.

Brazil has enacted a Federal Development Strategy 2020-2031 around five axes: economic, governance, infrastructure, environment and social to increase Brazilian citizens income, enhance standard of living, and reduce regional and social inequalities. Brazil has also developed an Integrated Infrastructure Long Term Plan as an overarching strategy, along with sector-specific policies, including for education, prisons, sanitation, and public lighting that promote PSP/PPPs in these sectors. These policies encourage construction, operation, and maintenance of facilities at the

national and sub-national levels. National Penitentiary Fund is used as a guarantee mechanism for encouraging PSP/PPPs of prisons.

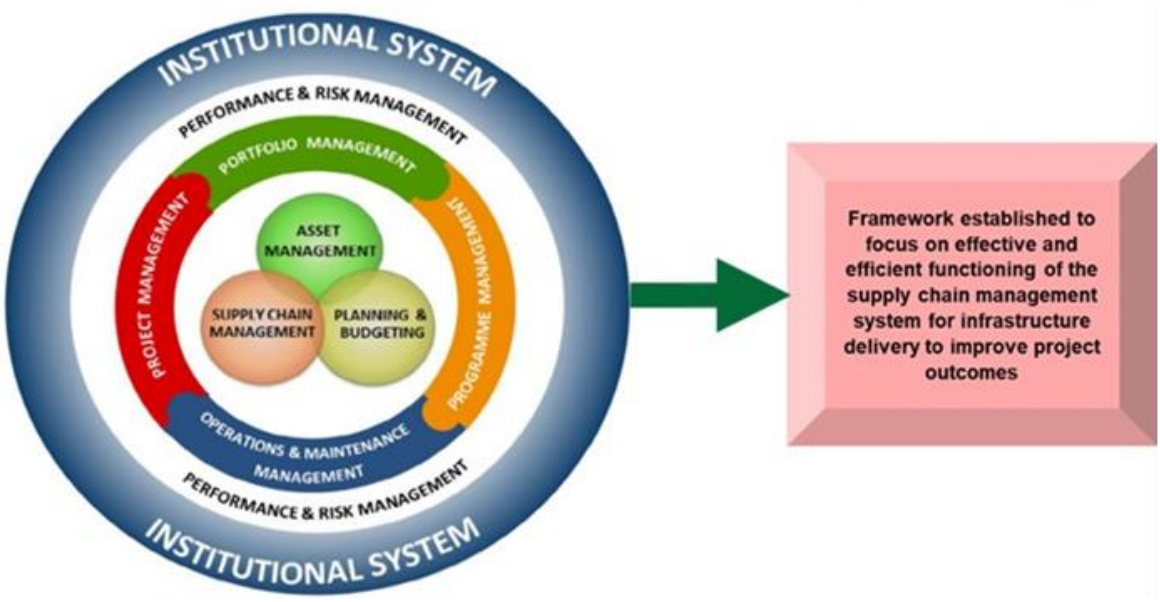
Russia has two all-encompassing strategies for spatial and socio-economic development covering infrastructure, including sectors covered under social infrastructure. Sector-specific strategies/policies are also in place for sports, culture, health, education and tourism sectors.

India's National Infrastructure Pipeline is an overall strategy for developing infrastructure which also includes sectors covered under social infrastructure. This is one of the main priorities of the Government. Further, Viability Gap Funding (VGF) scheme provides capital and operational grant for those projects that are economically or socially essential, but not commercially viable. India Infrastructure Project Development Fund (IIPDF) provides financial support for quality project development activities for better PSP/PPP project preparation. Additionally, sector-specific policies exist for health, education, and water and sanitation.

China has a national Five-Year Plan and investment stimulation guiding policy that covers sectors listed under social infrastructure. The guiding policy to stimulate investment in the social field aims to bridge the demand-supply gap with a focus on increasing supply of products and services and strives to optimize quality. Additionally, there are sector-specific policies for health and education sectors, including a separate policy for vocational education.

South Africa has two national policies/strategies, viz., National Infrastructure Plan and Framework for Infrastructure Development and Delivery Management. National Infrastructure Plan was launched in 2012 with an aim to transform the economic landscape, which includes strengthening the delivery of basic services. Government had made budgetary allocation to improve access to healthcare facilities, schools, water, sanitation, housing, and electrification. This plan also includes 18 Strategic Integrated Projects (SIPs), covering both social and economic infrastructure. SIPs are key projects to fast-track development and growth in the country.

Figure 6: South Africa – Framework for Infrastructure Development and Delivery Management[22]



2.3.1 Policy interventions in response to COVID-19

To deal with the challenges posed by COVID-19 pandemic, all BRICS nations adopted policy interventions, especially in the field of health.

[22] Framework for Infrastructure Delivery for Procurement Management, National Treasury, Republic of South Africa: https://cdn.ymaws.com/www.safcec.org.za/resource/resmgr/construction_legislation/fipdm/fipdm_2019.pdf

Table 3: Policy interventions as a response to COVID-19

	Brazil	Russia	India	China	South Africa
Social benefits	• Income support to sick workers • Increasing cash transfers through social assistance programs • Deferring tax-liabilities, establishing new credit lines	Tax holiday and tax-payment deadline extensions	• Building and Construction Workers Welfare Fund • Emergency loans and extension of income tax return filing	• Income support to sick workers • Increasing cash transfers through social assistance programs • Preferential loans & lay-off ceilings	• Setting up a solidarity fund • Income support to sick workers • Food assistance through cash transfers and vouchers • Social Relief of Distress grants
Health	• Suspension of non-essential activities and school closure • Federal Network Action to Combat COVID-19	• Subsidies and concession loans for production of medical supplies • Simplification of medical products registration	• Production-linked incentives for medical devices • Insurance coverage to health workers • Closing non-essential services	• Shortening working hours and rotating work schedules • Deployment of multi-sectoral teams for effective control of the pandemic	Suspension of non-essential activities and school closure
Education	• Making distance learning compulsory • Monitoring Panel for Basic Education • Personal Mobile Services for improving access	• Introduction of online platforms & textbooks • Broadcasting educational programs • Remote document submission for admissions	• Introduction of online learning programs & e-textbooks • Online practice tests	• Making online learning compulsory	• Adjusting school calendars • Social grants for learning

From the above table, it can be deduced that incentives for industry, COVID-19 prevention/management guidelines, and social protection (cash transfers, insurance for health workers, etc.) were adopted as policy responses to COVID-19. Similarly, all member countries implemented policy interventions for online learning, while most countries implemented interventions for evaluation and classroom learning also.

Figure 7: Brazil – Policy interventions as response to COVID-19[23]

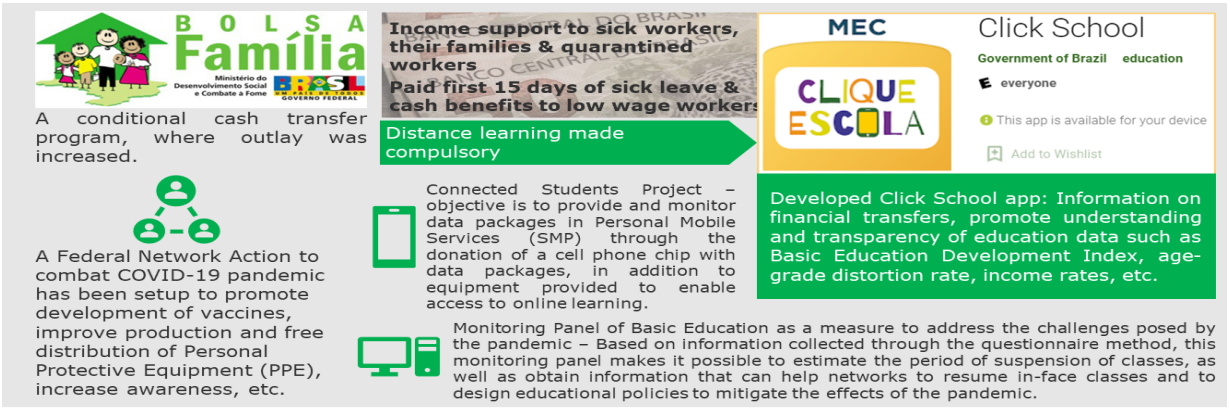
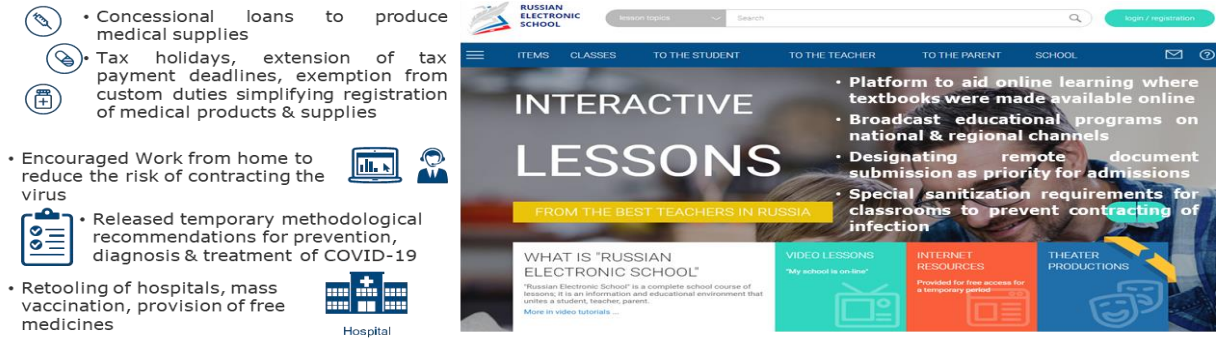


Figure 8: Russia – Policy interventions as response to COVID-19[24]



[23] Employment and social measures Country Initiatives. OECD Policy Tracker (2020). Retrieved from https://www.oecd.org/coronavirus/country-policy-tracker/; COVID-19 Education Policy Tracker. Center for Global Development (2020). Retrieved from https://www.cgdev.org/media/covid-19-education-policy-tracker

[24] COVID-19 Education Policy Tracker. Center for Global Development (2020). Retrieved from https://www.cgdev.org/media/covid-19-education-policy-tracker

Figure 9: India – Policy interventions as a response to COVID-19[25]

Figure 10: China – Policy interventions as a response to COVID-19

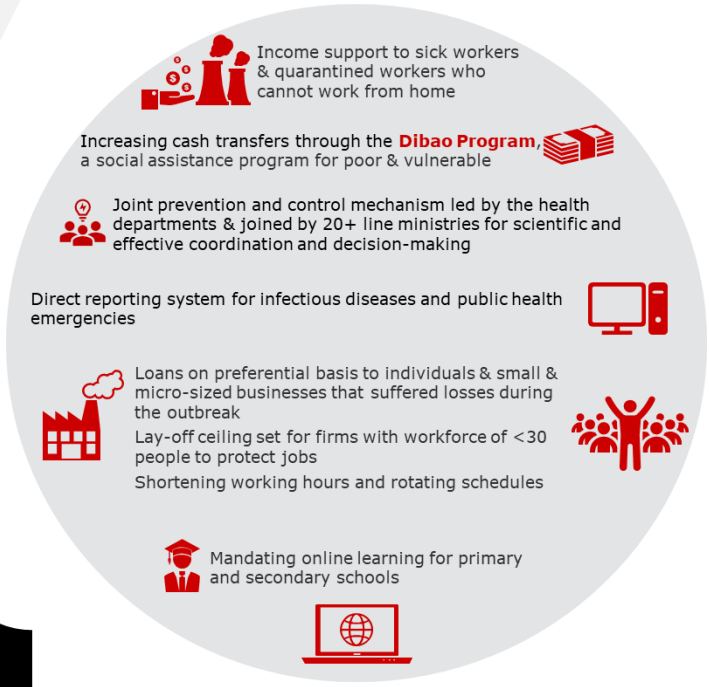
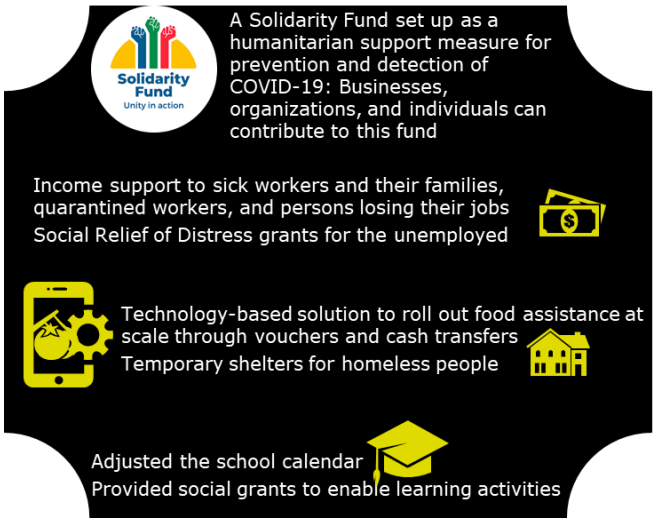


Figure 11: South Africa – Policy interventions as a response to COVID-19[26]



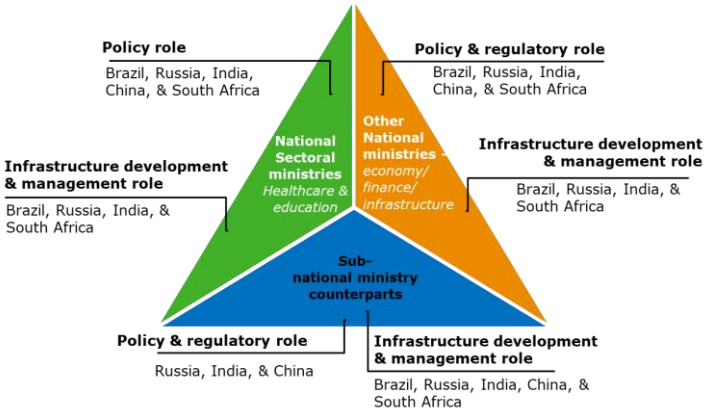
[25] Investment Opportunities in India's Healthcare Sector. NITI Aayog (2021). Retrieved from http://www.niti.gov.in/sites/default/files/2021-03/InvestmentOpportunities_HealthcareSector_0.pdf

[26] Employment and social measures Country Initiatives. OECD Policy Tracker (2020). Retrieved from https://www.oecd.org/coronavirus/country-policy-tracker/; COVID-19 Education Policy Tracker. Center for Global Development (2020). Retrieved from https://www.cgdev.org/media/covid-19-education-policy-tracker

2.4 Institutional framework[27]

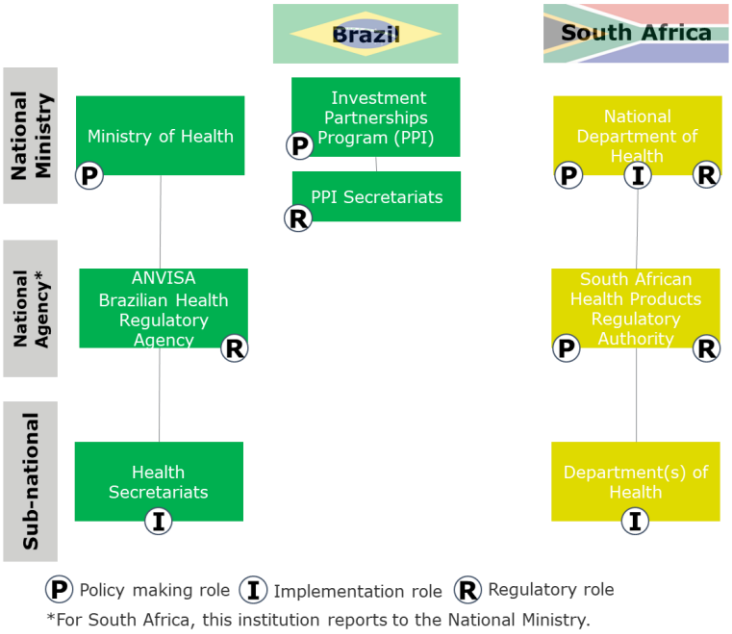
This section elaborates the institutional framework prevalent in all BRICS countries at the national and sub-national levels. Institutions involved can be grouped under three categories:

i. National ministries/departments (sectoral ministries such as education and health, and their respective departments)
ii. Other national ministries/departments (ministries of finance/economy and development with an overarching infrastructure role)
iii. Subnational ministries/departments (sectoral)



Brazil: The institutional framework is multi-layered. Sectoral ministries at national level and their sub-national counterparts are involved in infrastructure development. National level sectoral ministries have both policy and regulatory roles. National Agencies also have specific regulatory mandates. Additionally, the Investment Partnerships Program (PPI) plays a role in speeding up priority infrastructure projects in Brazil. Once a project is qualified in the PPI portfolio, the PPI team can help Ministries/ Regulators/ Subnational Governments design better projects in order to streamline their approval process.

Figure 12: Brazil and South Africa – Institutional framework



Though sector specific sub-national institutions are involved in the implementation of projects under social infrastructure, the responses indicate that in general they do not have policy or regulatory roles.

In **South Africa**, sectoral ministries at the national level and their sub-national counterparts are involved in social infrastructure development. National level sectoral ministries have both policy and regulatory roles. For example, South African Health Products Regulatory Authority regulates all health products including drugs, medical devices, in-vitro diagnostics and clinical trials. The Provincial Departments of Health and Education implement infrastructure projects in their respective fields.

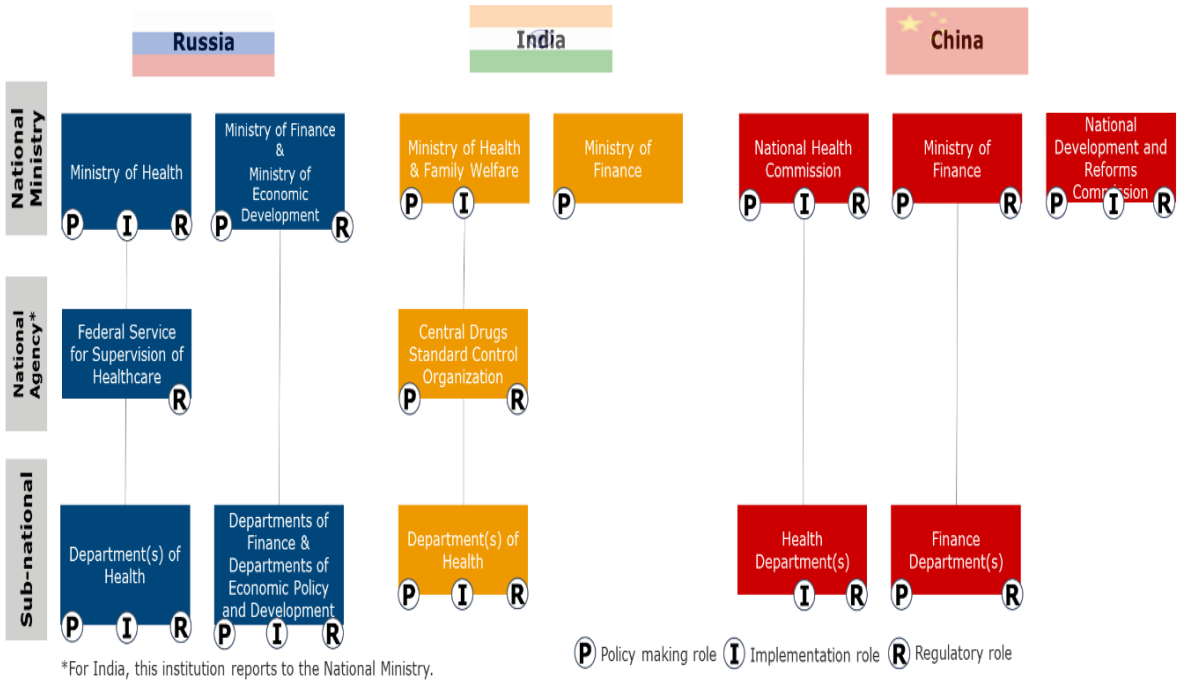
South Africa: Inkosi Albert Luthuli Central Hospital (IALCH) PPP Project
Context: To provide world-class tertiary care health services to the population of Durban Kwazulu Natal (KZN) and Eastern Cape, the Kwa-Zulu Natal Department of Health partnered with the Impilo Consortium to procure and maintain all medical and related equipment, information technology and systems, and facility management services for the Inkosi Albert Luthuli Central Hospital (IALCH).

