



ASIAN INFRASTRUCTURE
INVESTMENT BANK

AIIB HEALTH STRATEGY

Sector trends and analysis

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Acronyms

ADB	Asian Development Bank
AfDB	African Development Bank
AI	artificial intelligence
AIIB	Asian Infrastructure Investment Bank
ASEAN	Association of Southeast Asian Nations
CAGR	Compound Annual Growth Rate
CAREC	Central Asia Regional Economic Cooperation
CNY	Chinese Yuan
COVID-19	coronavirus disease
DALY	disability-adjusted life year
EBRD	European Bank for Reconstruction and Development
EIB	European Investment Bank
EUR	Euro
G7, G20	Group of Seven, Group of 20
GBD	Global Burden of Disease
GDP	gross domestic product
GMS	Greater Mekong Subregion
GPG	global public good
HNP	Health, Nutrition and Population
IDB	Inter-American Development Bank
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
IoMT	Internet of Medical Things
MDB	multilateral development bank
NCD	non-communicable disease
OECD	Organisation for Economic Co-operation and Development
OOP	out-of-pocket
OPs	Operational Priorities (ADB)
PE	private equity
PPP	public-private partnership
PPR	prevention, preparedness and response (pandemic-related)
R&D	research and development
SDG	Sustainable Development Goal
UHC	universal health coverage
UN	United Nations
UNDP	United Nations Development Programme

UNICEF	United Nations Children’s Fund
US	United States
USD	United States dollar
WASH	water, sanitation and hygiene
WB	World Bank
WBG	World Bank Group
WHO	World Health Organization
VC	venture capital

Summary

This report provides an analysis of the health landscape, trends, financing and overall opportunities in Asia¹ to support the development of the first health strategy of the Asian Infrastructure Investment Bank (AIIB).

AIIB's vision is a prosperous Asia based on sustainable economic development and regional cooperation. This vision cannot be attained if rates of illness and injury are high, and the health of a population cannot be maintained in the absence of a responsive health system and a certain level of development.

Prior to the coronavirus disease (COVID-19) pandemic, health outcomes in Asia had been steadily improving for decades. The multi-trillion-dollar cost to the global economy and an official global death toll of seven million from COVID-19, highlighted the importance of global health security, underpinned by resilient health systems and effective management of risks from the environment. The pandemic highlighted the interdependencies of human health across borders and the importance of addressing health issues at source across multiple sectors.

The Bank's mission is Financing Infrastructure for Tomorrow, which combines AIIB's commitment to sustainability with clearly defined thematic priorities. Infrastructure for health that leads to more cost-effective health systems can contribute to improved financial sustainability, thereby also alleviating public debt. Health infrastructure can also improve economic competitiveness, social sustainability and inclusion, and environmental sustainability.

AIIB can contribute to infrastructure for health in two primary ways:

- (1) Continuing investments in transport, clean energy, water supply and sanitation, urban, digital and other infrastructure projects to improve the health of communities and populations, including for girls and women and the vulnerable; and
- (2) Financing infrastructure in the health sector to increase access to, and quality, equity, efficiency and resilience of health systems.

Infrastructure in many sectors, such as energy, transport, and the built environment, has effects on health. Health systems rely on transport infrastructure to move health products and on the energy sector to power services and produce health goods. Access to clean energy by households and companies can significantly improve health outcomes.

Transportation systems can also be designed to encourage active and healthy lifestyles, particularly in urban settings. Digital infrastructure is revolutionizing the health system as broadband networks and digital tools have enabled teleconsultation and improved health system performance. The home environment is where people spend most of their

¹ Asia refers to the definition of the term in AIIB's Articles of Agreement, which is "the geographical regions and composition classified as Asia and Oceania by the United Nations, except as otherwise decided by the Board of Governors" (Article 1(2)).

time outside work, so housing is an important infrastructure for health and well-being. Other foundational infrastructure, including water and sanitation, food supply, waste management, community facilities, and education, also influence health outcomes.

Within the health system itself, the right health infrastructure is essential for the health workforce (including public health and clinical care) to deliver preventive services and clinical care safely and effectively, and for people to receive high-quality services. The infrastructure value chain for health services provides opportunities for AIIB financing:

- Physical facilities that make quality care accessible;
- Laboratory, training, and other support facilities;
- Reliable supply of medicines, therapeutics and other health products;
- Trained staff and professional training systems;
- Health information and surveillance systems; and
- Associated logistics.

In addition, as discussed herein, infrastructure in many other sectors can influence health outcomes indirectly.