[27] National level institutions refer to Central/Federal/National institutions. Similarly, sub-national level institutions refer to provincial/state/municipal institutions.

South Africa: Inkosi Albert Luthuli Central Hospital (IALCH) PPP Project
Mode of the project: Operate-Maintain-Transfer (OMT) **Features of the project**: The IALCH is an 846-bed referral hospital that serves the population of KZN and a part of the Eastern Cape. In 2002, the KZN Department of Health entered into a 15-year PPP agreement to procure equipment and services, excluding clinical services. The hospital was built by the Department of Public Works in KZN; however, the equipment and services were provided by the private partner.Financed by debt, equity, and grants, the OMT model is found to generate value for money as compared to a traditional procurement option. **Challenge**: Government over specified the output resulting in increase in the project cost. Some machines and equipment were changed as per the contract even though they were functional. **Key learning**: The contract specifications should be based on 'fit-for-purpose' rather than 'state-of-the-art'.

Russia, India, and China have a structure where sectoral ministries at the national level, other national ministries (that have an overall mandate for infrastructure development), and ministerial counterparts at the sub-national level (that are involved in implementation of the projects under social infrastructure), have both policy making and regulatory roles. For example, at the national level, the Ministry of Health is responsible for development and implementation of policy in their respective fields. Further, they also perform legal regulatory functions. Similarly, their counterparts at the sub-national level are responsible for the development and implementation of policy, licensing, and procurement.

Figure 13: Russia, India and China – Institutional framework



While the Ministry of Finance is responsible for development of policy, the regulatory role also rests with these ministries in Russia and China. The counterparts of sectoral ministries at the sub-national level are responsible for development, implementation, and regulation of projects in their respective fields, whereas in Russia and India, these counterparts also have a policymaking role.

2.5 Monitoring outcomes for social infrastructure

Ensuring service delivery as well as quality of service to end users of social services is an essential component of social infrastructure. Therefore, it is critical to measure outcomes through a comprehensive monitoring framework that looks at the status of services delivered (infrastructure perspective) and its impact through satisfaction surveys (user perspective).

All BRICS countries are tracking each sector on specific indicators

Figure 14: Social infrastructure – Types and levels of monitoring

Type of monitoring	Brazil	Russia	India	China	South Africa
Sustainable Development Goals (SDGs)	●	⊗	●	●	▲
Key Performance Indicators (KPIs)	●	●	●	●	●
Construction/ Project progress	▲	●	●	●	●
Others	▲			Project-level monitoring	Site visits by national and provincial treasuries

▲ National ■ Sub-national ● Both National and Sub-national

Figure 15: Health and education – Types and levels of monitoring

Type of monitoring	Brazil	Russia	India	China	South Africa
Health					
Sustainable Development Goals (SDGs)	●	⊗	●	●	▲
Key Performance Indicators (KPIs)		●	●	●	▲
Construction/ Project progress		●	●	●	●
Self-reporting/ scorecard based			●		
Others				Project-level monitoring	National level monitoring for the funds allocated at sub-national (provincial) level
Education					
Sustainable Development Goals (SDGs)	●	⊗	●	●	▲
Key Performance Indicators (KPIs)	■	●	●	●	▲
Construction/ Project progress	■	●	●		●
Others		Social Impact Bonds linked to social outcomes		Project-level monitoring	

▲ National ■ Sub-national ● Both National and Sub-national

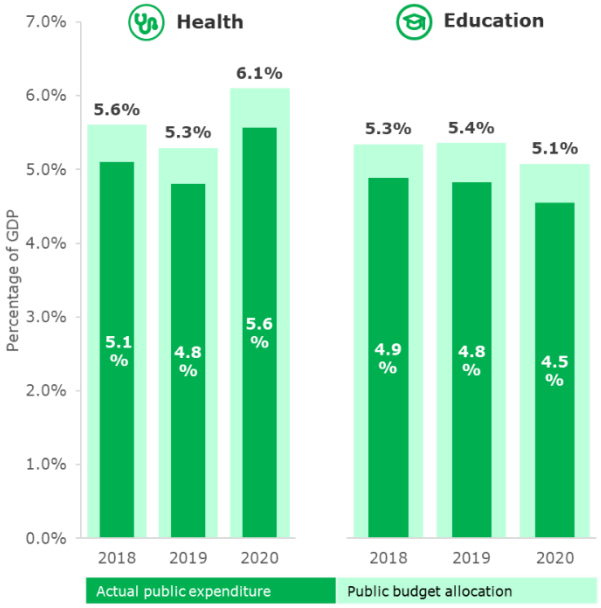
In the **health** sector, Brazil, India, and China are monitoring SDGs and KPIs at both the national and sub-national levels whereas, in South Africa these are monitored largely at the national level. Construction of project progress is monitored at both the national and sub-national levels in four out of five BRICS countries. Further, India is also conducting self-reporting or scorecard-based monitoring at the national and subnational levels while China is conducting project-level monitoring.

In the **education** sector, all BRICS countries are monitoring KPIs. While Brazil is monitoring KPIs at the sub-national level, South Africa is monitoring KPIs at the national level. Russia, India, and China are monitoring KPIs at both national and subnational levels. While Brazil, India and China monitor SDGs progress at both the national and subnational levels, South Africa monitors SDGs implementation at the national level. Brazil, Russia, India, and South Africa also conduct construction/project progress monitoring, whereas, China has indicated that it undertakes project-level monitoring. Brazil has also adopted OECD's Programme for International Student Assessment (PISA), which measures 15-year-olds' ability to use their reading, mathematics and science knowledge and skills to meet real-life challenges. Additionally, Russia has linked Social Impact Bonds to social outcomes.

2.6 Need to enhance investment as a percentage of GDP in social infrastructure

This section provides a snapshot of budgetary allocation and expenditure, specifically for health and education sectors across BRICS nations.

Figure 16: Brazil – Budget allocation and public expenditure in health and education over three years



For **Brazil**, the data on public budget allocation and public expenditure is available for three years, viz. 2018 to 2020. It can be deduced from Figure 16 that Brazil on an average (three years) spent 5.2% of GDP on health sector and 4.7% of GDP on education sector.

Figure 17: Russia – Budget allocation and public expenditure in health and education over the last three years

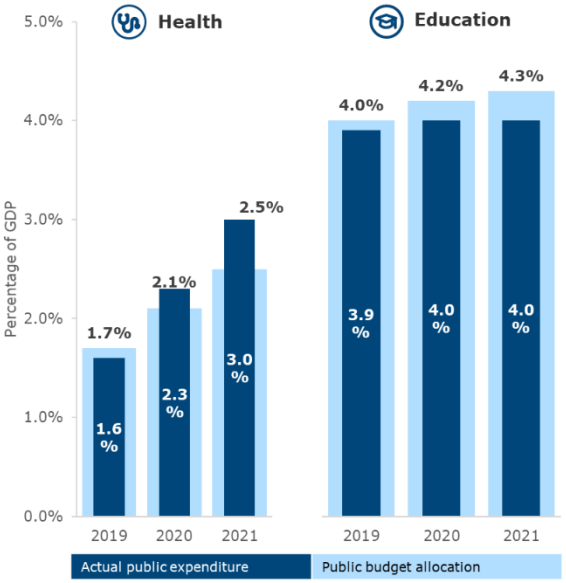
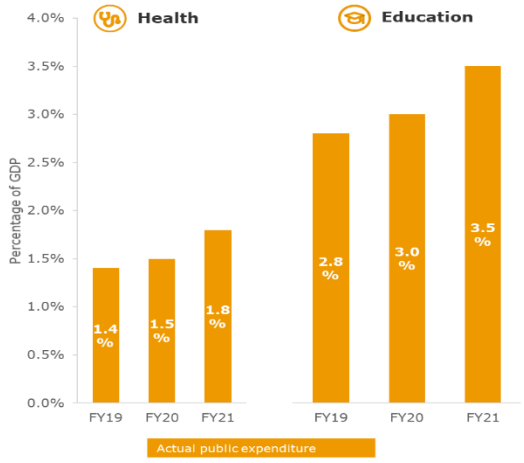


Figure 17 depicts budget allocation and expenditure in health and education sectors over the last three years in **Russia**. As depicted in the figure, the amount incurred exceeds the budget allocation in the health sector in the years 2020 and 2021. On an average, Russia has spent 2.3% of GDP on health sector and 4.0% of GDP on education sector.

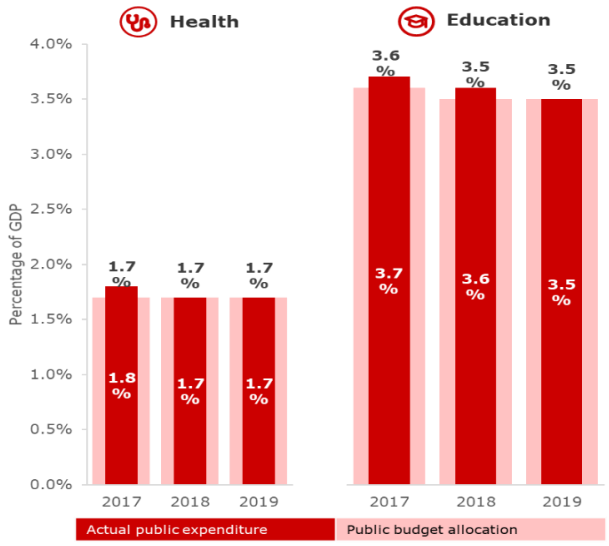
Figure 18: India – Public expenditure in health and education over the last three years



For **India**, the data[28] is available only for public expenditure on health and education sectors. From Figure 18, it can be seen that the actual public expenditure in health and education sectors has averaged around 1.6% and 3.1% of GDP respectively.

[28] Economic Survey 2020-21 Volume 2 (https://www.indiabudget.gov.in/economicsurvey/doc/vol2chapter/echap10_vol2.pdf)

Figure 19: China – Budget allocation and public expenditure in health and education over three years

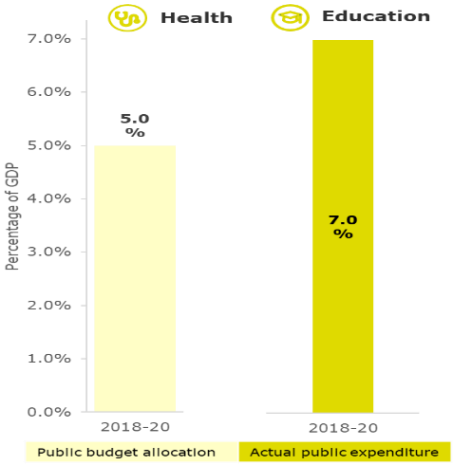


Owing to constraints of commercial viability, financing of social infrastructure has primarily been through public sources, putting a strain on already stretched government budgets. Countries' responses to the pandemic have made it imperative to collaborate with the private sector for bridging the financing gap as well as improving social service delivery by bringing in private sector expertise.

For **China**, the data is available for three years, i.e., 2017 to 2019. On an average, China has spent 1.7% of GDP on health sector and 3.6% of GDP on education sector.

For **South Africa**, the average public budget allocation for 2018 to 2020 is 5.0% of GDP in health sector. For education sector, the public expenditure has averaged at 7.0% of GDP over 2018 to 2020.

Figure 20: South Africa – Budget allocation in health and public expenditure in education over three years



G20 countries, where all BRICS countries are also members, on an average spent approximately 8%[29] of GDP on health and 5%[26] of GDP on education between 2016 and 2018, while BRICS countries spent approximately 3%[26] of GDP on health over the same period. However, there is a lack of comparable data for expenditure on education as a percentage of GDP among BRICS countries. The data reinforces the need to ramp up investment in social sectors.

It is evident that the investment in the health sector in BRICS countries is lower than the average investment made by G20 countries and there is a need to enhance it through innovative financing methods. Further, the need to scale up investment in social infrastructure sector has been reinforced with the COVID-19 pandemic adversely impacting these sectors.

[29] https://data.worldbank.org/ (2016-18)

3 Financing social infrastructure through Private Sector Participation (PSP)/Public Private Partnerships (PPPs) in BRICS countries

This chapter expands on the coverage of policies/legal framework for PSP/PPPs prevalent in BRICS countries. It also focuses on the enabling environment provided by the BRICS countries for encouraging PSP/PPPs. For instance, long-term vision and strategies, applicability of procedures and processes across project lifecycles, funding and financing mechanisms, etc. Further, this chapter showcases innovative PSP/PPP frameworks, taken from the case studies shared by the member countries.

All countries have large infrastructure need and an associated funding gap. PSP/PPPs can help in bridging this gap and to meet the infrastructure requirements. PSP/PPP projects often involve the private sector arranging for and providing finance, this frees the public sector from the need to meet financing requirements from its own revenues (taxes) or through borrowing, which is an advantage where it is difficult for the public sector to raise capital. By shifting the responsibilities for finance away from the public sector, PSP/PPPs can enable more investment in infrastructure and increase access to infrastructure services.[30]

As per PPP Guide for Practitioners, Department of Economic Affairs, Ministry of Finance, Government of India: In PSP/PPPs, the private party subsumes the hitherto traditional role of the public sector, of delivering services to the general public, under conditions that can be monitored, independently or by a government agency, regulated or left to the market, depending on the nature of the services/assets.

Ultimate accountability to users for the provision of these services continues to remain with the public entity, even if the delivery is by the private partner.

3.1 Promoting PSP/PPPs in the social sector

PSP/PPPs would be critical to bridge the infrastructure financing gap as COVID-19 has further constrained public resources

Traditionally, social infrastructure projects have largely been funded, operated, and maintained by the public sector as the stress is on providing services to citizens, including the vulnerable sections of society that do not have the capacity to pay user charges. COVID 19 pandemic has further exacerbated the need for governments to focus on channelizing more funds into the sector by partnering with the private sector.

Goal 17 of the SDGs, inter alia, lays emphasis on building partnerships and aims to "encourage and promote effective public, public-private, and civil society partnerships, building on the experience and resourcing strategies of partnerships" to achieve their developmental goals. PSP/PPPs not only harness private capital in the creation and maintenance of infrastructure but also bring in private sector efficiencies for effective service delivery.

Public sector can benefit by leveraging private sector capabilities and helping increase efficiencies

There is an evidence to support that PSP/PPPs can enable improved access to infrastructure services by bringing in private sector efficiencies. Every BRICS country has its own objectives/drivers for encouraging PSP/PPPs, which impacts the enabling environment for PSP/PPPs for that country.

Considering this, the questionnaire requested BRICS member countries to rank their key drivers for encouraging PSP/PPPs in social infrastructure across six key parameters.

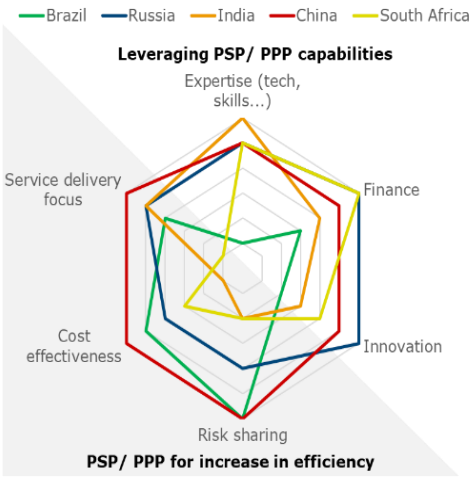
[30] PPP Guide for Practitioners (2016), Department of Economic Affairs, Ministry of Finance, Government of India

While Brazil is driven by the efficiency parameters, India and South Africa lean towards utilizing technical/financial capabilities of the private sector while Russia and China have indicated their preference for both these aspects

From the responses of the member countries, it appears that the public sector views private sector participation from two aspects: (1) Utilizing its technical and financial capabilities and (2) For increasing efficiency. BRICS countries have ranked their key drivers for encouraging PSP/PPPs in social infrastructure within these two broad categories.

The adjacent figure depicts these two aspects where it can be seen that while **Brazil** is driven by the efficiency parameter, **India** and **South Africa** lean towards utilizing technical/financial capabilities of the private sector. **Russia** and **China** have indicated their preference for both these aspects.

Figure 21: Key drivers for promoting PSP/PPPs in social infrastructure



3.2 Enabling environment for PSP/PPPs in BRICS countries

With the key drivers that encourage PSP/PPPs for BRICS members as identified above, there is merit in understanding how the supporting environment is structured in BRICS countries to leverage these drivers.

Key insights from the virtual seminar on Social Infrastructure: Financing and Use of Digital Technologies[31] co-hosted by the Ministry of Finance, India and the NDB

The seminar emphasized the need for building support institutions and bolstering investment environment for increased participation by various actors. It brought out the **steps that could be taken by policymakers, financial institutions, and relevant stakeholders for tackling the challenges related to social infrastructure financing**. The seminar highlighted that the stakeholders of social infrastructure have distinct roles and unique opportunities to advance financing and delivery of services. For governments and policymakers, facilitating collaboration with the private sector through PSP/ PPPs and consortium-led models can significantly improve the implementation of social infrastructure solutions. Development Finance Institutions (DFI) can also play a key role in convening stakeholders, as well as, mainstreaming good practices and fostering conducive ecosystems. Finally, the private sector has an active role in developing digitally enabled market-based solutions which were perceived during the seminar as an indispensable factor for the scaling up of high-quality social infrastructure.

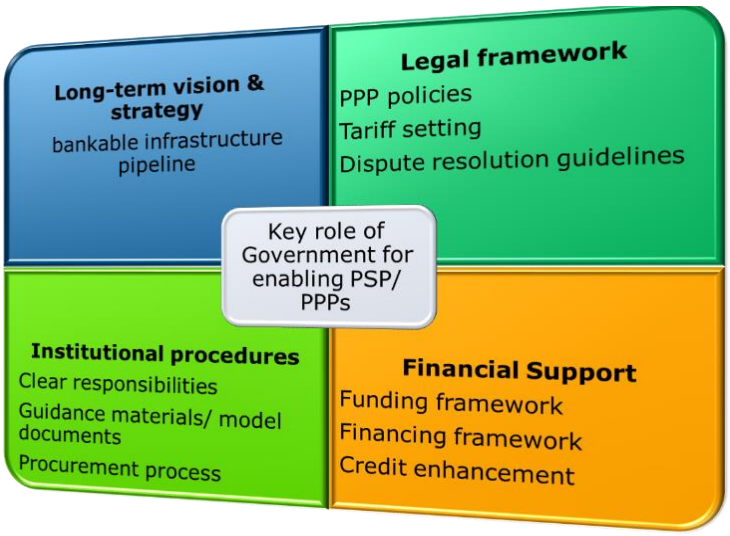
An example of a **multi-stakeholder program to promote PSP / PPP mechanism** for social infrastructure solutions discussed in the seminar includes the program for state support for construction and operation of public schools through PPP mechanisms by the Ministry of Education of Russia and VEB.RF.[32] Launched by the government, the program will help build over 500 new schools by 2024, with VEB.RF mandated to be the key partner of private-sector companies.

[31] Outcomes Report, Virtual Seminar on Social Infrastructure: Financing and Use of Digital Technologies, New Development Bank, 2021
[32] PR Newswire: https://www.prnewswire.com/news-releases/russia-poised-to-have-500-more-schools-by-2024-301245597.html

BRICS countries are encouraging PSP/PPPs by adopting long-term strategies/ vision, policy/legal frameworks, institutional procedures and promoting targeted financial support schemes

The figure below sets out indicative factors that encourage PSP/PPPs.

Figure 22: Key role of government to enable PSP/ PPPs



3.2.1 Long-term vision and strategy

Long-term plans/strategy/vision documents detailing multi-year infrastructure agenda also encompassing social infrastructure are prevalent across BRICS nations along with sectoral strategies.

Table 4: Infrastructure vision and strategy in BRICS countries

Brazil	Russia	India	China	South Africa
National Development Strategy for sectors, such as, energy, transport/logistics, health, education, and sanitation	**National Projects** in healthcare, education, housing, culture, etc.	**National Infrastructure Pipeline** for both social and economic infrastructure	**14th Five-year plan** 2021-2025 lays out the government's strategy in all areas including social and economic infrastructure	**National Infrastructure Plan till 2030** includes social sector plan

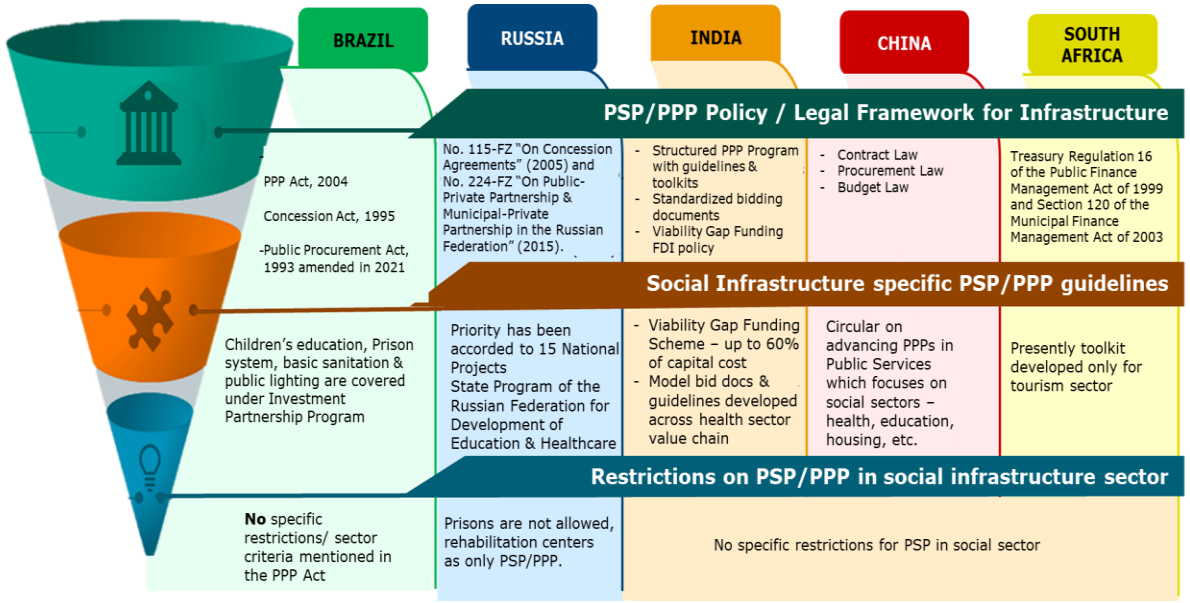
3.2.2 Framework for enabling PSP/PPPs in social sectors

As per the responses provided by the countries, the framework for PSP/PPPs can be divided into two parts: legal and policy framework. Legal framework incorporates various legislations in terms of laws that are prevalent across all BRICS countries. In India, there is a co-existence of policies and legal framework for PSP/PPPs.

- No universal definition of PSP/PPPs
- Standardized definitions exist
- Each BRICS country defines PPPs differently
- All prevalent definitions of PSP/PPPs focus primarily on infrastructure service delivery and setting of standards.

All BRICS countries have a well-defined PSP/PPP policy/legal framework for infrastructure. Given the unique nature of challenges associated with social infrastructure, Brazil, Russia, India, and China have adopted sector-specific policies for promoting PSP/PPPs in social infrastructure.

Figure 23: Policy/Legal framework for PSP/PPPs in social infrastructure



Brazil: In 2004, Brazil enacted a PPP law to establish general rules for competitive bidding and contracting private partners at both the national and sub-national levels. This law complements the Concessions and Public Procurement Laws. The Investment Partnership Program (PPI) was created, under two new structures i.e., (a) The PPI Council, which is a collegiate body that evaluates and recommends projects that would qualify in the PPI portfolio attends to issues related to the execution of contract of partnerships and desestatizations and (b) PPI special secretariat, which provides support to ministries and regulatory agencies for the execution of program activities under the supervision of the Ministry of Economy.

Main features of Brazil's PPP law

- Government entities to assume long-term commitments, including the payment of subsidies to service providers.
- Prevent adoption of projects without proper prioritization studies and without assured source of financing.
- Public hearings, economic and financial assessments to be carried out for each proposed PPP project.

Russia:

There are two key federal laws covering implementation of PSP/PPP projects – 'Federal Law on Concession Agreements' and 'Federal Law on Public-Private Partnership, Municipal-Private Partnership in the Russian Federation and amendments to certain legislative acts of the Russian Federation'. While the PPP law does not set out an exhaustive list of forms for implementing PSP/PPP projects, it nevertheless allows for private ownership over infrastructure facilities (thus enabling BOO, BOOT, and other standard PSP/PPP models based on private ownership). This is in contrast to the Concession Law, which requires the state to retain ownership over the infrastructure facilities.[33]

Each law provides a closed list of sectors based on which, PSP/PPP concession agreements can be awarded. Considering the ownership structure, there are some sectors for which only PSP or concession agreements could be undertaken. For instance, sobering-up centers could only be set up under PSP/PPPs. There are also certain sectors, such as, prisons where no PSP/PPPs are permitted.

Russia is focusing on 15 national projects that have been developed as priority fields, with an emphasis on healthcare. There are also state programs in the following five areas (1) A new quality of life including State Programs of the Russian Federation for "Development of Healthcare" and "Development of Education"; (2) Innovative development and modernization of the economy; (3) Ensuring national security; (4) Balanced regional development; and (5) An efficient state.

[33] https://cms.law/en/rus/publication/doing-business-in-russia-2020/infrastructure-and-public-private-partnerships/key-ppp-legislation

India:

India has rolled out a PPP program for the delivery of public utilities and infrastructure and has also set up the Public Private Partnership Appraisal Committee (PPPAC) in the Department of Economic Affairs, Ministry of Finance (PPP cell), for streamlining appraisal and approval mechanism which aims at securing value for money. The concession agreements finalized for the purposes of inviting financial bids are approved by the PPPAC for projects where capital costs/underlying value of assets is above a certain threshold. For example, in case of port sector projects, the threshold is USD 135 million.

VGF Scheme for the social sector in India

Sub scheme - 1

This sub scheme caters to social sectors such as wastewater treatment, water supply, solid waste management, health, and education sectors etc. These projects face bankability issues and have poor revenue streams. The Central Government will provide a maximum of 30% of the Total Project Cost (TPC) of the project as VGF and State Government/Statutory Entity may provide additional support up to 30% of the TPC.

Sub scheme - 2

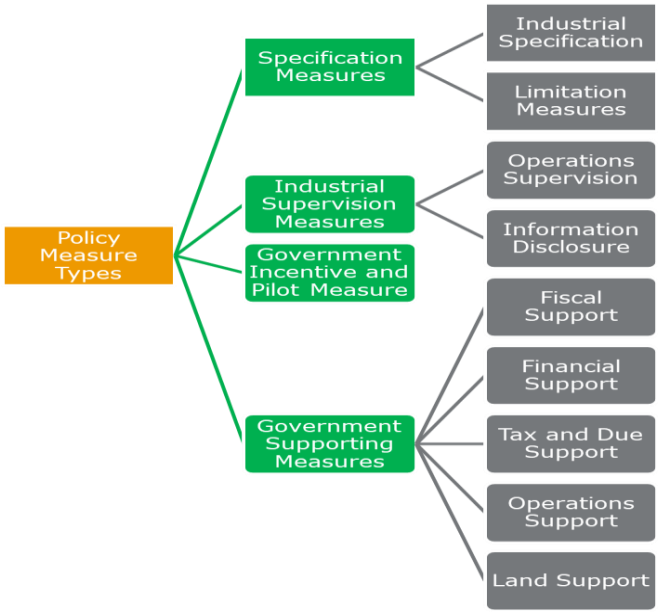
This sub-scheme will support demonstration/pilot social sector projects. The projects may be from health and education sectors where there is at least 50% operational cost recovery. In such projects, the Central Government and the State Governments together will provide up to 80% of the capital expenditure and 50% of operation and maintenance costs.

The Ministry of Finance has published standardized bidding documents that include model bidding documents for PSP/PPP projects. Further, sector-specific toolkits have been designed to assist PSP/PPP practitioners to strengthen decision making at all key stages of the PSP/PPP project cycle. Additionally, a Viability Gap Funding (VGF) Scheme for providing financial support in the form of grants to infrastructure projects undertaken through PSP/PPPs during construction/early operations has also been implemented.

China:

As per the Circular on 'Adopting the Public-Private Partnership Model to Promote Investment, Construction and Operation Management of Public Rental Housing dated 21 April 2015', "The PPP model is a long-term partnership established between the government and corporate partners in the public service field. With such a cooperation and management process, the government may provide public services for the society more efficiently".

Figure 24: China – Types of policy measures



Although **China** has no specific fundamental law on PPP, it has issued operating guidelines, circulars, and standards towards enabling PSP/PPPs and managing finances for the implementation of PSP/PPP projects. PSP/PPP in the social infrastructure sector referred to as Public Services in the Chinese context, are additionally guided by the Circular of the General Office of the State Council on Guiding Opinions on Promoting the Public-Private Partnership Mode in the Public Service Fields.

In China, policy measure types can be classified on the basis of the purposes and roles the government played in a policy. According to the context of each policy, the four major categories are:

1) Specification measures, which are mandatory or normative, having binding or restricted effects on the PSP/PPP industry, such as 'Notice on issuing regulations on government procurement of public–private partnerships projects.'

2) Industrial supervision measures, which refer to regulatory requirements or requirements for information disclosure, which would supervise specific projects or industries, such as 'Notification on further improving the disclosure of government procurement information.'

3) Government incentives and pilot measures, which mention encouragement and pilots to encourage and guide the development of PSP/ PPP industry, such as, 'Notification on issues relating to the implementation of public–private partnerships pilot projects'.

4) Government supporting measures supporting the PSP/PPP industry within fiscal, financial, and predial aspects, such as 'Notification on promoting development finance in support of public–private partnerships'.

The same policy may be classified into several categories as long as the corresponding measures are mentioned in the policy content because of the diversity and synthesis of PSP/PPP policies.[34]

China: Tangshan Grand Theatre Project

Context: To revitalize stock assets, improve operation and management of the theatres, and increase the quality of public services in the cultural space, Tangshan Broadcasting and Publication Bureau partnered with private entity, Beijing Poly Theatre Management Co. Ltd, and the project management company, Tangshan Poly Theatre Management Co. Ltd. The private partner is selected based on parameters like corporate structure, prior experience in similar projects, and past performance etc.

Mode of Project: Operate-Maintain-Transfer (OMT) model

Features of the project: The private partner is expected to operate a theatre with 1,500 seats, a concert hall with 800 seats, an experimental theatre with 500 seats, studios and also undertake some ancillary works.

Challenge: Considering the public welfare aspect of the project, business plans could not be formulated solely on the profit motive. Balancing both these aspects emerged as a key challenge.

Financing: Financed by performance-based government payments and user fee, the OMT model transferred part of the risk to the private sector entity, while facilitating the introduction of advanced management and experiences.

Achievements: From its operation in 2016, Tangshan Grand Theatre has completed 899 types of performances, totalling to 337,519 performances with a user satisfaction rate of 97.96%. The total annual energy cost of the theatre has reduced by about 10% as compared to previous years.

Key learning: Decentralization has encouraged private sector participation with the freedom to operate and manage the project, allowing the government to perform its supervisory functions.

China: Elderly Service Centres at Zhanggong

Context: Zhanggong District Aging Work Committee partnered with private entity, Jiangxi Luxi Agriculture Development Co. Ltd, and the project management company, Jiangxi Tianfu Aged Services Co. Ltd. to provide home-care services like elderly meals, medical and healthcare services, care, daily life care, and other services at elderly service centres in Zhanggong District.

Mode of Project: Build-Operate-Transfer (BOT) model

Features: The **USD 25 million** project has been implemented on BOT basis in 2015 with a concession period of 15 years. The concession scope includes construction of 10 new elderly centers, upgradation of 59 centers, and operations and maintenance of 72 service centers. An internet-plus, big data platform has also been established in these elderly care centers to help the geriatric population make emergency calls, receive healthcare e-consultations, legal services, make payments for services, etc.

[34] Policy Evolution in the Chinese PPP Market: The Shifting Strategies of Governmental Support Measures by Yubo Guo, Igor Martek and Chuan Chen https://res.mdpi.com/d_attachment/sustainability/sustainability-11-04872/article_deploy/sustainability-11-04872.pdf

China: Elderly Service Centres at Zhanggong
Financing: The project has been financed through 20% equity and 80% debt. The government and private sector own 20% and 80% of the SPV's shares respectively.
Benefits: The project introduced social capital through the PPP model and made use of the relevant experience and market-oriented management models, which alleviated financial pressure from the government authorities.
Challenges: Development of housing for the geriatric population is not usually undertaken by many project developers due to the requirement of special construction and adjustments for the age group. Further, the service industry for housekeeping, community medical treatment, rehabilitation, and distribution for elderly is not well developed.

South Africa:

In South Africa, PSP/PPP means a commercial transaction between an institution and a private party in terms of which the private party[35]:

(a) performs an institutional function on behalf of the institution; and/or

(b) acquires the use of state property for its own commercial purposes; and

(c) assumes substantial financial, technical, and operational risks in connection with the performance of the institutional function and/or use of state property; and

(d) receives a benefit for performing the institutional function or from utilising the state property, either by way of:

(i) consideration to be paid by the institution which derives from a revenue fund or, where the institution is a national government business enterprise or a provincial government business enterprise, from the revenues of such institution; or

(ii) charges or fees to be collected by the private party from users or customers of a service provided to them; or

(iii) a combination of such consideration and such charges or fees.

Treasury Regulation 16 of the Public Finance Management Act of 1999 and Section 120 of the Municipal Finance Management Act of 2003 are key regulations that govern PSP/PPPs across all infrastructure sectors. In South Africa, toolkits have been developed for the tourism sector, considering the unique challenges of the sector, however, there are no toolkits available for other social sectors.

Guidelines on pricing of services and usage of profits – Health and education sectors

Facilities/services for social infrastructure projects are traditionally provided by the government, as a sovereign function, to its citizens. While pricing and profit utilization are essential aspects of economic infrastructure, these cannot be the governing factors for projects under social infrastructure as affordability/accessibility are key to these projects.

Among BRICS members, Brazil[36], Russia and India, have policies/guidelines that outline the pricing of services in both health and education sectors. China has policies/guidelines for pricing of health sector services.

The following table summarizes the prevalent practices on pricing for the education and health sectors among BRICS nations.

[35] https://www.gtac.gov.za/Publications/630-Module%2001.pdf

[36] Education in Brazil is public and free, but it can also be offered by the private sector or by community, confessional or philanthropic institutions. As for private education tuitions, although prices are not regulated, educational institutions must comply with legislation that establishes rules to ensure that the composition of the fee is transparent.

Table 5: Provision for pricing and profits for PSP/PPP in social infrastructure

	Brazil	Russia	India	China	South Africa
Provision for **pricing of service**	**Health** – Insurance Industry regulated by the government, including pricing **Education**— Guidelines for the private sector pricing practices; Guidelines for the School Feeding Program (PNAE) purchases	**Established standard costs** for provision of public or municipal services	**Health -** Capped to govt. prices for poor patients- rest is market –linked; **Education** – guidelines for fee determination basis course, seats etc. provided in policy	**Yes** – Notice on Price Reform of Medical Services dictates the local price of health services	No Restriction
Restriction on **usage of Profits**	No Restriction	There are no restrictions on usage of profits unless specified in the concession agreements.	As per the extant education policy, all educational institutions are mandated to reinvest the profits/ surpluses in the sector itself.	No Restriction	No Restriction

In Russia, there are no restrictions on usage of profits unless specifically stated in the concession agreements. Any products and incomes that may be obtained by the concessionaire as a result of conducting the activity envisaged under the concession agreement shall be the property of the concessionaire unless otherwise is established under the concession agreement (part 7 of Article 3 Federal law on concession agreements).
In India, as per the National Education Policy 2020, surpluses / profits ,if any, have to be reinvested in the sector.

3.2.3 Procedures/processes across the project life cycle

This section outlines the practices related to the procedures/processes across the lifecycle of the project for PSP/PPPs in infrastructure including social infrastructure.

Project preparation

A well-established process along the various stages of the project life cycle promotes investor confidence

All BRICS members have well-defined processes for project identification and preparation as presented below:

Figure 25: Assessments undertaken for PSP/PPP social infrastructure projects

Processes along project life-cycle	Brazil	Russia	India	China	South Africa
Socio-economic analysis	✓	✓	✓	✓	✓
Risk identification, allocation and assessment	✓	✓	✓	✓	✓
Procurement strategy	✓	Facultative	✓	✓	✓
Market sounding/ assessment	✓	Facultative	✓	✓	✓
Environmental Impact Assessment	✓	✓	✓	✓	✓
Social Impact Assessment		✓	✓	✓	✓
Others	✓ *Technical assessment*	✓ *Financial feasibility*	✓ *Financial feasibility, Value for money, Market demand assessment*	✓ *Value for money, Financial affordability assessment*	✓ *Needs analysis, Strategic & operational relevance, Value for money*

Sector-specific guidance documents

Standard guidelines including standard bidding documents, toolkits, key provisions, risk allocation, etc. across project life cycle helps the entities in preparing a project for PSP/PPP.

While all BRICS countries are guided by an overall framework for PSP/PPPs in infrastructure sector, Russia and India have model documents designed for PSP/PPP projects under social sectors.

Figure 26: Sector-specific guidance documents for social infrastructure projects

	BRAZIL	RUSSIA	INDIA	CHINA	SOUTH AFRICA
Sector specific tools	Sector specific guidelines are available	Sector-specific guidelines for different PPP models also provided Prioritization of PPP projects is not included	Specific guidebooks for health sector across the value chain	General PPP guides exist for identification, appraisal, preparation & procurement Prioritization & monitoring are not included	PPP Manual for all sectors provides standardized document

Risk allocation

Risk sharing is the bedrock for successful PSP/PPPs

Risk sharing is a prime feature of PSP/PPP arrangements. PSP/PPPs are frameworks where risks are allocated to the party best-suited to manage and mitigate it.

In case of social infrastructure projects, risk should be largely borne by the government to attract PSP/PPPs.

Figure 27: Risk sharing mechanism by project phase

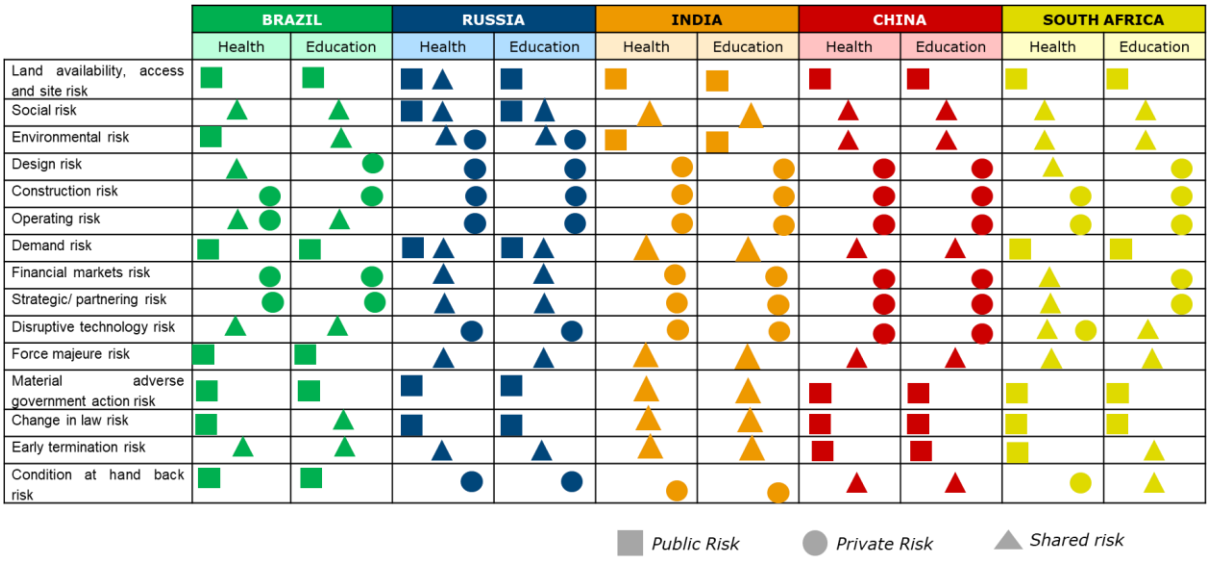
Phase	Type of Risk	B	R	I	C	S
Concept Phase	Land availability, access and site risk	■	■	■	■	■
	Social risk					
	Environmental risk					
Development Phase	Design risk	■	■	■	■	■
	Construction risk	■	■	■	■	■
	Financial markets risk	■		■	■	■
	Strategic/ partnering risk	■		■	■	■
Implement Phase	Operating risk	■	■	■	■	■
	Demand risk	■	■			■
	Disruptive technology risk		■	■	■	
Project overall risk	Force majeure risk	■				
	Material adverse government action risk	■	■		■	■
	Change in law risk	■	■		■	■
Closure risk	Early termination risk				■	■
	Condition at hand back risk	■	■	■		■

Legend Private risk | Public risk | Shared risk

In Brazil, Russia, and South Africa, it appears that the public sector bears demand risks in most of the PPP projects in the social sector. However, Russia has indicated that in some sectors, such as, sports and fitness, culture, leisure and tourism, demand risk is shared with the private sector where usually a minimum revenue guarantee is provided by the public sector to hedge the risk. In Brazil, private sector is expected to bear this risk in the sanitation sector. For India and China, the demand risk appears to be shared between the public and private sector.