Health Infrastructure for Tomorrow must respond to disease burden, financing gaps, and long-term trends and drivers

Health is influenced by a wide range of factors, including education and income, the natural environment and climate, the built environment, demographic and population shifts, and science and technology. These “determinants of health,” which are influenced by megatrends, provide a detailed and structured framework for AIIB’s health financing. Infrastructure projects must be designed and built to respond to these drivers if AIIB financing is to be effective:

- **Climate change:** The consequences of a warming planet will be dramatic for health, through changes to infectious disease patterns, impacts on water and food supply, population movements, changes in air pollution and impacts on mental health. Mitigating climate change has health benefits, e.g., cleaner types of energy are also better for health as they reduce air pollution. Adaptation measures will also entail investments in resilient health systems;
- **Pandemics, emerging diseases and anti-microbial resistance:** COVID-19 showed brutally how public health emergencies can lead to massive economic, social and health costs. Given climate change and other ecosystem disruptions, further pandemics are inevitable, but their likelihood and severity can be reduced by improving global and regional health security;
- **Aging populations:** As populations age across Asia, noncommunicable diseases (NCDs) are increasing in prevalence. Much more infrastructure will be needed for age-related care, dementia and psychogeriatric conditions, coordinated care for multi-morbidities, and ongoing primary care;

- **Changing population patterns:** Urbanization has increased the density of populations in smaller geographic areas in some places while leading to urban sprawl and growth of peri-urban areas in others, both of which increase the demands on existing infrastructure. Migrants often congregate in areas with poorer housing and fewer urban services, thus exacerbating social and economic inequalities. Climate change will lead to further **population displacement** and greater numbers of refugees;
- **Scientific and technological advances:** New medical technologies have the potential to revolutionize care and increase productivity in the health system. General purpose technologies such as artificial intelligence (AI) can also transform health systems. However, the potential to enhance service access and quality may also lead to increased inequities, if infrastructure is unavailable, inaccessible or of lesser quality for some groups in the population; and
- **Consumer preferences, trust, and expectations** are changing as economies develop. Middle-class consumers are spending more on health and wellness, and demanding greater access to convenient, quality and personalized care.

The health sector is rapidly changing, providing challenges and opportunities

Effective health systems prioritize quality, efficiency and equity of care. Governments are also concerned about cost containment and value for money, in other words getting good outcomes from the investments. There are many opportunities to advance green infrastructure, regional cooperation and connectivity, technology-enabled infrastructure, and private capital mobilization in the health sector. These include:

- **Reduce greenhouse gas emissions from the health system:** There is a growing trend towards “greening” of health systems and the rise of green healthcare. Healthcare providers are not only working to reduce their carbon footprint but also bringing attention to the environmental impacts of medical interventions and diagnostics. A more strongly networked health system, with primary healthcare as the foundation and supported by specialist services, will enable the reduction of the carbon footprint;
- **Advance digitalization and adoption of new medical technologies:** Digital technologies and tools are transforming healthcare and its delivery. COVID-19 accelerated this change, sparking shifts toward digitally delivered care, community-driven support models, and new population health surveillance techniques. With more targeted and strategic investment, health system transformation can be accelerated to increase both access and quality;
- **Alleviate health workforce shortages:** The greatest costs of healthcare are labor costs and pharmaceuticals/medicines. New technologies will be able to replace some existing practices and skill bases, yet other new skills may be required. A different workforce skill mix will be needed for the future, given demographic, epidemiological, and technological changes. Thus, a fit-for-purpose workforce will require investment in developing different workforce categories as well as different ways of working. Training

and industry upskilling are required to meet workforce shortages and skill acquisition to deliver high-quality healthcare; and

- **Improve focus on equitable, integrated people-centered care:** The demand for value-based healthcare, the increased technological possibilities for personalized medicine, and the changing demands of the community have been leading the shift to integrated people-centered health services which prioritize the holistic needs of individuals and communities over the narrow focus of diseases and interventions. More patient-centered, front-facing infrastructure will be necessary (e.g., technology in local clinics, different workforce skills, electronic health records, telehealth, etc.).

Infrastructure for health: Opportunities for AIIB

The health system is a major part of every economy and tends to increase its share as the level of economic development rises. Financing opportunities for AIIB are, therefore, likely to grow as economies in Asia continue to develop.

The global healthcare market was estimated at USD10 trillion in 2021 and is expected to rise to USD21 trillion by 2030. In Asia, the healthcare market was estimated at USD1.0 trillion in 2010, USD3.2 trillion in 2020, and was forecast to rise to USD4.2 trillion in 2024 (Quadria Capital, 2020). On this trajectory, the healthcare market might be around USD5.7 trillion in 2030. Hospitals are the largest sub-sector, expected to total almost USD1.9 trillion in Asia by 2030, but digital health is the fastest growing area, with annual growth expected of up to 21.8%. Governments remain the dominant funder of healthcare in Asia, accounting for 64% of health expenditures in 2018.