The following table provides the preferred risk-sharing mechanism across health and education sectors among BRICS nations. Risks related to the development phase are largely held by the private sector across all countries, while overall project risks, such as, force majeure, change in law etc. are usually retained by the public sector.

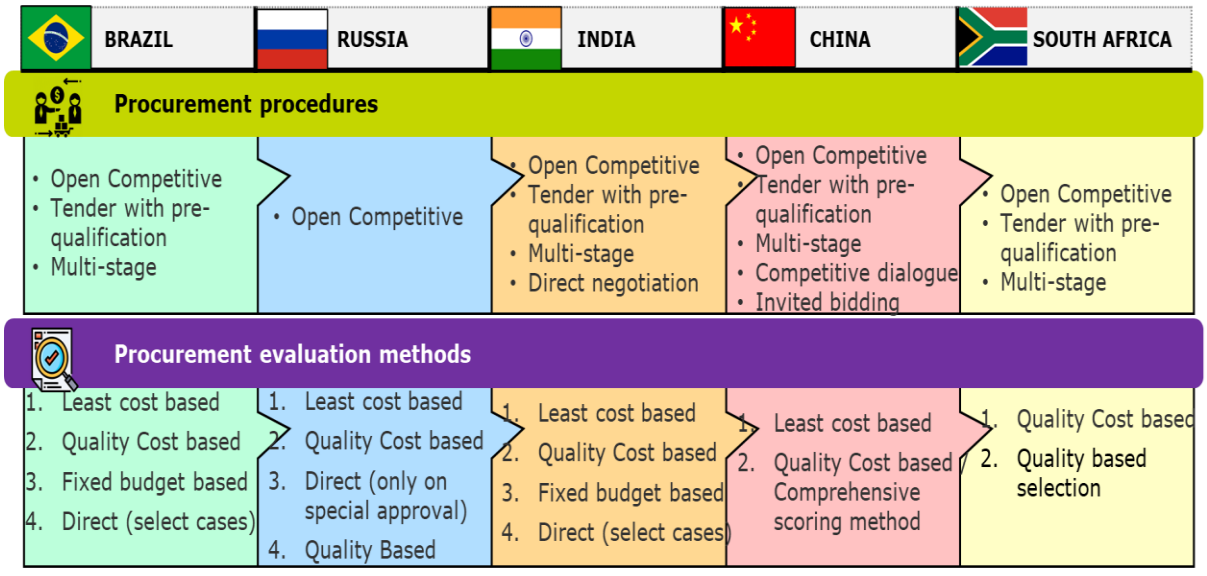
Figure 28: Risk sharing mechanism – Health and Education



Procurement Processes

Streamlined methods for selection and appointment of private players have been adopted by all BRICS countries

Figure 29: Procurement processes for social infrastructure projects



South Africa stands out for adopting quality based selection processes

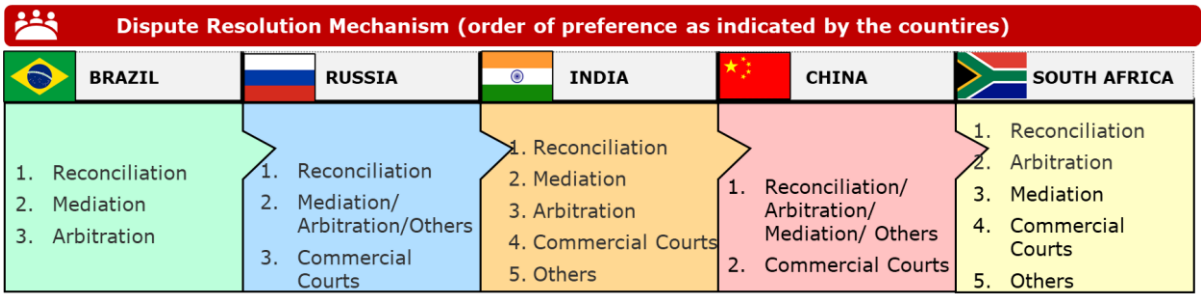
Among procurement methods, an open-competitive process is applied across all nations, followed by two-stage and multi-stage bidding processes. Direct negotiation, competitive dialogue, and invited bidding methods are followed only in select nations.

From the above figure, it is evident that among BRICS countries, South Africa has indicated a preference for PSP / PPP selection based on Quality Cost Based and Quality Based Selection processes. For all the other countries, QBS and QCBS have also been indicated as procurement evaluation methods, however, these have not been reflected as the 'preferred method'.

Dispute resolution

All BRICS members have well-defined dispute resolution mechanisms backed by suitable legal frameworks

Figure 30: Dispute resolution mechanisms for social infrastructure projects



Reconciliation, mediation, and arbitration are the first steps towards dispute resolution undertaken in all BRICS nations. Commercial courts are also involved as the next alternative in Russia, India, China, and South Africa. The prevalent framework for dispute resolution across BRICS members is summarized below.

Figure 31: Dispute resolution frameworks for social infrastructure projects

Dispute resolution framework	Brazil	Russia	India	China	South Africa
Project level or standardized contractual provisions	●		●	●	
Guidelines or toolkits			●	●	●
Legislations specific to PSP / PPP projects	●				●
Sector specific regulations	●		●		
General legislations	●	●	●	●	

General legislation on dispute resolution also exists in four out of the five BRICS countries. In South Africa, regulations on PSP/PPP projects include aspects of dispute resolution. Brazil, India, and China have multiple-level regulations that govern dispute resolution mechanism, whereas, in Russia and South Africa, there is prevalence of a single legislation.

3.2.4 Funding and financing frameworks

Social infrastructure faces unique challenges resulting in lower uptake of PSP/PPP projects in these sectors as against economic infrastructure.

Some key challenges related to social infrastructure financing vis-a-vis economic infrastructure are as follows:

- Social infrastructure projects have high capital and operating costs that are typically borne by the government. On the other hand, in economic infrastructure projects, operating costs are mostly fully recovered from users.
- Economic infrastructure projects have a well-established risk-return framework due to the prevalence of PSP/PPPs in these sectors. However, social infrastructure projects are at a nascent stage of PSP/PPP. There is a perception of higher risks, such as, lack of liquidity, transparency, and political commitment.

Accordingly, **to make social sector projects more lucrative, there is a need to improve the risk-return framework**. The NDB seminar also highlighted the need for governments to provide financial support and develop innovative financing models to increase PSP/PPPs.

Key insights from the virtual seminar on Social Infrastructure: Financing and Use of Digital Technologies[37] co-hosted by the Ministry of Finance, India and the NDB

The seminar brought out the need for **scaling up financing**, with an active role of MDBs/National Financial Institutions to boost private investment. The following key themes for encouraging PSP/PPPs emerged:

- **Market analysis** must improve to better identify clear areas where the private sector is needed and can serve viably.
- Innovation is needed on the **service and economic models** of social infrastructure solutions by shifting to more outcome-based models, e.g., linking public value generation with return on equity.
- Using public **funds to provide guarantees** or grants, for example, can help improve the risk-return ratio and make projects more bankable.
- Developing institutions, standardizing contracts, and bolstering government capacity to engage with the private sector are essential for crowding in financing from the private sector.

The Queen Mamohato Hospital Project in Lesotho[38] is an example of a ***healthcare solution that innovates on its business model*** to improve the risk-return ratio. The project was supported by the International Finance Corporation (IFC) and applied an innovative PPP model using blended finance (mix of guarantees and grants) to enhance bankability.

Financing mechanisms

Financing mechanisms are typically understood to comprise mechanisms that extend financial support to commence implementation of infrastructure projects, primarily for construction of project assets.[39]

Figure 32: Availability of financing mechanisms for social infrastructure projects

Financing mechanisms	Brazil	Russia	India	China	South Africa
Public equity	●	●	●	●	●
Government grants	●	●	●	●	●
Multilateral/bilateral agencies	●	●	●	●	⊗
Capital markets	●	●	●	●	⊗
Public long-term loans	●	●	●	●	⊗
Bank lending	●	●	●	●	●
Pension and other long-term funds	●	●	●		●
Other non-public financing (NGOs, etc.)	●	●	●		⊗
Cess/ taxes	●	⊗	●	●	⊗
Others					⊗

All BRICS countries have mechanisms, such as, public equity and bank lending to finance social infrastructure projects.

[37] Outcomes Report, Virtual Seminar on Social Infrastructure: Financing and Use of Digital Technologies, New Development Bank, 2021
[38] Queen 'Mamohato Memorial Hospital, Lesotho https://www.ifc.org/wps/wcm/connect/region__ext_content/ifc_external_corporate_site/sub-saharan+africa/priorities/health+and+education/lesotho-hospital
[39] Public Private Partnerships Reference Guide (2017) (https://library.pppknowledgelab.org/documents/4699/download)

Russia: Application of concession agreements for construction and operation of general education institutions

Context: To construct and operate schools based on the standardized financing solutions, the Municipal Entity Surgut City District partnered with private entity, LLC Razvitie. The main aim was to quickly build infrastructure through standardized concession agreements, debt financed from the same commercial bank.

Mode of the Project: Design-Build-Finance-Operate-Transfer mode

Features of the project: The private entity is tasked with designing, financing, constructing, provisioning of equipment, and operating and maintaining 12 schools for increasing access to educational infrastructure. The projects were designed on PPP basis with a concession period of eight years.

Financing model: Debt financing on standardized terms is specifically designed for the concessional agreements in the education sector. Developed by a major commercial bank, these agreements are widely used as reference sample contracts.

Benefits: It was the first successful implementation of standardized financing in a specific infrastructure sector in Russia. Further, it saves the cost of structuring each project independently and the public funds spent on financial, technical, and legal consultations.

China: Urban and Rural Education Development Project

Context: To improve the school infrastructure and teaching quality in both rural and urban areas in the Yucheng, Dezhou city, Shandong province, the Yucheng Education Bureau partnered with the Consortium (Shandong Yucheng Foreign Machinery Construction Co., Ltd., Yucheng Lutai Construction Co., Ltd.) and the project company Yucheng Junan Education Development Co., Ltd. to construct school buildings and provision logistics services.

Mode of the Project: Reconstruction-Expansion-Operation-Transfer (ROT) mode

Features of the project: The project was developed on ROT mode with a concession period of 16 years. The scope included construction and operations of a total of ten schools in rural areas and four schools in urban areas with supporting facilities. The packaging of the project was done with a view to improve efficiency.

Financing model: The total investment in the project amounted to USD 53 million, which was financed through 30% equity and 70% debt. The government's equity contribution equaled 35% of the total equity investment in the project.

Benefits: Under this PPP project, approximately USD 7.5 million was saved compared to that of a traditional public investment. The renovation and expansion works of 170,000 square meters of schools was completed within a year.

Challenges: Operation and management of the schools was a challenge due to the wide geographical spread. The Education Department does not allow commercial facilities in and around schools limiting the profitability of the project.

Funding mechanisms

Funding mechanisms are typically understood to comprise mechanisms that provide funding support to meet repayment obligations and remunerate project financiers and equity holders in infrastructure projects.[40]

Figure 33: Availability of funding mechanisms for social infrastructure projects

Funding mechanisms	Brazil	Russia	India	China	South Africa
Viability Gap Funding: Capital grants	●	●	●	●	●
Viability Gap Funding: Operating grants	●	●	●	●	
Tax exemptions and/or incentives		●	●		
Subsidy	●	●	●	●	
Revenue guarantee	●	●	●	●	
Concessional lending		●	●		
Shadow tariffs and/or service payments	●	●	●	●	
Others					

All BRICS countries provide funding support to social infrastructure projects in the form of Viability Gap Funding (VGF).

Brazil, Russia, India, and China also extend operating grants, subsidies, revenue guarantees, and shadow tariffs and/or service payments to provide funding support to social infrastructure projects. Additionally, Russia and India have tax exemptions and/or incentives and concessional lending mechanisms.

Credit enhancement mechanisms

Figure 34: Credit Enhancement mechanisms and their provider/offeror

Credit enhancement mechanisms	Brazil	Russia	India	China	South Africa
Credit guarantee	Government through the National Treasury	Public partner through direct agreement with the financing organization	Multilaterals: MIGA (WB), Partial Credit Guarantees by ADB and WB GoI: IIFCL, Emergency Credit Line Guarantee Scheme (ECLGS) 2.0	Government through budget allocation and Medium-Term Fiscal Framework	
Staple financing	Sector specific budget	⊗			
Insurance	Export Credit Agencies and Funds constituted to provide insurance schemes	Public partner through specific provisions in a PPP or concessional agreement			Export Credit Insurance Corporation
Specific risk guarantee (please specify)		Public partner through direct agreement with the financing organization	Partial risk guarantees by ADB & WB		National Treasury
Co-financing by sovereign or Multilateral or Bilateral Development Institutions	Multilaterals, Development agencies, Local governments and other domestic institutions	Government / Multilaterals	WB & IFC, ADB, NDB	WB and ADB	
Others					

All BRICS countries have varying credit enhancement mechanisms for social infrastructure projects. However, in Brazil staple financing has emerged as a measure of credit enhancement.

[40] Public Private Partnerships Reference Guide (2017) (https://library.pppknowledgelab.org/documents/4699/download)

Public Authorities in Brazil, Russia, India, and China are providing credit guarantees. Specific risk guarantees are available in Russia, India, and South Africa, which are provided by the government, MDBs, and National Treasury respectively.

Other financial support mechanisms

In addition to financing, funding, and credit enhancement mechanisms, other support mechanisms, such as, sector-specific lending provisions and blended finance models also aid social infrastructure development.

Brazil, Russia, and India have social infrastructure-specific lending provisions.

In Russia, legal regulation provides rules for subsidizing loans for social infrastructure projects.

Subsidies are provided to compensate for lost income by providing loans to implement social infrastructure projects. In India, the priority sector lending guidelines issued by the Central Bank are applicable to social infrastructure, such as, health, education, water and sanitation, and tourism. These guidelines provide specified limits for loans in these sectors based on defined eligibility criteria. In case of South Africa, although there are no sector-specific lending guidelines, each project is subject to negotiation between different parties.

Brazil, Russia and South Africa have co-development or blended finance models in social infrastructure projects.

In Russia, legal regulation provides rules for financing construction (or reconstruction) of infrastructure facilities using bonds of specialized project finance company. During the implementation of projects, the specialized company provides funds based on loan agreements and certain measures of state support. Such projects must meet the established criteria, for instance, development of urban infrastructure or housing construction, project implementation period to range between three to seven years, and minimum project cost threshold to be approximately USD 4 million. In South Africa, an Infrastructure Fund has recently been introduced which aims to provide seed funding/ viability gap funding for blended financed projects that have the potential to attract private sector funding. Education, health, human settlements, and water and sanitation are among the priority sectors that qualify for seed funding through the Infrastructure Fund.

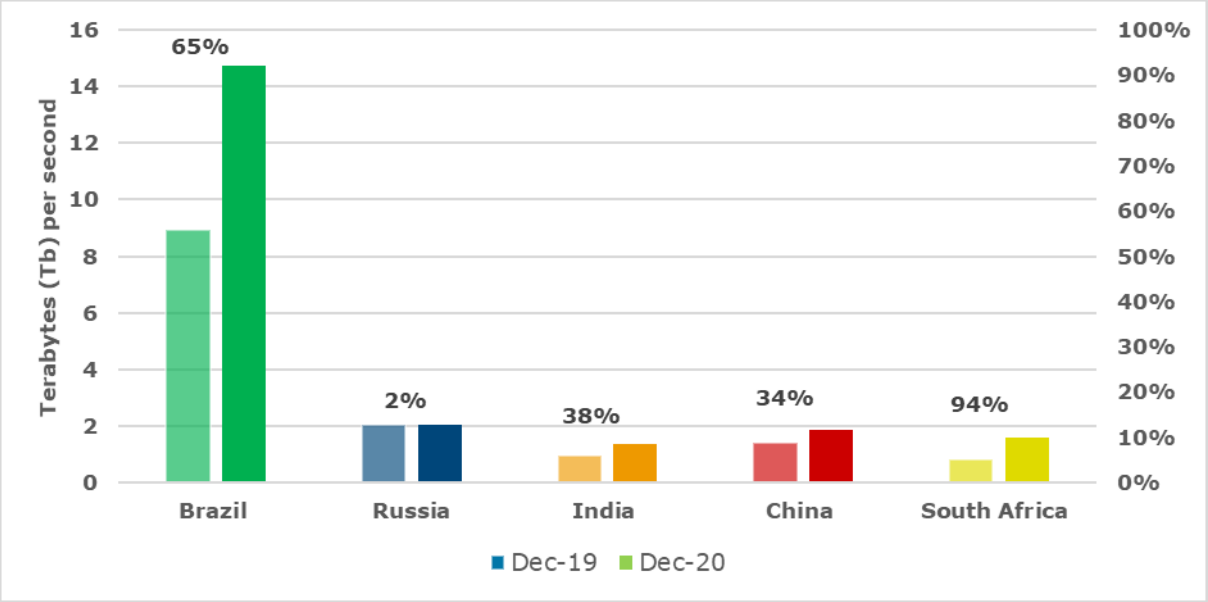
As governments explore alternative financing mechanisms and attempt to attract private sector in social infrastructure, there is a need to strengthen existing frameworks.

4 Leveraging digital technologies for better service delivery

This chapter details the measures taken by BRICS countries to leverage digital technologies for providing effective service delivery. Digital technologies have acted as enablers for governments across the world during the pandemic, whereby, all countries made use of such technologies in one form or the other. Going forward, it would be necessary for BRICS countries to enhance cooperation to overcome the existing international barriers in the transfer of cutting-edge technologies to Emerging Markets and Developing Economies (EMDEs) at affordable prices.

As evident from the figure below, there has been a significant increase in the demand of broadband/internet traffic over the last year, which has made it inevitable for governments to ensure **continued access to high-quality connectivity and provisioning for broadband services.**

Figure 35: Bandwidth produced at Internet Exchange Points[41]



4.1 Need for enabling digital technologies for better service delivery

Digitalization in BRICS countries is improving at a rapid pace

The United Nations' E-Government Development Index[42] is a composite measure of three dimensions: provision of online services, telecommunications connectivity, and human capital, which helps track countries' performance on the use of digital technologies for public service delivery.

Further, the UN's E-participation Index focuses on the use of online services by governments for providing e-information, e-consultations with stakeholders, and online engagement with decision makers.