AIIB financing can accelerate the key trends in the health sector and address key challenges. Potential areas of strategic focus for the Bank are the following:

- **Greening health systems:** For example, energy-efficient facilities, waste management systems, logistics systems to support integrated networked care, infrastructure for health waste, air pollution-reducing infrastructure, and upgrade of existing assets to use green fuels. This strategic direction is most likely to be rolled out through public-private partnerships (PPPs);
- **Strengthening global health security:** For example, essential public health elements such as surveillance, laboratories, vaccines, public health workforce; One Health initiatives; strengthening health security infrastructure at borders. This strategic direction is most likely to be supported by public sector actors through global, regional, and country-level compacts and initiatives;
- **Responding to changing populations and disease patterns:** For example, culturally appropriate home help and age-related care facilities, and primary healthcare to support migrant and refugee populations. This strategic direction is most likely to be supported by private sector actors in higher middle-income economies and public sector or PPPs in lower middle-income economies;
- **Reinforcing primary healthcare:** For example, primary health infrastructure in the community, linked to specialist services; increasing capacity, access and quality of

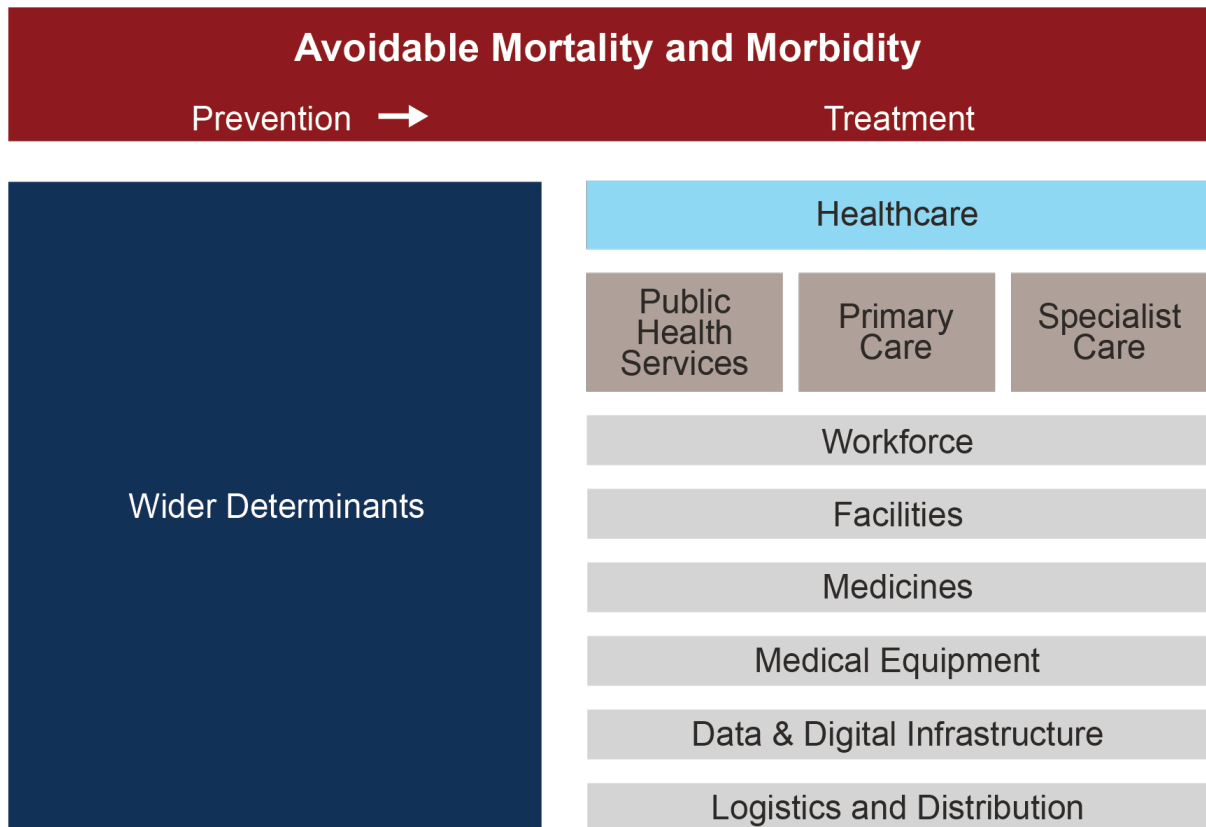
existing systems; as well as reducing carbon footprint. This strategic direction is most likely to be supported by a mix of private and public sector actors;

- **Supporting the workforce:** For example, physical and digital infrastructure to support training and workforce development so as to enhance access to quality health services. This strategic direction is most likely to be supported by a mix of private and public sector actors; and
- **Mobilizing tools for healthcare:** For example, medical devices, AI methods for drug discovery and healthcare, and integrated information systems. This strategic direction ties into the greening of healthcare and is most likely to be supported by private sector actors.

Segments of a potential investment portfolio

AIIB’s investment portfolio in health can be broken into the following segments, reflecting the progression from population health outcomes (top layer) through to services and outputs (second layer) and components and inputs (lower layers).

Figure A. Relationship between health outcomes, services, and inputs



Source: Authors.

Partnerships to support AIIB's Infrastructure for Health

AIIB's business model requires enduring partnerships and collaboration with other organizations to leverage the policy knowledge, technical expertise, convening power and capital of others. AIIB is well positioned in the health domain, given its flexibility to support both public and private sectors.

The nature of health systems means that there is a wide mix of sovereign and non-sovereign clients with whom to partner. Some sub-sectors are often dominated by private sector provision (such as pharmaceuticals and devices), whereas others are more mixed. Governments are increasingly finding healthcare financing challenging, which will likely create more opportunities to work with the private sector and to develop PPPs.

In order to finance quality and impactful projects, AIIB needs to develop durable strategic partnerships with a range of partners:

- Multilateral organizations such as the United Nations (UN), including the United Nations Children's Fund (UNICEF), United Nations Population Fund, United Nations Development Programme (UNDP), etc., the World Health Organization (WHO) and other multilateral development banks (MDBs);
- Regional cooperation platforms such as the Association of Southeast Asian Nations (ASEAN), Greater Mekong Subregion (GMS) and the Central Asia Regional Economic Cooperation Program (CAREC);
- International organizations set up as global health initiatives with specific mandates and tools, such as Gavi (previously the Global Alliance for Vaccines and Immunisation) and the Global Fund to Fight AIDS, Tuberculosis and Malaria;
- Philanthropic and nonprofit organizations such as the Gates Foundation and Wellcome Trust; and
- Government agencies.

1 Introduction

This section sets out why health is important to sustainable economic development and regional cooperation, how health systems are organized and financed, and what roles multilateral development banks (MDBs) play.

1.1 Health and the economy

Health is seen as a basic human right. Additionally, health and the economy are interconnected. Better health systems enable economic productivity and higher levels of income tend to lead to healthier populations. Sustainable economic development is unachievable when illness and injury are pervasive, and a population cannot remain in good health without a responsive health system and a modicum of development.

Linkage of health and development. The economic literature shows that health contributes substantially to achieving sustainable development through higher labor force participation and increased productivity (Kruk et al., 2018). Economic historians estimate that over the past century, improved health accounted for about one-third of the overall growth in gross domestic product (GDP) per capita of developed economies (McKinsey & Company, 2020). Healthier populations also increase the stock of human capital¹ – a key driver of economic growth over the long term, particularly for middle-income countries. Better health and increased longevity incentivize individuals to further their education. Effective healthcare can delay the onset of life-limiting diseases and illnesses, extending participation in the workforce.

High health expenses and poverty. Poor health outcomes and unaffordable out-of-pocket (OOP) costs can have devastating effects on individuals and families, leading to inter-generational poverty. When individuals face catastrophic² OOP healthcare costs and restricted ability to work, their households struggle with increased financial risk.³ Such high healthcare expenses and reduced productivity strain developing economies and impede social and economic development (Centers for Disease Control and Prevention, 2022).

Women and health. Inequities continue to exist for women in all aspects of healthcare, including the following (Ellingrud et al., 2024):

- **Awareness and prevention:** Women and girls experience health issues that are often excluded from educational curricula, awareness programs and health insurance policies. Many doctors can also be unaware of how some diseases affect women and girls differently than men and boys, which can lead to disproportionality in health

¹ Human capital can be defined as the knowledge, skills, and health of individuals, enabling them to realize their potential as productive members of society.

² Catastrophic health spending occurs when the amount a household pays for OOP costs exceeds a predefined share of its capacity to pay for health care, generally, households with OOPs greater than 40% of their capacity to pay for health care. This capacity to pay is defined as total household consumption minus a standard amount to cover basic needs (food, housing and utilities) (approach developed by WHO/Europe). See <https://www.who.int/data/gho/indicator-metadata-registry/imr-details/4989>

³ World Health Organization, World Bank Group, Tracking universal health coverage, 2023 global monitoring report found that 4.4% of the global population face impoverishing OOP costs (measured at the extreme poverty line of 2017 PPP USD2.15 a day per person) in 2019. See <https://iris.who.int/bitstream/handle/10665/374059/9789240080379-eng.pdf?sequence=1>

outcomes. Further, programs that focus on awareness and prevention are frequently lacking in developing countries;

- **Accessibility and affordability of care:** Women face higher healthcare costs. For example, Ellingrud et al. (2024) show that women in Switzerland, India and the US have higher health insurance premiums and/or OOP costs due to conditions which predominantly or solely affect women. In addition, access to services and hygiene products in developing countries is a significant issue, which has been shown to lead to absenteeism and therefore productivity loss. Women also bear additional costs with regard to family planning, or its lack, which in turn can lead to unplanned pregnancy;
- **Timely diagnosis:** Ellingrud et al. (2024) also highlight the delays and lower-quality treatment that women face in the healthcare system. A study by Pope et al. (2000), for example, showed that women were significantly more likely to have a heart condition misdiagnosed and even to be discharged during a heart attack; and
- **Quality of treatment:** There are disparities in the level of care received for the same conditions based on sex and gender. For example, women cardiac patients are less likely to be prescribed or receive medication to prevent future events, which ultimately raises their risk of dying from a heart attack when compared to men.