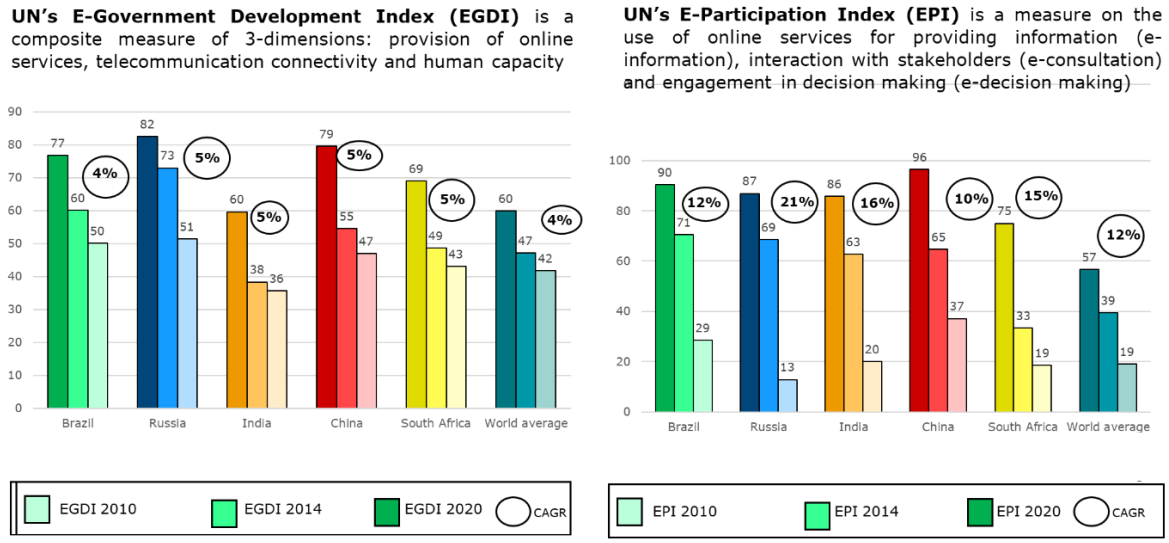
Over 2010-2020, all BRICS countries have consistently improved their performance in both, E-Government Development Index (EGDI) and E-Participation Index (EPI). Further, four out of five countries (Brazil, Russia, China and South Africa) have also performed better than their respective income groups and regions on the EGDI. In terms of EPI, all countries have performed better than their respective income groups and regions.

[41] OECD and PCH data

[42] Report on United Nations E-government Survey 2020, Department of Economic and Social Affairs, United Nations, 2020: https://publicadministration.un.org/egovkb/Portals/egovkb/Documents/un/2020-Survey/2020%20UN%20E-Government%20Survey%20(Full%20Report).pdf

Figure 36: E-Government Development Index and E-Participation Index

The indices of all BRICS members have grown at a faster pace than world average in last 10 years, especially in the case of e-participation indicating strides of effort undertaken by the nations on improving their online services



The above figure depicts that BRICS countries have fared well in comparison with the rest of the world on EPI, whereas, these countries have improved at a slower pace in comparison with the world average on EGDI. This calls for the need to augment telecommunication connectivity or human capacity or a combination of both. Therefore, it is imperative for each BRICS country to improve their telecommunication network, as well as, improve digital literacy to harness the potential of digital technologies in delivery of social services.

Digital interventions in social infrastructure will play a catalytic role in shaping resilient and inclusive economic recovery in the post COVID-19 era.

The pandemic has particularly driven the uptake of digital technologies across social sector services, for instance, e-learning, e-health, telemedicine, and e-government services. Leveraging digital technologies in the social infrastructure sector will be of paramount importance in ensuring universal and affordable access to social services by enhancing the efficiency and effectiveness of public service delivery among BRICS countries. It would be equally essential for governments to bridge the digital divide by improving telecommunication networks in underserved and unserved areas, provide affordable and reliable broadband internet access, drive the availability of internet enabled devices, and enhance digital literacy.

The seminar co-hosted by the Ministry of Finance, India, and the NDB also highlighted the **value of integrating digital technology into social infrastructure to enhance the delivery of health and education services.** Some highlights are presented below:

Key insights from the virtual seminar on Social Infrastructure: Financing and Use of Digital Technologies[43], co-hosted by the Ministry of Finance, India and the NDB

A series of enabling factors were presented as opportunities to better harness the potential of digital technology in social infrastructure, including: (i)Widening access to digital government services; (ii)Enhancing data use by public and private organizations; and (iii)Improving the regulatory environment to promote innovation in social solutions, etc.

Overall, enhancing connectivity can be a key enabler for maximizing the impact of social infrastructure.

[43] Outcomes Report, Virtual Seminar on Social Infrastructure: Financing and Use of Digital Technologies, New Development Bank, 2021

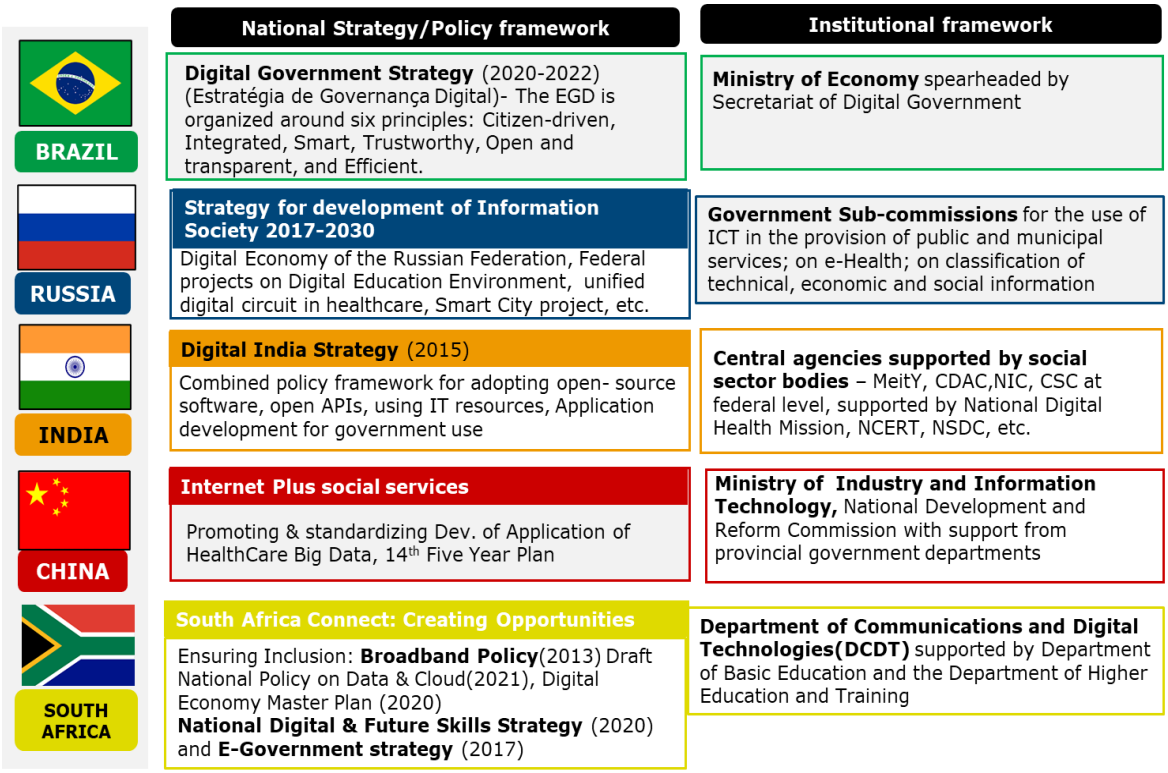
Examples of social infrastructure initiatives undertaken by BRICS countries to leverage digital technology, as well as, enhanced access to government services were also shared during the seminar:

- Aarogya Setu,[44] a COVID-19 contact tracing, syndromic mapping, and self-assessment digital service developed in India
- The National e-Government Strategy of South Africa[45] aims at digital transformation of public services to promote an inclusive digital society where all citizens could benefit from the opportunities offered by such technologies to improve their quality of life.

4.2 Policy framework for promoting digital technologies

All BRICS countries have developed national digital strategies that aim to promote network connectivity and encourage open access. These strategies also include social-sector specific digital strategies. These programs/strategies are primarily driven and led by federal-level agencies.

Figure 37: Policy and institutional framework to promote digital technologies



All countries have a legislative framework that supports the implementation of digital strategies, such as the Brazilian Civil Rights Framework for the Internet, Law "On Information, Information Technologies and on the Protection of Information" in Russia, Information Technology Act in India, the Cybersecurity Law in China, and Electronic Communications and Transactions Act, 2002 in South Africa.

[44] Government of India: https://www.mygov.in/aarogya-Setu-app/
[45] National e-Government Strategy and Roadmap of South Africa: https://www.gov.za/sites/default/files/gcis_document/201711/41241gen886.pdf

A brief on the strategy adopted by each member country is provided below:

Brazil's Digital Government Strategy 2020-2022[46], defines priorities for promoting the availability of open government data, boosting use of digital technologies for transparency purposes, improving the delivery and use of public digital services, securing the take-up of digital identity, developing evaluation and services' satisfaction mechanisms, integrating digital services through interoperable public information technology systems and data, and increasing citizen participation through digital platforms.[47]

Additionally, other policy initiatives that contribute to the digital transformation of the Brazilian public sector are:

- Brazilian Artificial Intelligence Strategy (2021)[48] – aims to enhance the development and use of AI to promote scientific progress and solve concrete problems in the country, considering the axes: Education, Workforce and Training, RD&I and entrepreneurship, application in the productive sectors, public sectors application and public security transformation.
- Federal Government Open Data Policy[49]
- Digital Health Strategy for Brazil 2020-2028[50]
- Action Plan, Monitoring and Evaluation of Digital Health for Brazil (PAM&A, 2019)[51]

Russia: The Strategy for the Development of the Information Society in the Russian Federation for 2017-2030 contains the purpose of formation of a new technological basis for the development of the Russian economy and the social sphere. The strategy also indicates two objectives specific to the social sector: (A) Implementation of projects to increase the availability of high-quality medical services and medical goods; (B) Creation of various technological platforms for distance learning to increase the availability of quality educational services.[52] Additionally, the Policy on Digital Economy of the Russian Federation,[53] aims to create global infrastructure to provide modern digital services to its population.

India: The Digital India Program[54] aims to transform India into a digitally empowered society and knowledge economy. The program's implementation rests with the Ministry of Electronics and Information Technology (MEITY), supported by relevant line ministries expected to drive digital initiatives across their sectors. Some of the initiatives undertaken towards enabling open information and inclusive decision making are an open API policy, policy on adoption of open source software for the Government of India, Digital Service Standards (international standards for all digital services), etc.[55]

China: Part 5 of the Fourteenth Five-year Plan (FYP) of China[56] outlines the strategy for the use of digital technologies in China. The FYP includes initiatives for "Digital China" focused on seven pillars including smart city/smart government. The Plan provides high-level guidance to local governments to undertake efforts in their respective five-year plans. For instance, the guidance includes considering **data as a new production factor** (along with land, labor, and capital), for which the local governments are required to develop strategies to enable suitable legal and regulatory frameworks. Further, with respect to social infrastructure, the Plan also includes prioritized

46 https://www.gov.br/governodigital/pt-br/EGD2020
47 Brazil's strategy for digital governance sourced from https://www.oecd.org/governance/digital-government-review-of-brazil-9789264307636-en.htm
48 https://www.gov.br/mcti/pt-br/acompanhe-o-mcti/transformacaodigital/inteligencia-artificial
49 http://www.planalto.gov.br/ccivil_03/_ato2015-2018/2016/decreto/D8777.htm
50 http://bvsms.saude.gov.br/bvs/publicacoes/estrategia_saude_digital_Brasil.pdf
51 https://www.gov.br/saude/pt-br/assuntos/saude-digital/material-de-apoio/PAMA_V511112020.pdf
52 Concept of digital and functional transformation of the social sphere approved by the Order of the Government of the Russian Federation of February 20, 2021, No. 431-r.
53 Digital Economy of Russian Federation - https://digital.gov.ru/ru/activity/directions/858/
54 https://www.digitalindia.gov.in/
55 Policy initiatives under Digital India - https://negd.gov.in/sites/default/files/Policy%20Document_0.pdf
56 XIV plan for China - http://www.gov.cn/zhuanti/shisiwu/chrome/index.html#!/main

application scenarios in healthcare and education to enable the systemwide potential of digital transformation.

South Africa: The National Policy for Data and Cloud[57] and a Digital Economy Master Plan foster the provision of online services. Further, the SA Connect Program focuses on creating digital opportunities and ensuring inclusion through their Broadband Policy (2013). The following case study outlines a specific application for social infrastructure as part of this policy.

South Africa: Providing network access through the Student Housing Infrastructure Program

Context: South Africa's Department of Higher Education and Training, together with various institutions of higher learning, is setting up Student Housing Infrastructure, equipped with Wi-Fi facilities for university and college students.

Objective: Provision of Wi-Fi as an essential element of student housing facilities in educational institutions at a cost of approximately USD 6 billion

Project features: Department of Higher Education and Training, with support from the Development Bank of Southern Africa (DBSA) is implementing the project over a 10-year period, since 2018.

Benefits: This intervention is expected to provide students (especially vulnerable/underprivileged students) at various educational institutions with access to e-learning opportunities, which is now being viewed as a pre-requisite, post COVID-19.

Four out of five countries have also adopted sector-specific digital programs for the health and education sector

Figure 38: Digital programs in social infrastructure

Sector specific digital programs	Brazil	Russia	India	China	South Africa
Health	●	●	●	●	
Education	●	●	●	●	
Others		●	●	●	●

Brazil: The Ministry of Health has a specific policy called *"Saúde Digital"* or the Digital Health Strategy for Brazil 2020-2028. Under this policy, the Ministry of Health launched "*Conecte SUS*" in 2020, a partnership program between the Federal Government and subnational governments with the objective of integrating health information of the citizens[58].

The National Education and Research Network (RNP) makes ICT services available to the health area, such as, the Telemedicine University Network (Rute)[59]: an initiative to provide digital infrastructure that has 140 units throughout Brazil and 50 Special Interest Groups (SIGs) comprising

[57] https://www.gov.za/sites/default/files/gcis_document/201409/37119gon953.pdf

[58] Digital Health Strategy for Brazil 2020-2028 (ESD28) http://bvsms.saude.gov.br/bvs/publicacoes/estrategia_saude_digital_Brasil.pdf

[59] https://rute.rnp.br/

health professionals who lead collaborative projects in research, innovation, management, education and care.

The Ministry of Education also has several initiatives based on digital infrastructure, such as, *Tempo de Aprender* program, which includes an online course of literacy practices; the *Programa de Inovação Educação Conectada*, which aims to universalize the access to high-speed broadband at schools located both in urban and rural areas; and the digital platforms *Ambiente Virtual de Aprendizagem* e *Plataforma de Recursos Educacionais Digitais* (Virtual Learning Environment and Digital Educational Resources Platform, respectively).

Russia: The federal project "Digital Educational Environment" is aimed at creating and implementing a digital educational environment in educational institutions, as well as ensuring the implementation of the digital transformation of the education system. The program includes upgrading the information and communication infrastructure for introducing a digital educational environment, connecting teachers to federal information and service platform of the digital educational environment, creating centers for digital education of children in all constituent entities of the Russian Federation.[60] Russia is also implementing a federal project on "Creation of the unified digital circuit in healthcare based on the Unified State Health Information System" as part of the national scheme.[61] Further, for municipal services, the project "Smart City" is being implemented as part of the national project "Housing and urban environment"[62], to drive digital transformation and a comprehensive increase in the efficiency of urban infrastructure.

India: The National Digital Health Mission[63] was rolled out with the aim to develop the necessary support for the country's integrated digital health infrastructure. Programs for enabling digital health data, electronic health records, telemedicine, and other initiatives under this mission are at various stages of implementation. Further, India has also undertaken several initiative s for encouraging digital learning both, at the national and sub-national levels.[64] India's Ministry of Education has introduced guidelines for digital education, which highlights modes of digital education, guidelines for developing e-content, and specific guidelines for children with special abilities, etc. The ICT@Schools Program focuses on quality with emphasis on educationally backward areas, building model schools and training of all teachers in effective use of ICT.[65]

China: Guidelines on Promoting and Standardizing the Development of the Application of Health Care Big Data[66] have been developed, under which, China will build national and provincial population health information platforms and interconnect application platforms to bid and purchase medicines at the national level. In 2018, China's Ministry of Education issued the Action Plan for Informatization in Education 2.0, which includes enabling learning applications for students and teachers through the "Internet + Education" platform that offers internet-based education services.

It is also implementing a modern distance education project in rural primary and middle schools, focusing on the delivery of quality education by promoting a teacher's team and facilitating their ICT learning.

[60] Digital Education in Russia https://edu.gov.ru/national-project/projects/cos/
[61] Healthcare in Russia https://minzdrav.gov.ru/poleznye-resursy/natsproektzdravoohranenie/tsifra
[62] Russia Smart City - https://minstroyrf.gov.ru/trades/gorodskaya-sreda/proekt-tsifrovizatsii-gorodskogo-khozyaystva-umnyy-gorod/
[63] India's NDHM - https://ndhm.gov.in/home/ndhm
[64] India Report- Digital Education, June 2020, Department of School Education and Literacy, Ministry of Human Resource Development, Government of India.
https://www.education.gov.in/sites/upload_files/mhrd/files/India_Report_Digital_Education_0.pdf
[65] Revised Scheme of Information and Communication Technology in Schools (ICT in Schools) during the XI Plan.
https://ictschools.ncert.gov.in/index.php/ictschools-scheme/
[66] Guidelines by the General Office of the State Council
http://english.www.gov.cn/policies/latest_releases/2016/06/24/content_281475379018156.htm

4.3 Digital interventions practiced in BRICS countries

4.3.1 Enabling service delivery through digital technologies

Figure 39: Digital interventions in social infrastructure

Digital Interventions	BRAZIL	RUSSIA	INDIA	CHINA	SOUTH AFRICA
Tele-medicine	Web classes, tele-education and tele-diagnosis	Centralized system for consultations	Policies for telemedicine + Sanjeevani	Network access	Provision for Broadband
Mobile Health	CONECTESUS—app of vaccines, exams & medicines	edical Information system at constituents	Health MIS		Mom connect platform
Electronic Health Records	Local electronic medical record systems	Legal framework in place	Legal framework in place	Legal framework in place	
GIS/ Satellite data platforms		Unified state health information system	NHRR mapping facilities	GIS mapping as key future agenda	
IOT/ SCADA		Smart City	Used in smart city, draft policy	Deployed in select smart cities	
Usage of drones/ image processing devices		Virtual concert halls/ museums	Drones for mapping villages under the scheme Svamita		
App-based user inputs		Public services portal – doctor appointment	My-Gov and Umang	Municipal activities – one stop portal	
E-Classroom	Online platform, Eduplay, UNIVERSUS, AVA-SUS and UNA-SUS	One-window platform	DIKSHA platform, ICT@School Scheme	Three Classrooms	Providing internet access
Availability of knowledge repository for self learning	Online Platforms Eduplay, AVAMEC, AVA-SUS and UNA-SUS	Experimenting	National digital library, Swayam prabha, CIET, Shiksha Vani podcast	Public Service System of Digital Education Resources.	
Use of ICT for imparting education in institutions	Online Platform MEC RED, Connected North (Norte Conectado) in progress	Experimenting	National Program on Technology Enhanced Learning (NPTEL), CIET	Primary and Secondary School Teachers' Information Technology Application Ability Improvement Program	Experimenting with tablets
Teaching use of ICT Devices by institutions	Clinical Technology Integrated	Digital education environment materials	NPTEL, Central Institute of Educational Technology (CIET), Smart Class Labs		

From the figure above, it can be inferred that Russia and India emerge as frontrunners, having developed specific policies and guidelines for enabling digital interventions in both health and education sectors.

Brazil launched the "CONECTE SUS" Program to implement its National Digital Health Strategy 2020-28. The mobile application monitors patient's trajectory in the Brazilian Public Health System, as well as patient's data on vaccination, clinical exams, hospitalizations and prescribed medications. There have been 9 million downloads of the app (till August 2021). Brazil also launched the National Health Data Network (*RNDS)*, which provides TeleSUS services, teleconsultations, self-care apps and structured information about the COVID-19 pandemic.