Ellingrud et al. (2024) report that about half of the burden associated with sex and gender health disparities is borne by women of working age. Closing the gap in sex- and gender-related health outcomes would allow women to contribute 1.7% or USD1 trillion more to global GDP. Furthermore, the impact on GDP of treating conditions that predominantly affect women is estimated to be more than USD320 billion.⁴

Multiple disease burden and rising healthcare costs. Payers of healthcare cost, whether it is individuals, governments, companies or insurance organizations, must grapple with medical inflation. Average cost of medical care in Asia Pacific increased by 7.2% in 2022, 9.9% in 2023 and is anticipated to increase by a further 9.9% in 2024 (WTW, 2024). Aging populations together with transformations in social determinants of health and sedentary lifestyles have increased the coexistence of disease burdens. These relate primarily to reproductive health, nutrition, infections, and epidemics of both chronic and non-communicable diseases (Langer et al., 2015). These trends will further drive up healthcare spending.

The health sector as a contributor to the economy. The health sector is often a major part of the economy, and its share tends to increase as the level of economic development rises. This reflects the property of health as a luxury good, whereby people spend more on health as income levels rise. The share of the health sector as a percentage of GDP is highest in the United States at 18.8%;⁵ it is around 9% in economies of the Organisation for Economic Co-operation and Development, but only around 3-5% in many developing economies.

⁴ This is the sum of the GDP impact of treating menopause, premenstrual syndrome, other gynecological diseases and ovarian cancer, as reported by Ellingrud et al. (2024).

⁵ Although the authors note that a large portion of this funding (more than 4%) goes towards administrative overheads due to the complexity of the private health insurance system.

OOP costs are a key issue in many Asian economies, contributing to impacts such as deferred healthcare or a fall into poverty due to high OOP costs.

The state of the economy has a direct influence on the ability of governments and the private sector to finance basic infrastructure and health systems. Higher levels of economic development allow for investment in basic physical infrastructure, such as water and waste management, which underpins improved health. Higher levels of income also enable greater investments in education and food security, which also strengthen health. Decisions on how to use available funding are important and vary by economy. Social values have a major bearing on the design of health financing systems and determines the level of solidarity and risk pooling.

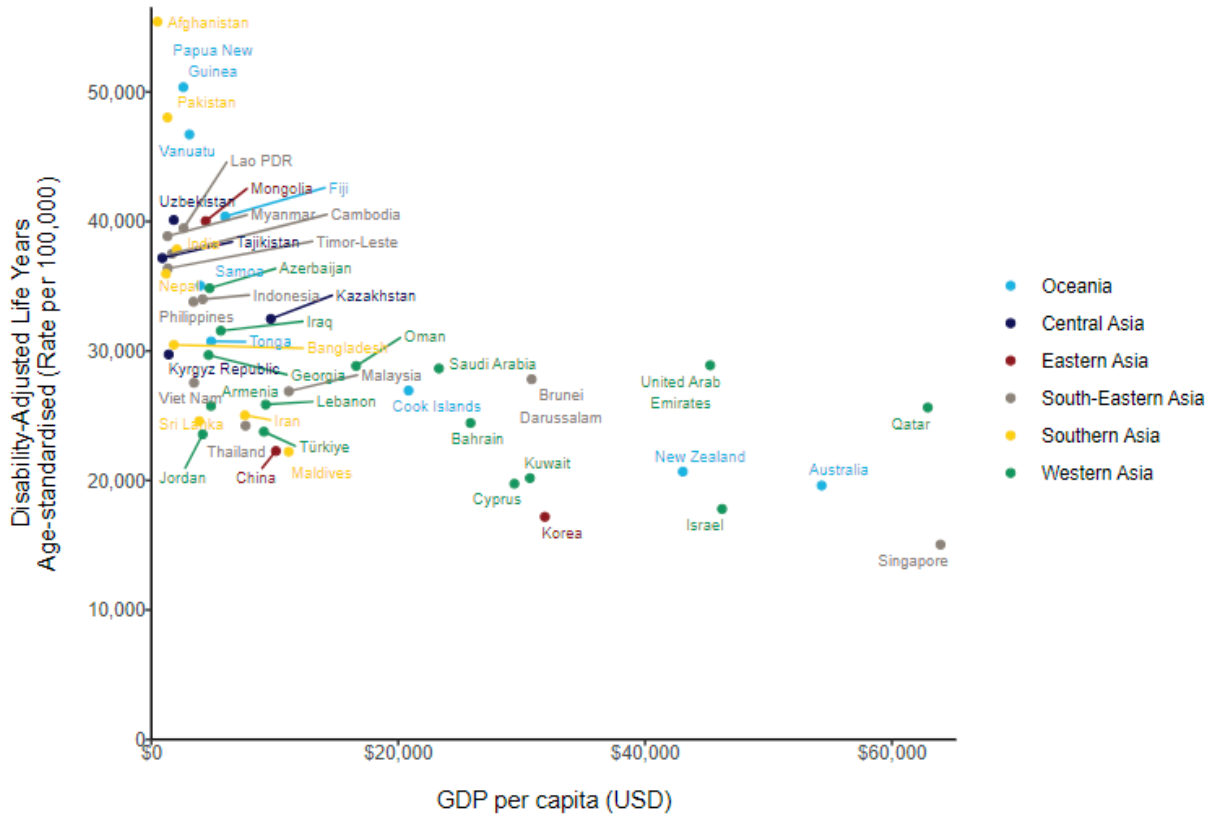
Good health outcomes relate to both the quantity (length) and quality of life. The interconnected relationship between health and economic development is borne out by data from the Global Burden of Disease (GBD) Study,⁶ which quantifies the burden of total health loss using a single metric, the disability-adjusted life year (DALY).⁷ DALYs express the years of life lost to premature death and the years lived with disability at varying degrees of severity. They are thus a widely used way of measuring the health outcomes of populations.

Data from the GBD Study shows a clear trend toward a lower burden of disease as GDP per capita increases (see Figure 1 and Figure 2). However, there appear to be diminishing returns beyond a certain point: as income surpasses approximately USD10,000 per capita, improvements in health outcomes are more incremental.

⁶ The Global Burden of Disease (GBD) Study is the most comprehensive, worldwide, observational epidemiological study to date, describing mortality and morbidity from major diseases, injuries and risk factors for health at global, national and regional levels. It is a systematic, scientific effort to quantify the magnitude of diseases, risk factors and intermediate clinical outcomes in a highly standardized way, to allow for comparisons over time, across populations and between health problems. The most recent update to the GBD Study was carried out in 2019, coordinated by the Institute for Health Metrics and Evaluation and published in 2020 in *The Lancet (Global Burden of Disease 2019, 2020)*.

⁷ The authors note that the main benefit of the GBD Study is that it provides a mechanism for comparison of different countries' health outcomes. It should be noted that DALY is only one measure, and it has been debated; however, it remains the best available composite measure for comparative purposes.

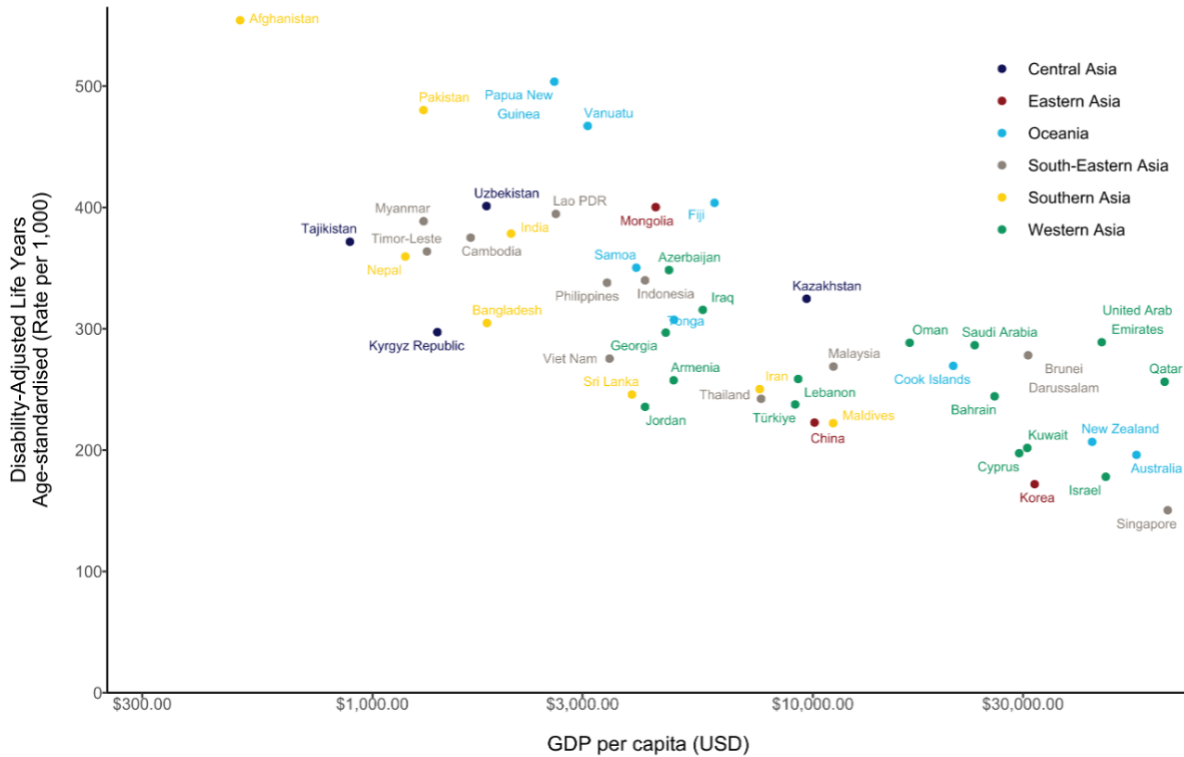
Figure 1 Disease burden and GDP per capita for AIIB Regional Members, 2021



AIIB = Asian Infrastructure Investment Bank, GDP = Gross Domestic Product. Source: Data from Global Burden of Disease (GBD) Study.