Russia has introduced a centralized sub system of the state information system for telemedicine consultations connecting all medical organizations of the state and municipal healthcare systems.

India has implemented *Common Service Centers (CSC) 2.0* to deliver government to citizen services, education, skill development, and financial inclusion services; the *O Labs* for teaching lab experiments online; *DigiLocker*, a cloud-based platform for storage and verification of diplomas and transcripts, etc.

China has introduced concept of 'Three Classrooms' which refers to 'Delivery Class': 'Master Class' and 'Famous School Network Class'. Apart from this, it also includes 'Special Delivery Class' for strengthening teaching capabilities of teachers and also to improve student's learning abilities.

India: Telemedicine through the e-Sanjeevani portal

Project context: India has implemented country-wide telemedicine services for physician consultations through the e-Sanjeevani telemedicine service that has been rolled out in 31 states and Union Territories, in partnership with the Centre for Development of Advanced Computing (C-DAC).

Key features: Funded by the financial assistance from the Central Government under the National Health Mission, this intervention ensures accessibility and continuity of care, while saving costs and increasing digital adoption. The platform has the capacity to deliver 40,000 consultations per day. During the COVID-19 pandemic, when the out-patient services were not operational due to

India: Telemedicine through the e-Sanjeevani portal

related lockdowns, the Ministry of Health and Family Welfare upgraded the e-Sanjeevani platform to provide free of cost consultations.

Challenges and remedy measures: Data privacy and security as well as the absence of legal framework for online consultations were some of the challenges faced during the initial implementation phase. To overcome these challenges, the Government of India, in consultation with the Medical Council of India, issued the Telemedicine Practice Guidelines to be used along with other national clinical standards, protocols, policies, and procedures for ensuring safe and secure service delivery.

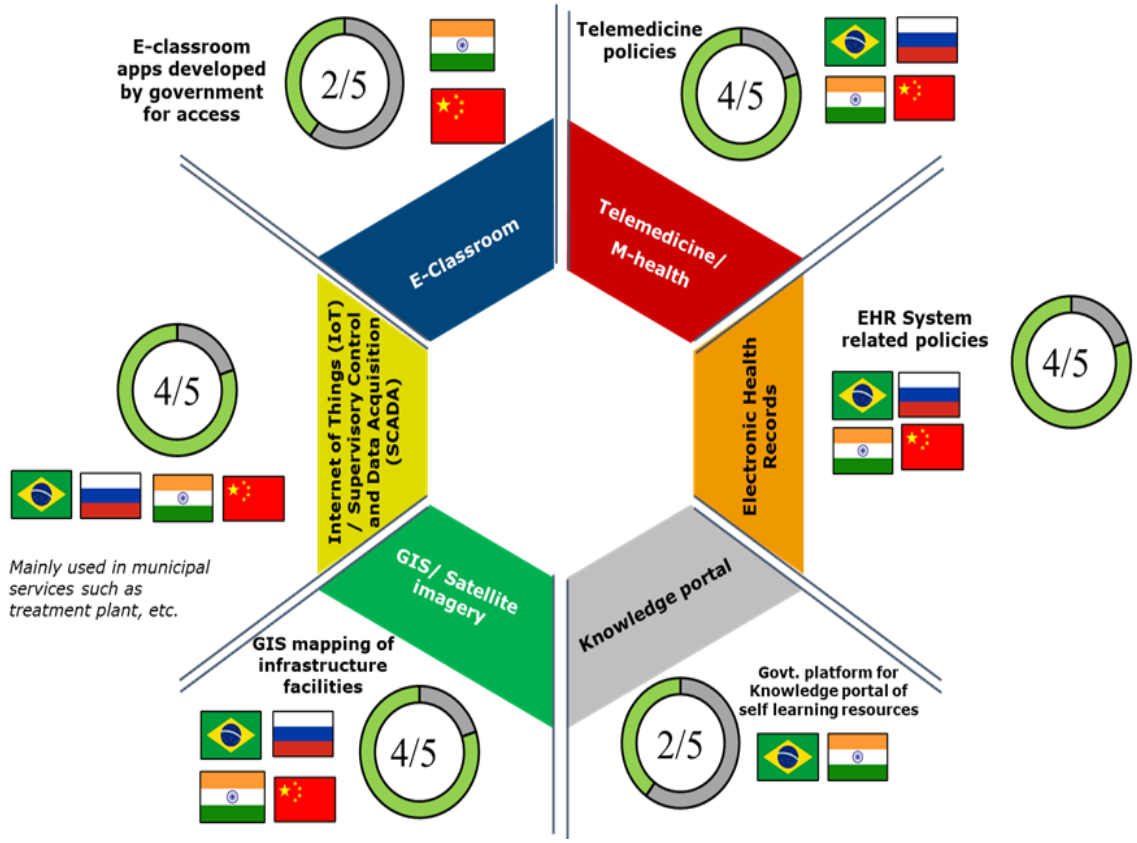
Benefits: The service provides continuity of care, allows for data-driven policy decisions using data analytics and leads to cost and time saving for the citizens. **Over 6.2 million online consultations** have been delivered using this platform.

Digital interventions in social infrastructure with an aim to enhance quality and service delivery are gaining traction

While Russia, India, China and South Africa developed schemes for telemedicine and online learning earlier, these have seen wider adoption by citizens as a result of the pandemic. Brazil, on the other hand, has formalized regulations on telemedicine and knowledge portal as a supporting effort, post the pandemic.

The following figure summarizes key digital interventions undertaken for the social infrastructure sector by BRICS countries.

Figure 40: Summary of digital interventions in social infrastructure



BRICS members utilized digital technologies in the healthcare sector to effectively manage the response to COVID-19 pandemic

Figure 41: Healthcare - Digital response to COVID 19

In the healthcare sector, all BRICS countries implemented digital interventions for the prevention and triage and for tracking, tracing, and testing COVID-19 patients. Brazil and India also utilized digital interventions to assess future requirement of beds and vaccines.

All countries ensured continued access to learning opportunities through online learning platforms, whereas, China and South Africa also adopted digital interventions to facilitate admissions and evaluations.

Brazil launched the National Health Data Network (RNDS), also the national repository of COVID-19 data, which integrates actions for receiving, processing and making available notifications of injuries, test results and occupation of beds by COVID-19 patients. RNDS also integrated services for COVID-19, such as teleconsultation, new applications aimed at user self-assessment, and the provision of information about the disease for citizens, health professionals and managers.

Russia used its public information portals to increase awareness on COVID-19 and its prevention and also used QR code-based digital tracking systems for contact tracing of COVID-19 positive patients. Further, Russia also used its telemedicine centers to monitor and deliver e-consultation services to citizens. Importantly, Artificial Intelligence-based (AI) technologies are being used in radiology services for conducting CT scans.

India developed an *IT-enabled Integrated Hospital Analysis System* (ITIHAS) to predict COVID-19 cases, emerging hotspots, etc., as well as the *Arogya Setu* (a Bluetooth-based mobile application for contact tracing of COVID-19 patients, alerting citizens of high-risk locations, AI-driven self-symptom checks, etc.). *COVID Vaccine Intelligence Network* (Co-WIN), a web-based platform developed by the National Health Authority under the Ministry of Health and Family Welfare, is being used for facilitating registration and appointments for vaccinations, planning vaccination drives, mapping demand for vaccines, reporting Adverse Events Following Immunization (AEFI), and generating e-vaccination certificates for beneficiaries. To map future requirement of hospital beds, ventilator support, etc., the *COVID India Portal* is being used by aggregating data from district-level facilities, suppliers, administration, and all associated stakeholders in real-time.

COVID Vaccine Intelligence Network (Co-WIN), a web-based platform developed by the National Health Authority under Government of India is the **digital backbone of the vaccination drive in India**. It is now available as an open-source platform for countries to orchestrate successful vaccination drives with efficient monitoring towards universal vaccination.

China used AI-powered surveillance cameras and portable digital recorders with heat sensing technology[67] to identify individuals with elevated body temperatures in the crowd.[68] Further, an AI algorithm was developed which could detect the progress of the virus mutation[69]

South Africa launched the COVID Alert SA App-a bluetooth based contact tracing mobile application to alert individuals regarding potential COVID-19 positive patients. South Africa also launched the

[67] China uses heat sensing technology and AI to identify feverish people within a crowd. OPSI COVID-19 Innovation Response Tracker (2020). Retrieved from https://oecd-opsi.org/covid-response/china-uses-heat-sensing-technology-and-ai-to-identify-feverish-people-within-a-crowd/

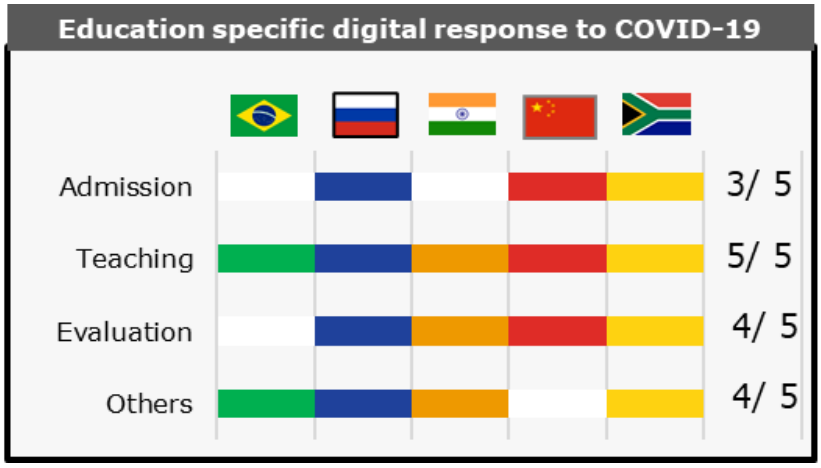
[68] Using big data to win the battle against epidemic prevention and control (2020). Retrieved from http://legal.people.com.cn/n1/2020/0204/c42510-31570070.html

[69] What hotspot technologies have been used during the epidemic? AI, 5G, RTC, big data have appeared (2020). Retrieved from https://blog.csdn.net/QbitAI/article/details/104404157

COVID Screening application to identify people and communities at risk for COVID-19. Further, South Africa leveraged social media platforms to spread public awareness regarding COVID-19[70]

Digital technologies were used to ensure continued learning for students during the pandemic

Figure 42: Education - Digital response to COVID 19



All BRICS countries implemented digital interventions to ensure continued access to learning opportunities, while China and South Africa also undertook digital interventions to facilitate admissions and evaluations.

All BRICS countries either built on existing e-learning platforms to ensure continued access to education through digital means or launched new platforms. **Brazil** started a YouTube Channel, viz. ***Futura Channel***, for curating e-content to facilitate learning and ensured that this content was available on its online learning platforms.[71] As per a survey of 168,739 schools in Brazil, 98.11% of the Brazilian schools adopted distance learning approaches during the pandemic

Russia used online platforms such as the *Yandex* to provide video classes for grades 5 to 11 and *Russian Electronic School* to provide access to online learning.[58] **Russia's** Ministry of Science and Higher Education also released guidelines for implementing distance learning technologies for higher education. Further, the remote form for online submission of documents for seeking admission was also introduced to reduce the need for personal presence and the risk of infection.

India leveraged its DIKSHA platform to provide e-learning content to school students. **India** also used *Swayam Prabha*- a group of 32 Direct-to-Home channels for telecasting educational programs for Grades 9 to 12 and university students.

China used e-textbooks and guide documents to facilitate online learning and also used its Evaluation Index System of Primary and Secondary School Teachers' for capacity building to guide the training and develop teachers' digital literacy. The Evaluation Index System forms standard indicators on information awareness, knowledge, application, ethics, and security for teachers' professional development. China also held online examinations for conducting admissions for post graduate studies.

South Africa held online examinations and virtual interviews for admission, virtual classrooms, e-learning platforms, e-textbooks, and mobile-based applications for teaching and online evaluation tests. Other interventions include using radio channels to deliver the curriculum for Grades 10, 11, and 12.

[70] Application of tele-medicine guidelines. Health Professions Council of South Africa (2020). Retrieved from https://www.hpcsa.co.za/Uploads/Events/Announcements/APPLICATION_OF_TELEMEDICINE_GUIDELINES.pdf%20On%20page%2049

[71] How countries are using ed-tech (including online learning, radio, television, texting) to support access to remote learning during the COVID-19 pandemic. The World Bank (2020). Retrieved from https://www.worldbank.org/en/topic/edutech/brief/how-countries-are-using-edtech-to-support-remote-learning-during-the-covid-19-pandemic

Satisfaction/feedback surveys are conducted in all BRICS countries for the health sector, and Brazil, Russia, India, and China for the education sector

Figure 43: Satisfaction surveys in Health and Education

Feedback mechanism	Brazil	Russia	India	China	South Africa
Health					
Post service feedback			●	●	
National level annual surveys	●			●	
Voluntary responses	●	●		●	●
Others			Mera Aspataal		
Education					
Annual student/ parent feedback	●	●	●		
National level annual surveys	●		●		⊗
Voluntary responses	●	●	●		
Others				• Some localities and vocational colleges have conducted surveys on teaching quality and students' psychological assessment. • Education administrative departments at all levels and colleges and universities conduct investigations according to work needs.	

In the **health** sector, Russia measures user satisfaction through voluntary responses (or opinion polls) conducted by independent organizations. These surveys provide feedback on the people's level of satisfaction with the medical care and this data is published on the health ministry's website.

Brazil has been using metrics and indicators for monitoring and evaluating implementation of the Digital Health Strategy goals, including the digital maturity index of health care establishments. In addition, the annual ICT health survey measures the evolution of ICT usage among health establishments and professionals.

India assesses user satisfaction through the post service feedback mechanism. Additionally, the National Health Ministry in India has introduced a new initiative, viz. 'Mera Aspataal' (My Hospital) which captures patient feedback for services received at hospitals through text messages, mobile application, and the web portal. Further, India's Health Ministry has also established a Grievance Redress System where complaints can be lodged and suggestions provided on the quality of health services across health facilities throughout the nation.

China's National Health Commission has set up a **National Satisfaction Management Platform** to capture user satisfaction on a real-time basis. The platform also provides regional and hospital rankings.

Russia: Monitoring outcomes through a Unified Information System

Scope of the project: Creation, implementation, and maintenance of the hardware and software complex of the Unified Information System

Digital Intervention: Ministry of Education of the Moscow region partnered with Open Joint-Stock Company of long-distance and International Electric Communication "Rostelecom" to create, implement, and maintain the hardware and software complex of the unified information system of electronic diaries and class journals. This is aimed at increasing the quality of education for K-12 school students.

Benefits: The system is used across ***1388 schools of the Moscow region in 62 municipalities***. It has digitalised students' grades and homework and allows teachers to view a child's grades and check their homework at any time and place with internet access.

Russia: Monitoring outcomes through a Unified Information System
Funded by the user fee, this intervention has allowed for a reduction in the number of paper reports and facilitated the monitoring of educational results. This existing system has also helped schools transition to online education without any additional expenditure during the pandemic. **Key challenge:** Many teachers initially lacked digital literacy and were not proficient with computers.

In the **education** sector, Brazil, Russia, and India measure user satisfaction through annual student/parent feedback.

In Russia, educational organizations usually conduct their own monitoring. However, monitoring may also be centralized and occur at national or sub-national levels. Further, various social research agencies also conduct opinion polls to measure user satisfaction in Russia.

India measures user satisfaction through annual student/parent feedback and national-level annual surveys, and voluntary responses. This includes National Assessment Surveys conducted by the National Council of Educational Research and Training (NCERT), an autonomous government organisation under the Ministry of Education, third-party learning outcome surveys conducted at sub-national levels, and surveys on online education during COVID-19 conducted by independent think tanks/organizations.

In China, some localities and vocational colleges have conducted surveys on quality of teaching and students' psychological assessments. Further, education administrative departments at all levels and colleges and universities conduct investigations as per the requirements.

India: Digital Infrastructure for Knowledge Sharing (DIKSHA) – One Nation One Digital Platform
Project: The Digital Infrastructure for Knowledge Sharing (DIKSHA) is a national platform launched in 2017 with the dual objective of creating digital content for e-learning and for facilitating continuous professional development of schoolteachers. The platform was implemented by the Central Institute of Educational Technology (CIET) under the Ministry of Education. The platform got a further boost by India's National Education Policy, 2020 for utilizing technological interventions for delivering quality education. **Digital intervention**: DIKSHA is a national platform that provides teachers and school students access to a variety of e-learning resources, such as e-textbooks, audiobooks, and videobooks. The portal currently houses 3,710 energized textbooks with QR codes, 428 audio contents, etc. **Project's reach and scope**: DIKSHA Platform has been adopted by almost all states/Union Territories in India, Central Board for Secondary Education (CBSE), and other autonomous educational bodies/boards. Each state/Union Territory leverages the platform in their own way, as they have the freedom and choice to use the Platform's varied capabilities and solutions to design and run programs for their teachers and learners. The platform can be accessed by learners and teachers across India and currently supports uploading of content in 32 Indian languages. **Outcomes and achievements**: DIKSHA has witnessed more than 3.20 billion learning sessions till date and the Platform played a pivotal role during the COVID-19 pandemic to enable continued school learning across India, and the platform has witnessed an average of 53+ million page hits every day since April, 2020.

Although reliance on digital interventions has heightened due to COVID-19 to meet the requirements of a changed world order where private lives and businesses are largely being run digitally, governments would need to formulate policies and regulations to address the issues of bridging the Digital Divide, especially to cater to the requirements in rural areas, ensuring continued access to connectivity and increasing digital literacy. Other challenges associated with the promotion and adoption of digitalization, such as, privacy and cyber security would also need to be factored in by the governments.

5 Key learnings and way forward

Key learnings associated with social infrastructure across BRICS countries have been summarized in this segment of the report, along with the suggestions on the way forward.

5.1 Key Learnings

1. **All BRICS countries recognize the importance of social infrastructure** to meet the SDGs and the priority that needs to be accorded to health and education sectors. Considering that health and education are not only public goods but also merit goods, there is a need to ramp up investment in both these sectors, as well as engage with the private sector to bring in greater efficiencies to meet the desired objectives.

2. It also emerges from the preceding chapters that **BRICS countries are adopting PSP/PPPs in social infrastructure projects**. However, the degree of risk sharing between public sector and private sector varies between the countries. For example, it appears that public sector assumes larger quantum of risks compared to private sector in social infrastructure PSP/ PPP projects in Brazil, China and South Africa.

PSP/PPPs are not privatization.

PSP/PPPs are often viewed as privatization by the public at large. The difference between the two is given below:

Privatization refers to the process of transfer of a project form the public sector to the private sector with no or very little control of the government on the project.

According to UNCTAD, PSP/PPPs are formal arrangements between the public and private counterparty to share risks and rewards in the delivery of public services and infrastructure. PSP/PPPs, in no manner, reduce the accountability of the government. Here, the government's role remains critical throughout the contract period for a PSP/PPP to be successful.

3. **Streamlined methods for selection and appointment of private players have been adopted by all BRICS countries.** South Africa **has indicated that** Quality Cost Based Selection (QCBS) is the preferred method for selection of PSP/PPP projects, rather than Least Cost Based Selection (LCBS). This is an important learning as the lowest bid may not always be the best bet in social infrastructure projects. The reason is that in case of a social sector PSP/PPPs, the data on the financials etc., is rarely available and hence, the private party without knowing the actual costing and other details may bid to win the project. Such projects are then difficult to run efficiently as the actual cost/expenditure in running the project is far greater than the rate at which it is awarded by the government. It is equally important to establish a floor price before bidding and not award projects to those who bid below the benchmark. This also ensures better partners with greater experience and capacity to deliver quality services that are not out priced by fly-by-night operators.[72]

The countries need to **re-think the methods of procurement** in case of social infrastructure projects as lowest bid may not always be the best procurement method for social infrastructure.