Figure 2 is the same chart but with a logarithmic scale of GDP per capita, which more clearly illustrates the relationship between GDP per capita and health outcomes.

Figure 2 Disease burden and GDP per capita (log scale) for AIIB Regional Members, 2021



AIIB = Asian Infrastructure Investment Bank, GDP = Gross Domestic Product. Source: Data from Global Burden of Disease (GBD) study.

The relationship between health and economic development is particularly strong for low- and middle-income economies.⁸ Economies with lower levels of income can more easily make larger health gains. This is supported by empirical evidence which shows a strong positive relationship between health and effects on economic growth (Cervallati and Sunde, 2013). The effect of improved health on investments in higher education is particularly important. The decline in mortality rates also leads parents to have fewer children, leading to less youth dependency and increasing the quality of education that children can receive.

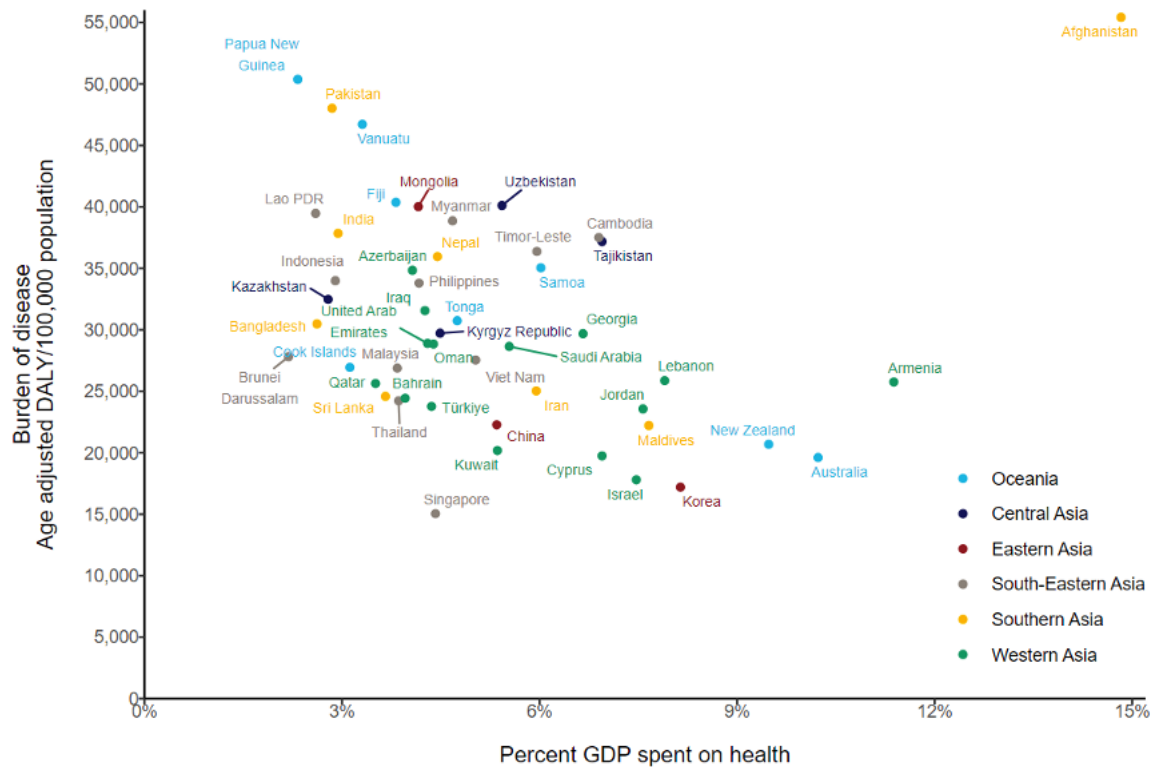
Research from the Brookings Institution (Brookings, 2020) and McKinsey estimates that for every USD1 invested in healthcare today, the resulting GDP impact in 2040 would be twice the investment in both low-income and upper middle-income countries, and four times the investment in lower middle-income countries. Across all economies, these benefits come from labor, thanks to higher employment in the future from a reduction in premature deaths, and

⁸ For example, refer to *Macroeconomics and Health: Investing in Health for Economic Development*, Professor Jeffrey D. Sachs, December 20, 2001, <https://www.who.int/publications/i/item/924154550X>

greater labor force participation and productivity gains by workers who are physically and cognitively healthier.

Higher expenditure on health as a percentage of GDP also tends to lower the burden of disease. However, there is significant variability across countries (see Figure 3), suggesting other factors also influence health outcomes.