[72] Mayaram, Archana (2019): Public Private Partnership in Primary Health Care: A Case Study of PPPs in Primary Health Centres in Rajasthan

4. **Countries are evaluating the shift from output-based financing to outcome-based financing, such as Social Impact Bonds (SIB):** In 2016, SIB was adopted in Brazil for a health sector project.[73] South Africa issued SIBs for two projects: (i) Bonds4Jobs which had a performance target of placement of economically excluded young people into well-paying, higher-complexity jobs. Meeting the target was the responsibility of NGOs that provided training and job-matching services to young people and employers. (ii) The Impact Bond Innovation Fund (IBIF) wherein Western Cape Foundation for Community Work provided home-based early learning services to preschool-aged children in two impoverished communities in the Cape metro area: Delft and Atlantis.[74] Russia is also implementing five Social Impact Bonds[75] (SIB) worth over USD 2 million. The first SIB was launched in 2019 to improve school children's academic performance. In India, Pimpri-Chinchwad Municipal Corporation (PCMC) has signed an MoU with the UNDP India to co-create India's first SIB.

Communication strategy

The public entity must ensure that an effective communication strategy is deployed continuously throughout the project development process to engage with the diverse set of stakeholders associated with the project.

An effective communication strategy helps in marketing the project to interested private players; conveying the project benefits and understanding the concerns, expectations of stakeholders that are instrumental for the successful development of projects under PSP/PPP framework.

5. **Shorter concession period for social infrastructure:** It is seen that concession periods for social infrastructure projects is shorter than those of the economic infrastructure. It ranges typically between 10 to 15 years in the case of the former, whereas, for economic infrastructure, it is usually around 20 to 30 years.

6. **Social infrastructure faces unique challenges,** which have been discussed in the report and therefore, it results in lower uptake of PSP/PPP projects in these sectors, as against projects in 'economic' infrastructure. To attract the private sector in social infrastructure projects, there is a need to improve the risk-return framework of these projects.

PSP/PPP models typically involve transfer of public assets to the private partner for a particular period of time, delegation of governmental authority to collect and appropriate user charges that are levied by force of law and must therefore be 'reasonable', sets standards to ensure adequate service quality, sharing of risks and contingent liabilities by the government.

7. **During the Virtual Seminar** on social infrastructure, Financing and Use of Digital Technologies co-hosted by the Ministry of Finance, India and the NDB, **the importance of de-risking of PSP/PPP projects was re-emphasized**. Some of the ways to de-risk the PSP/PPP projects and in turn, make them attractive to the private sector include:

   i. Improvement in the need assessment and market analysis for sectors/projects where private sector efficiencies can be optimally utilized.

[73] http://www.financeforgoodbrazil.org/tt-portfolio/social-impact-bonds/
[74] https://theconversation.com/social-impact-bonds-fund-welfare-projects-how-south-africas-first-two-have-done-160883
[75] In Russia, SIB implies that private investors fully finance the project, and repayment from the Government to investors is contingent on the achievement of specified social outcomes as confirmed by an independent evaluation. Source: https://tass.ru/ekonomika/11173061?utm_source=yxnews&utm_medium=desktop&utm_referrer=https%3A%2F%2Fyandex.ru%2Fnews%2Fsearch%3Ftext%3D and https://tass.ru/ekonomika/12016273

ii. Innovation in PSP/PPP structuring, especially in the social infrastructure projects , in which , provision of public service is fundamental. Such innovations could include shifting towards outcome-based models of PSP/PPPs.

iii. Using public funds to provide grants or guarantees for social infrastructure projects. This helps make the projects bankable.

iv. Developing institutions, creating stable policy environment, and augmenting government capacity to engage with the private sector.

8. While countries have been utilizing digital technologies over the past several years to enhance reliability, accessibility, as well as affordability of social sector services, COVID-19 has heightened the pace of adoption for digital interventions. Further, to address the issues associated with the change in the life styles and increasing dependence on digital technologies, China is undertaking 'psychological assessments' for children and teachers, which may be replicated by other countries to deal with the issue of mental well-being.

5.2 Way forward

1. BRICS countries need to assume a proactive role in setting and monitoring standards to ensure reliability, affordability, and accessibility of services, particularly for areas classified as social infrastructure as this would help them to achieve SDGs. BRICS countries could consider raising finances for social infrastructure projects through sector specific bond issuances, such as, sewage bonds or issuer specific bonds like municipal bonds.

2. Further, experience of some BRICS countries demonstrates successful use of instruments such as Social Impact Bonds, which if replicated by other countries, would require impact evaluation rather than simple outcome verification, as well as devising frameworks to attract investors and increase scalability, etc. BRICS countries could learn from successful global experiences in this regard.

3. Focus on health and education would be critical to overcome the adverse impact of COVID -19 pandemic. The governments would need to re-calibrate policies, for instance in education sector, policies would need to be re-calibrated to factor in the learning loss that children have undergone since 2020 on account of the 'new normal' of online learning and use of digital content in ways never done before[76]. Further, governments could also consider 'psychological assessment' of children, teachers and parents.

Psychological assessment exercises could be undertaken by the governments to ensure mental well-being in the wake of challenges that have emanated from the pandemic in terms of increased screen time, isolated environment due to reduction in socialization and recreation activities. etc

4. **Well-structured projects are fundamental to the success of PSP/PPP framework.** While structuring a PSP/PPP project, it is important to undertake need analysis, market assessment,

'Fit for purpose' rather than 'state of the art'

[76] https://economictimes.indiatimes.com/industry/services/education/view-nipun-bharat-in-the-new-abnormal/articleshow/85199722.cms

feedback from market soundings, and specifications that are 'fit for purpose' rather than 'state of the art'.

5. The countries could do a **re-think on the methods of procurement** in case of social infrastructure projects by awarding greater weightage to 'Quality' instead of 'least cost' as the lowest bid may not always be the best bet in case of social infrastructure projects as mentioned in the earlier section.

6. **Building capacities among the officials of public entities is critical as there is very little understanding of the subject in the government.**
There is also a need to create an institutional framework such as PPI in Brazil to ensure continuity and professional approach for management of PSP/PPPs.

Need for capacity augmentation

7. As the reliance of governments and people on digital platforms would continue, governments need to focus on **bridging the digital divide** by creating and upgrading the requisite infrastructure. For example, Brazil has launched public education at all levels, alongside promoting health and sustainable development, for the most remote Amazonian populations. **'BharatNet'** is a flagship programme of the Indian government being implemented in the PPP mode to provide broadband connectivity in rural areas by using optical fibres. Therefore, going forward, governments will need to ensure access to high-speed broadband connectivity and also reduce the gap between rural and urban areas by formulating specific policies.

India's 'BharatNet' – The world's largest rural broadband project

Approximately 0.64 million villages are proposed to be covered under the project.

Brazil's *Amazônia Conectada Project* is an infrastructure initiative to support public education at all levels, alongside promoting health and sustainable development, for the most remote Amazonian populations. The project was developed by the Brazilian army with the support of the Ministries of Defence, Health, Education and Communications. The target is to install around 8,000 km of subriver fibre optic cable along the rivers of the Amazonas region to provide an efficient and reliable internet connection to more than 50 cities and 4.5 million people.

Governments could also consider introducing various applications (digital apps) in local languages in different regions for wider coverage and adoption of digital modes.

8. **Reciprocal exchange to foster cross fertilization of ideas among BRICS countries along with the other key stakeholders** could stimulate a conducive environment for social infrastructure development with enhanced thrust on capital mobilization.

Annexure

Questionnaire

A Context and overview of Social Infrastructure

A1. Social infrastructure refers to assets that enable provision of social services to users. In general, it includes healthcare and associated activities, education, water and sanitation, etc. Considering this, which sectors constitute Social Infrastructure in your country?

☐ Healthcare and associated activities	☐ Education	☐ Water & Sanitation	☐ Others

A1.1 If other(s), please list them below.

A2. What are the top Social Infrastructure priorities for your country over the next 5-7 years?

☐ Improving access *(Development / creation of infrastructure)*	☐ Performance improvement *(for e.g., improvement in efficiency, optimum use of resources, savings (cost/time), etc.)*	☐ Provision of financing/ investment	☐ Service delivery *(includes service contracts[77])*	☐ Others

A2.1 Please rank the above in order of priority. In case of other priorities, please specify.

A2.2 If the stated priorities are part of a national or a sectoral strategy/plan, please specify them with web link.

A3. Is there a national/sub-national strategy/policy for Social Infrastructure projects?

☐ Yes	☐ No

A3.1 If yes, please provide name of strategy and web link(s) to relevant document(s).

A4. What is the level of monitoring of service delivery?

Type of monitoring	**Level of monitoring**		
	National	**Sub-national**	**Others**
☐ Monitoring of Sustainable Development Goals (SDGs)	☐	☐	☐
☐ Monitoring of Key Performance Indicators (KPIs)	☐	☐	☐
☐Construction/ Project progress monitoring	☐	☐	☐

[77] Examples of service contracts may include contractual arrangement for cleaning of healthcare facilities, electricity supply and maintenance in hospitals, etc.

☐ Others	☐	☐	☐

A4.1 If others, please specify.

B Private Sector Participation (PSP)/ Public-Private Partnership (PPP) and funding / financing frameworks in Social Infrastructure

B1. Please provide total investment for PSP/ PPP projects in Social Infrastructure over the last 3 years?

Social sub-sector	Total investment[78]
Healthcare and associated activities	
Education	
Others (please specify)	

B1.1 Please provide details of total investment, if available.

Social sub-sector	Private investment	Public investment
Healthcare and associated activities		
Education		
Others (please specify)		

B1.2 Please provide web link where such details can be accessed.

B2. Please rank the key drivers of PSP/ PPP in Social Infrastructure.

Key Driver	Rank (1,2,…..,n)
Leveraging private sector expertise – technology, people and skills	
Increased focus on service delivery	
Access to private sector finance	
Innovation	
Cost effectiveness	
Sharing of risks between the government and private sector	
Others (please specify)	

B3. What are the available financing mechanisms for PSP/ PPP projects in Social Infrastructure?

Financing mechanism	Availability (Yes / No)
Public equity[79]	
Government grants[80]	
Multilateral/bilateral agencies	
Capital markets *(includes market borrowings)*	

[78] Total investment refers to indicative project cost.
[79] Public equity is a subset of budgetary allocation and refers to the total equity investment by the public entities.
[80] Government grants are non-returnable financial assistance provided by the Government (or its agencies) to an enterprise for compliance with certain conditions. Government grants generally exclude public equity.

Public long-term loans[81]	
Bank lending	
Pension and other long-term funds	
Other non-public financing *(NGOs, etc.)*	
Cess/ taxes	
Others (please specify)	

B3.1 Please provide more details regarding **financing** mechanisms or provide web link(s) to relevant policy/ regulation(s).

B4. Are there any sector-specific lending guidelines or provisions for Social Infrastructure (or any sub-sector)? *(For e.g. incentivizing lenders for lending to a sector, mandatory lending to certain sectors, tax rebates on interest incomes from some specified sectors, etc.)*

☐ Yes	☐ No

B4.1 Name of guidelines/provisions, web link(s).

B4.2 Please specify the funding support mechanisms available for PSP/ PPP projects in Social Infrastructure projects.

☐ Viability Gap Funding: Capital Grants[82] ☐ Tax exemptions and/or incentives ☐ Revenue Guarantee ☐ Shadow tariffs and/or service payments	☐ Viability Gap Funding: Operating Grants[83] ☐ Subsidy ☐ Concessional lending ☐ Others (please specify)

B4.3 Name of policy/regulations, web link(s).

B5. Do co-development or blended finance models exist for Social Infrastructure projects? *(Co-development or blended finance models may entail strategic use of development funds, government aid, and philanthropic sources to mobilize private sector capitals for Social Infrastructure financing; examples of instruments include bonds/notes, companies, facilities, projects, funds, etc.)*

☐ Yes	☐ No

B5.1 If yes, please provide a brief description of such financing models or provide web link(s) to relevant policy/ regulations.

B8. Please specify the credit enhancement mechanisms available for PSP/ PPP projects in Social Infrastructure sector and their respective provider/ offeror. *(For e.g., government, domestic development bank, multilaterals, etc.)*

Mechanism	**Provider/ Offeror**

[81] Public long-term loans include concessional lending by government agencies to the private sector partner.
[82] Generally, these are grants provided by the government for support during creation of the infrastructure
[83] Generally, these are grants provided by the government for support during service delivery

☐ Credit guarantee[84]	
☐ Staple financing[85]	
☐ Insurance	
☐ Specific risk guarantee[86] (please specify)	
☐ Co-financing by sovereign or Multilateral or Bilateral Development Institutions[87]	
☐ Others (please specify)	

B8.1 Please provide details of the selected mechanisms and their web link(s).

C Regulatory environment for PSP / PPP in Social Infrastructure

C1. Please specify the government entity(ies) responsible for Social Infrastructure projects.

Roles / **Name of entity**	**Regulatory body[88]**	**Policy making body[89]**	**Role** *(Tariff determination, project appraisal, project preparation, project procurement, contract management, etc.)*	**Web link**
National level				
Sub-national level				

C2. Are there different agencies responsible for PSP/ PPP projects in Social Infrastructure?

☐ Yes	☐ No

C2.1 If yes, please specify the relevant agencies.

[84] Credit guarantee schemes are where a government or an international donor agrees to bear some downside risk, typically by assuming a borrower's debt obligation in the event of a default.
[85] Under a staple financing approach, government develops a financing package to be offered at the bidding stage. Bidders can opt for either the government financing strategy or develop one of its own.
[86] A specific Risk Guarantee such as a partial risk guarantee protects private lenders against debt service defaults on loans, normally for a private sector project, when the defaults are caused by a government's failure to meet specific obligations under project contracts to which it is a party.
[87] Co-financing generally uses sovereign funds or funds from Multilateral / Bilateral Development Institutions to make projects attractive to private sector. Co-financing is used to adjust the risk-return profile to facilitate investment in projects that would not have otherwise received finance.
[88] A regulatory body is an agency which regulates a sector or industry. For example, the Telecom Regulatory Authority of India regulates telecom, broadcasting, and cable services sector, including fixation/revision of tariffs, interconnection, quality of service, etc.
[89] A policy making body is an agency which formulates overarching guiding policies for a sector or a domain. For example, Department of Telecommunications (DoT) is responsible for formulating guiding policies, licensing, and coordination matters for various forms of communications such as telegraphs, telephones, wireless, data, etc.

Roles / Name of entity	Regulatory body	Policy making body	Role *(Tariff determination, PPP project identification/ procurement/ appraisal/ regulator, contract management, etc.)*	Web link
National level				
Department of Economic Affairs[90]	*Yes*	*Yes*	*Regulation: PPP project appraisal, viability gap funding reimbursements, etc.* *Policy: PPP policy, model documents for PPPs, etc.*	*https://dea.gov.in/*
Ministry of Health and Family Welfare[65]	*Yes*	*Yes*	*Regulation: medical devices, PPP project preparation, procurement, contract management, infrastructure maintenance, drug standards development and monitoring, etc.* *Policy: vaccination, mental health, rare diseases, national health, medical education, etc.*	*https://main.mohfw.gov.in/organisation/Departments-of-Health-and-Family-Welfare*
Sub-national level				

C3. Is there a policy/ regulatory framework for PSP/ PPP in Social Infrastructure projects?

☐ Yes	☐ No

C3.1 If yes, please provide relevant extracts from such policy/ regulation or provide web link(s) to relevant document(s).

C4. Have any regulatory restrictions been imposed on PSP/ PPP in Social Infrastructure sub-sectors? *(For e.g., restrictions on PSP/ PPP in prisons, etc.)*

☐ Yes	☐ No

C4.1 If yes, please provide details or provide web link(s) to relevant document(s).

C5. Please select the assessments/studies that are undertaken for identification and preparation of a Social Infrastructure PSP/ PPP project. (Please tick as applicable):

☐ Socio-economic analysis *(cost-benefit analysis of the socio-economic impact of the project)*	☐ Risk identification, allocation and assessment *(risk matrix)*

[90] A sample response has been filled for illustrative purposes.

☐ Procurement Strategy *(quick assessment to plan and better strategize the tendering process in advance)*	☐ Market sounding/ assessment[91]
☐ Environmental impact assessment	☐ Social impact assessment
☐ Others (please specify)	

C6. Please select the restrictions which foreign companies are subject to when participating in the procurement process. (Please tick as applicable):

☐ Minimum threshold for public tenders to be open for foreign participation	☐ Requirement to have an office or a branch in the country
☐ Requirement to form a joint venture with domestic firm(s)	☐ Requirement to have prior experience in the country
☐ Prohibited to bid in public tenders	☐ Others (please specify)

C7. Please select the procurement procedures available and/or specified in applicable guidelines for PSP/ PPP contracts in Social Infrastructure. (Please tick as applicable):

☐ Open competitive tendering/ bidding	☐ Competitive tendering/ bidding with pre-qualification stage *(Restricted tendering)*
☐ Multi-stage tendering/ bidding *(with shortlisting of final candidate(s))*	☐ Competitive dialogue
☐ Direct negotiation	☐ Others (please specify)

C8. Please provide brief description of procurement methods used for PSP/ PPP contracts in Social Infrastructure. *(For e.g., quality cost based selection/ least cost based selection/ fixed budget based selection, direct selection, etc.)*

C9. Please select the types of Dispute Resolution Mechanisms available in Social Infrastructure PSP/ PPP projects and their order of implementation.

Type of dispute resolution mechanism	**Order of implementation (1,2,….,n)**
☐ Reconciliation	
☐ Mediation	
☐ Arbitration	
☐ Commercial Courts	
☐ Alternative Dispute Resolution (ADR) options *(for e.g., mediation or dispute resolution boards)*	
☐ Others (please specify)	

C9.1 The framework for dispute resolution is governed by:

☐ Project level or standardized contractual provisions	☐ Guidelines or toolkits

[91] Market sounding and/or assessment refers to a procedure that evaluates potential interest from contractors, providing insight into the likely level of market interest and providing the procuring authority with an opportunity to adjust the project scope if necessary to ensure private sector participation and to improve competition.

☐ Legislations specific to PSP / PPP projects	☐ Sector specific regulations
☐ General legislations	☐ Other framework (please specify)

C9.2 Please provide web link(s) to relevant document(s).

D Digital interventions in Social Infrastructure and service delivery

D1. Is there any policy to enable digital interventions in this sector? *(For e.g., a guideline for adopting open source software by any department (national/sub-national) or national data security/ confidentiality policies)*

☐ Yes	☐ No

D1.1 Web link(s) to relevant document(s).

D2. Are there any guidelines/ framework for specific digital interventions in Social Infrastructure? *(For e.g., use of telemedicine in primary healthcare or use of e-classrooms for access to better quality education delivery)*

☐ Yes	☐ No

D2.1 Web link(s) to relevant document(s).

D3. Are there any programs/ initiatives to enable digital interventions?

☐ Yes	☐ No

D3.1 If yes, are there any specific programs/ initiatives targeted for Social Infrastructure?

☐ Yes	☐ No
D3.2 If yes, please select suitable intervention(s) below and provide brief description of the same.	
☐ Telemedicine	
☐ E-Classroom	
☐ Internet of Things (IoT) /Supervisory Control and Data Acquisition (SCADA) systems	
☐ Usage of drones/ image processing devices	
☐ App-based user inputs	
☐Geographic Information System (GIS)/ Satellite data platforms	
☐ Others (please specify)	

D4. Is there any national organization/body to enable digital interventions?

☐ Yes	☐ No

D4.1 If yes, please provide the name of the body, along with weblink(s)

Annexure A: Sector specific questionnaires

1. Healthcare and Associated Activities Sector

1. What are the top priorities for this sector in your country over the next 5-7 years?

☐ Providing physical access *(infrastructure)*	☐ Providing care access *(services)*	☐ Improving quality of healthcare infrastructure/ service	☐ Building digital infrastructure *(telehealth/medicine)*	☐ Others

1.1 If others, please list them below.

1.2 Web link(s) to relevant document(s).

2. Please provide the public budget allocation and actual public expenditure for this sector during the last 3 years[92].

	Amount as a percentage of GDP
Public budget allocation	
Public expenditure	

3. What are the areas where PSP/ PPP exists in this sector?

☐ Development/ creation of infrastructure *(hospitals, labs, etc.)*	☐ Facility operation and maintenance	☐ Service delivery *(primary, secondary, public health services, etc.)*
☐ Product development *(drugs, medical devices, IT etc.)*	☐ Health financing *(health insurance, medical loans, etc.)*	☐ Others

3.1 If others, please list them below.

4. Please list the various agencies that are responsible for development and/or management of healthcare and associated activities at different stages of the project life cycle.

Stage of project lifecycle	**Agency(ies) /entity(ies) responsible** *(Ministry, Department, Investment Promotion Agency, etc.).* **List all that are applicable**	**Level of administration** *(national, sub-national, etc.)*	**Role** *(for e.g., infrastructure development, management of services, for each of the agency listed)*	**Source/ Web link**
Identification				
Preparation				
Procurement				
Contract management				

[92] Please provide the information for national government and sub-national governments in separate tables.

Others (please specify)				

5. Please name the government entity(ies) responsible for various activities in this sector.

Roles / Entity	Regulatory body[93]	Policy making body[94]	Role *(Tariff determination, project appraisal, project preparation, project procurement, contract management, etc.)*	Web link
National level				
Sub-national level *(optional) (description of at least 2 regulatory bodies/policymaking bodies)*				

6. Are there any policies/regulations for supporting PSP/ PPP in this sector?

☐ Yes	☐ No

6.1 If yes, please provide relevant extracts from such regulation(s); web link(s) to relevant document(s).

7. Does the policy/ regulatory framework provide for the ownership structure *(i.e. stakeholder composition, foreign ownership)* for projects in this sector?

☐ Yes	☐ No

7.1 If yes, please provide relevant extracts from such regulation(s) or provide web link(s) to relevant document(s).

Sample response for India for illustrative purposes: *Foreign Direct Investments (FDI) in India are governed by the FDI Policy. This policy defines the modes of entry – automatic and government approval- and categorizes the investments across categories. For example, in case of pharmaceutical greenfield projects, FDI as a percentage of equity is allowed up to 100%. In case of pharmaceutical brownfield projects, FDI is allowed up to 74% via automatic approval and beyond 74% via government approval.* *Link: https://dipp.gov.in/sites/default/files/FDI-PolicyCircular-2020-29October2020_0.pdf*

8. Does the policy/ regulatory framework provide for pricing of services in this sector?

☐ Yes	☐ No

[93] A regulatory body is an agency which regulates a sector or industry. For example, the Telecom Regulatory Authority of India regulates telecom, broadcasting, and cable services sector, including fixation/revision of tariffs, interconnection, quality of service, etc.

[94] A policy making body is an agency which formulates overarching guiding policies for a sector or a domain. For example, Department of Telecommunications (DoT) is responsible for formulating guiding policies, licensing, and coordination matters for various forms of communications such as telegraphs, telephones, wireless, data, etc.

8.1 If yes, please provide at least two examples and relevant extracts from such regulation(s) or provide web link(s) to relevant document(s).

Sample response for India for illustrative purposes: *In case of healthcare PPPs, for poor patients, pricing of health services is capped to the prices of services in national or sub-national government facilities. For other patients, the concessionaires are allowed to charge market linked pricing.* *Link:* *https://www.pppinindia.gov.in/documents/20181/27281/Guide+for+Practitioners+for+Greenfield+Hospital.pdf/10a35231-f509-43e8-8bbd-f2f688de35fd*

9. Please specify whether there are guidance documents, standard documentation, toolkits, rules and procedures, etc. applicable for this sector. (Please tick as applicable):

☐ Greenfield/ brownfield projects	☐ Infrastructure specification *(type of equipment required, number, maintenance contracts, etc.)*
☐ Care levels *(primary, secondary, etc.)*	☐ Pricing of services *(pre-agreed package rates, user-fee, government insurance rates, etc.)*
☐ Service specification *(diagnostic, surgical, etc./ specialty-wise such as cardiology, neurology)*	☐ Performance specifications *(use of KPIs, self-reporting, etc.)*

9.1 If yes, please provide web link(s) to relevant document(s).

10. Please provide brief description of procurement methods used for PSP/ PPP contracts in the sector. *(For e.g., quality cost based selection/ least cos based selectiont/ fixed budget based selection, quality based selection, etc.)*

11. Typical risk allocation prevalent for PSP/ PPP projects in this sector.

Type of Risk[95]	**Public**	**Shared**	**Private**	**Details of the risk allocation**
Land availability, access and site risk	☐	☐	☐	
Social risk	☐	☐	☐	
Environmental risk	☐	☐	☐	
Design risk	☐	☐	☐	
Construction risk	☐	☐	☐	
Operating risk	☐	☐	☐	
Demand risk	☐	☐	☐	
Financial markets risk	☐	☐	☐	
Strategic/ partnering risk	☐	☐	☐	
Disruptive technology risk	☐	☐	☐	
Force majeure risk	☐	☐	☐	
Material adverse government action risk	☐	☐	☐	
Change in law risk	☐	☐	☐	
Early termination risk	☐	☐	☐	
Condition at hand back risk	☐	☐	☐	

[95] For definition of each type of risk, please refer to https://ppp-risk.gihub.org/risk-allocation-matrix/social/school/

12. Please provide brief description of various types of investment existent in the sector. *(For e.g., traditional public investment, private sector investment, PPP, etc.)*

13. Is there any estimation available on the requirement of investment in this sector?

☐ Yes	☐ No

13.1 If yes, please provide details or provide web link(s) to relevant document(s).

14. Are there any policies/ regulations supporting digital interventions *(for e.g., tele-medicine, tele-health, adoption of Electronic Medical Records, etc.)* **in this sector?**

☐ Yes	☐ No

14.1 If yes, please provide details or provide web link(s) to relevant document(s).

15. Are there any programs/ schemes at national/ sub-national level in this sector to enable digital interventions? *(For e.g., National Digital Mission, routine grand challenges, etc.)*

☐ Yes	☐ No

15.1 If yes, please provide details or provide web link(s) to relevant program(s).

16. Are there any specific digital interventions adopted in this sector?

☐ Yes	☐ No

16.1 If yes, please select applicable intervention(s) below and provide a brief description.

☐ Tele-medicine/ tele-health	
☐ Mobile health	
☐ Electronic health records/medical records	
☐ Geographic Information System / Satellite data platforms	
☐ Others (please specify)	

17. Please provide challenges faced in PSP/ PPP projects in the sector. *(For e.g., project preparation, project procurement, financing/ funding, etc.)*

18. Were any additional digital interventions adopted as a response to COVID-19 pandemic?

☐ Yes	☐ No

18.1 If yes, please provide details as per the applicable stage of the pandemic management cycle

Stage	Interventions	Reference weblink
Prevention and Triage[96]		
Tracking, Tracing and Testing		
Treatment		
Planning for future requirement		

[96] Triage refers to deciding of the order of treatment of (patients or casualties).

19. Were any policy and regulatory interventions implemented as a response to COVID-19 pandemic?

☐ Yes	☐ No

19.1 If yes, please provide details of applicable interventions in various areas.

Area	Interventions	Reference weblink
Financial support		
Incentive(s) for industry		
COVID-19 prevention/ management guidelines		
Social protection		
Others		

20. What is the level of service delivery monitoring conducted in this sector?

Type of monitoring	Level of monitoring		
	National	Sub-national	Other
☐ Monitoring of SDGs	☐	☐	☐
☐ Monitoring of KPIs	☐	☐	☐
☐Construction/ Project progress monitoring	☐	☐	☐
☐ Self-reporting/ scorecard based	☐	☐	☐
☐ Others	☐	☐	☐

20.1 Please provide details for any other type of monitoring.

21. Are there any satisfaction surveys conducted to arrive at user satisfaction index for services in this sector?

☐ Yes	☐ No

21.1 If yes, please provide the feedback mechanism adopted in this sector.

☐ Post service feedback	☐ National level annual surveys	☐ Voluntary responses	☐ Others (please specify)

21.2 Web link(s) to relevant document(s).

2. Education Sector

1. What are the top priorities for this sector in your country over the next 5-7 years?

☐ Access to all	☐ Quality	☐ Affordability	☐ Others

1.1 If others, please list them below.

1.2 Web link(s) to relevant document(s).

2. What are the top priority segments planned for this sector over the next 5-7 years?

☐ Early childhood education	☐ Kindergarten to Grade 12 (K-12)	☐ Higher Education
☐ Professional Education	☐ Technical and Vocational Education and Training (TVET)	☐ Others

2.1 If others, please list them below.

3. Please provide the public budget allocation and actual public expenditure for this sector during the last 3 years[97].

	Amount as a percentage of GDP
Public budget allocation	
Public expenditure	

4. What are the areas where PSP/ PPP exists in this sector?

☐ Development/ creation of infrastructure *(schools, colleges, etc.)*	☐ Facility operation & maintenance	☐ Service delivery *(training of teachers, school leadership program, etc.)*
☐ Financing by private sector *(without O&M responsibility)*	☐ Other supporting services *(course content, multimedia, books etc.)*	☐ Others

4.1 If others, please list them below.

5. Please list the various agencies that are responsible for development and/or management of education projects at different stages of project life cycle.

Stage of project lifecycle	**Agency(ies) /entity(ies) responsible** *(Ministry, Department, Investment Promotion Agency, etc.).* **List all that are applicable**	**Level of administration** *(national, sub-national, etc.)*	**Role** *(For e.g., infrastructure development, management of services, for each of the agency listed)*	**Web link**
Identification				
Preparation				
Procurement				
Contract management				
Others (please specify)				

6. Please name the government entity(ies) responsible for various activities in this sector.

Roles	**Regulatory body[98]**	**Policy making body[99]**	**Role** *(Tariff determination, project appraisal, project preparation, project*	**Web link**

[97] Please provide the information for national government and sub-national governments in separate tables.
[98] A regulatory body is an agency which regulates a sector or industry. For example, the Telecom Regulatory Authority of India regulates telecom, broadcasting, and cable services sector, including fixation/revision of tariffs, interconnection, quality of service, etc.
[99] A policy making body is an agency which formulates overarching guiding policies for a sector or a domain. For example, Department of Telecommunications (DoT) is responsible for formulating guiding policies, licensing, and coordination matters for various forms of communications such as telegraphs, telephones, wireless, data, etc.

Entity			*procurement, contract management, etc.)*	
National agency				
Sub-national agency ***(optional) (description of at least 2 regulatory bodies/policymaking bodies)***				

7. Are there any policies/regulations supporting PSP/ PPP in this sector?

☐ Yes	☐ No

7.1 If yes, please provide relevant extracts from such regulation(s) or provide web link(s) to relevant document(s).

8. Is there a policy/ regulatory framework pertaining to tariff/ user fee determination for PSP/ PPP projects in this sector?

☐ Yes	☐ No

8.1 If yes, please provide at least two examples and relevant extracts from such regulation(s) or provide web link(s) to relevant document(s).

Sample response for India for illustrative purposes: *The National Education Policy 2020 provides guidelines for fee determination based on laid-out norms and broad applicable regulatory mechanism and compulsory disclosure for school and higher education such as courses offered, fees, seats etc.* *Link: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf*

9. Does the policy/ regulatory framework provide for the ownership structure *(i.e. stakeholder composition / foreign ownership)* for projects in this sector?

☐ Yes	☐ No

9.1 If yes, please provide relevant extracts from such regulation(s) or provide web link(s) to relevant document(s).

Sample response for India for illustrative purposes: *Foreign Direct Investments (FDI) in India are governed by the FDI Policy. This policy defines the modes of entry – automatic and government approval and categorizes the investments across categories. For example, in case of construction-development projects including educational institutions, FDI as a percentage of equity is allowed up to 100% via automatic approval.* *Link: https://dipp.gov.in/sites/default/files/FDI-PolicyCircular-2020-29October2020_0.pdf*

10. Does the policy/ regulatory framework provide for the usage of profits generated from projects in this sector?

☐ Yes	☐ No

10.1 If yes, please provide relevant extracts from such regulation(s) or provide web link(s) to relevant document(s).

Sample response for India for illustrative purposes: *According to the National Education Policy 2020, all education institutions will be held to similar standards of audit and disclosure as a 'not for profit' entity. Surpluses, if any, will be reinvested in the educational sector.* *Link: https://www.education.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf*

11. Please specify whether there are guidance documents, standard documentation, toolkits, rules and procedures, etc. applicable for this sector. (Please tick as applicable):

☐ Identification of PSP/ PPP projects	☐ Appraisal of PSP/ PPP projects
☐ Prioritization of PSP/ PPP projects	☐ Preparation and structuring of PSP/ PPP projects
☐Procurement/ bidding documents and Agreement formats	☐ Project monitoring/ contract management and/ or ex-post evaluations

11.1 If yes, please provide web link(s) to relevant document(s).

12. Please provide brief description of procurement methods used for PSP/ PPP contracts in the sector. *(For e.g., quality cost based selection/ least cost based selection/ fixed budget based selection, quality based selection, etc.)*

13. Typical risk allocation for PSP/ PPP projects in this sector.

Type of Risk[100]	**Public**	**Shared**	**Private**	**Details of risk allocation**
Land availability, access and site risk	☐	☐	☐	
Social risk	☐	☐	☐	
Environmental risk	☐	☐	☐	
Design risk	☐	☐	☐	
Construction risk	☐	☐	☐	
Operating risk	☐	☐	☐	
Demand risk	☐	☐	☐	
Financial markets risk	☐	☐	☐	
Strategic/ partnering risk	☐	☐	☐	
Disruptive technology risk	☐	☐	☐	
Force majeure risk	☐	☐	☐	
Material adverse government action risk	☐	☐	☐	
Change in law risk	☐	☐	☐	
Early termination risk	☐	☐	☐	
Condition at hand back risk	☐	☐	☐	

14. Please provide brief description of various types of investment existent in the sector. *(For e.g., traditional public investment, private sector investment, PPP, etc.)*

15. Is there any estimation available on the requirement of investment in this sector?

[100] For definition of each type of risk, please refer to https://ppp-risk.github.org/risk-allocation-matrix/social/school/

☐ Yes	☐ No
15.1 If yes, please provide details or provide web link(s) to relevant document(s).	

16. Are there any policies/regulations for supporting digital interventions in this sector?

☐ Yes	☐ No
16.1 If yes, please provide web link(s) to such regulation(s).	

17. Please provide details of digital/ innovative interventions used at various levels for imparting education.

Segment	Teaching use of ICT[101] Devices by institutions	Use of ICT for imparting education in institutions	Availability of knowledge repository for self-learning resources	Faculty improvement measures – on ICT	Others
Early childhood education					
K-12					
Higher education					
Professional education					
Technical and Vocational Education and Training (TVET)					

18. Are there any programs/ schemes at national/ sub-national level for enabling digital interventions in this sector?

☐ Yes	☐ No
18.1 If yes, please select suitable technology(ies) and provide brief description.	
☐ Teaching use of ICT Devices by institutions	
☐ Use of ICT for imparting education in institutions	
☐ Availability of knowledge repository for self-learning resources	
☐ Others (please specify)	

[101] ICT stands for Information and Communication Technology

19. Please provide challenges faced in PSP/ PPP projects in the sector. *(For e.g., project preparation, project procurement, financing/ funding, etc.)*

20. Were any additional digital interventions adopted as a response to COVID-19 pandemic in this sector?

☐ Yes	☐ No

20.1 If yes, please provide details of intervention(s) at various stages.

Stage	Interventions	Reference link
Admissions		
Teaching		
Evaluation		
Others		

21. Were any policy and regulatory interventions implemented as a response to COVID-19 pandemic?

☐ Yes	☐ No

21.1 If yes, please provide details of interventions in various areas.

Area	Interventions	Reference link
Financial support		
Admission requirement(s)		
Classroom learning		
Online learning		
Student evaluation(s)		
Others		

22. What is the level of service delivery monitoring conducted in this sector?

Type of monitoring	Level of monitoring		
	National	Sub-national	Other
☐ Monitoring of SDGs	☐	☐	☐
☐ Monitoring of KPIs	☐	☐	☐
☐Construction/ Project progress monitoring	☐	☐	☐
☐ Others	☐	☐	☐

22.1 Please provide details for any other type of monitoring.

23. Are there any satisfaction surveys conducted to arrive at user satisfaction index for services in this sector?

☐ Yes	☐ No

23.1 If yes, please provide the feedback mechanism adopted in this sector.			
☐ Annual student/ parent feedback	☐ National level annual surveys	☐Voluntary responses	☐Others (please specify)
23.2 Web link(s) to relevant document(s).			

Annexure B: Case study templates

1. PSP/ PPP in Social Infrastructure projects

(Case studies shall document the experience with PSP or PPP in a Social Infrastructure project.)

Case study: <Title including project's name>	
1.1 Project summary	
Sub-sector	
Location	
Aim(s) of the project *(why was the project initiated)*	
Details of Implementing/Contracting agency	
Brief scope of the project	
Target beneficiary groups	
Expected and realized benefits	
Timeline *(key dates including procurement, construction, operations)*	
Status of the project *(completed/ ongoing etc.)*	
Stage of project lifecycle	
1.2 PSP/ PPP model	
Assessments undertaken for identification and preparation of the project	
Type of procurement procedure	
Procurement selection method	
Bid parameter	
PSP/ PPP Model *(For e.g., service contract, management contract, Design-Build, Lease, performance-based contract, etc.)*	
Details of parties/agencies involved and their roles	
Roles and responsibilities of the private sector	
Risk(s) borne by private sector	
Technical parameters for the project	
Payment mechanism	
Funding structure *(For e.g., debt, grants, user-fee, etc.)*	
Financing support mechanism	

Credit enhancement mechanism *(counterpart and/or project)*	
Dispute resolution mechanism	
1.3 Outcomes and achievements	
1.4 Metrics for measurement of success *How are benefits and project success measured and reported?*	
1.5 Impact *(quantitative and qualitative)* of the PSP/PPP model	
1.6 Challenges *Impediments faced throughout the project lifecycle and methods used to overcome these challenges*	
1.7 Insights/ Learnings	
1.8 Any other information	
1.9 Link for additional information	

2. Digital interventions in projects in health and education sectors

(Case studies shall relate to digital interventions, either completed or at an advanced stage of implementation, in a healthcare and associated activities or education sector project)

Case study: <Title including project's name>		
2.1 Project summary		
Sub-sector	☐Healthcare and associated activities	☐ Education
Location		
Aim(s) of the project *(why was the project initiated)*		
Details of Implementing/ Contracting agency		
Brief scope of the project		
Target beneficiary groups		
Expected and realized benefits		
Timeline *(Key dates including procurement, construction, operations)*		
Status of the project *(completed/ ongoing etc.)*		
Stage of project lifecycle		
2.2 Digital intervention(s)		
Details of digital intervention(s) adopted		
Parties/ agencies involved and their roles		
Total cost and financing mechanism adopted for the digital intervention(s)		

2.3 Outcomes and achievements
2.4 Metrics for measurement of success *How are benefits and project success measured and reported?*
2.5 Impact *(quantitative and qualitative)* of adoption of digital intervention(s)
2.6 Challenges *Impediments faced throughout the project lifecycle and methods used to overcome these challenges*
2.7 Insights/ Learnings
2.8 Any other information
2.9 Link for additional information

3. Innovative models for financing of Social Infrastructure projects

(Case studies shall showcase an innovative financing model adopted in a Social Infrastructure project. The project could be financed either by public, private or PPP/PSP.)

Case study: <Title including project's name>	
3.1 Project summary	
Sub-sector	
Location	
Aim(s) of the project *(why was the project initiated)*	
Details of Implementing/ Contracting agency	
Brief scope of the project	
Target beneficiary groups	
Expected and realized benefits	
Timeline *(Key dates including procurement, construction, operations)*	
Status of the project *(completed/ ongoing etc.)*	
Stage of project lifecycle	
3.2 Innovative financing mechanism	
Details of financing mechanism adopted	
Details of the parties/ agencies involved and their role	
Total investment and sources of financing	
Innovation in the financing mechanism	
Savings as a result of adopting the financing mechanism	
3.3 Outcomes and achievements	

3.4 Metrics for measurement of success *How are benefits and project success measured and reported?*
3.5 Challenges *Impediments faced throughout the project lifecycle and methods used to overcome these challenges*
3.6 Insights/ Learnings
3.7 Any other information
3.8 Link for additional information

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