Figure 3 Disease burden and health expenditure (% GDP) for AIIB Regional Members, 2019



AIIB = Asian Infrastructure Investment Bank, GDP = Gross Domestic Product. Source: Data from Global Burden of Disease (GBD) study.

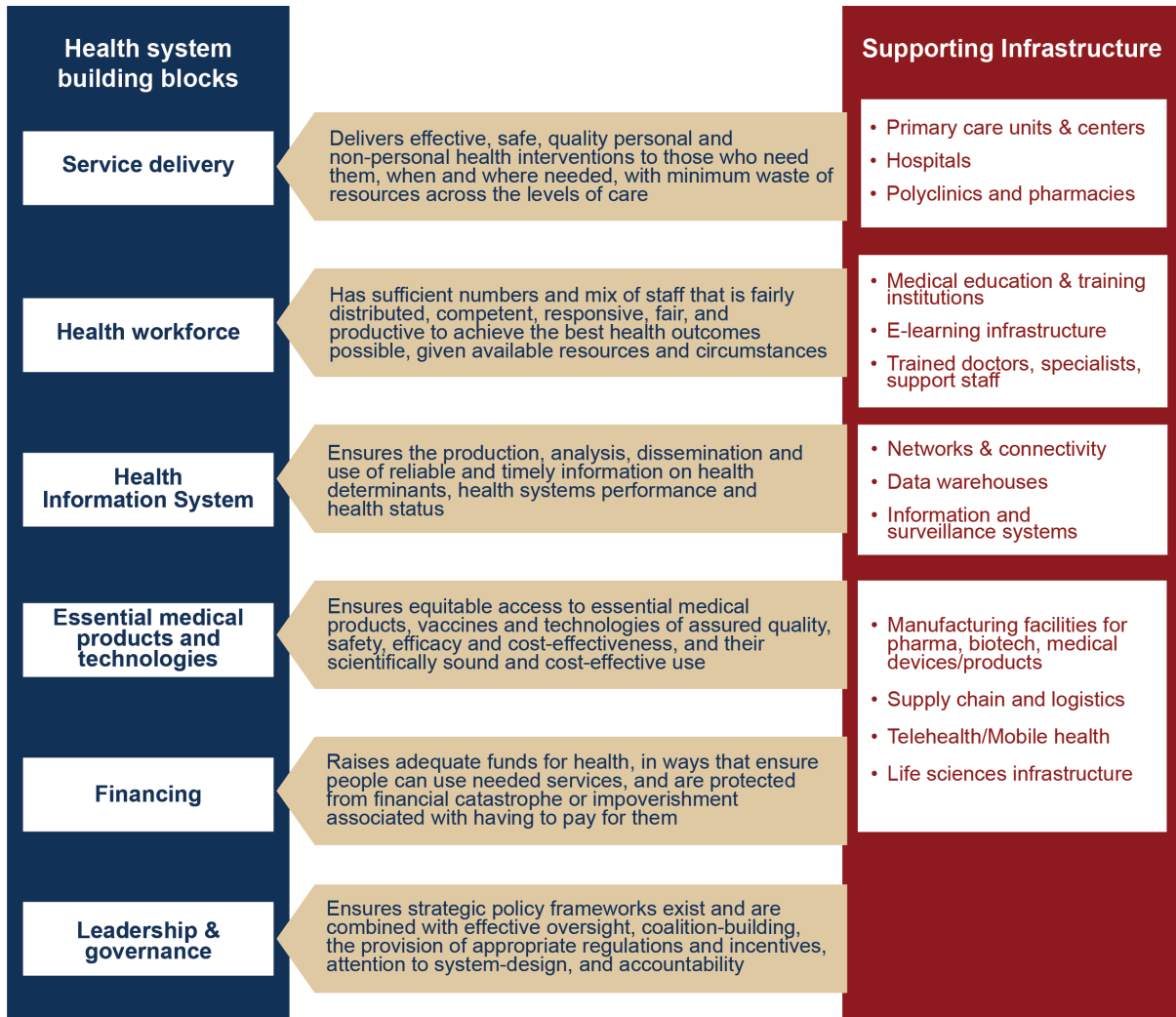
1.2 Building blocks of health systems

The World Health Organization (WHO) recognizes six key building blocks for health systems: service delivery, health workforce, health information systems, essential medical products and technologies, financing, and leadership and governance (World Health Organization, 2007)⁹. Infrastructure directly underpins the first four of these building blocks. The overall goals of

⁹ The authors note there has been some debate around the “building blocks” approach as it arguably does not look closely enough at the relationships between the building blocks. However, it is a useful way of describing the components of the system.

health systems are to improve health (level and equity), responsiveness, social and financial risk protection, and efficiency (see Figure 4).

Figure 4 Health system building blocks and infrastructure



Source: Authors.

Service delivery comprises:

- Primary care services, providing preventive, promotive, curative, rehabilitative and palliative care in a setting closest to people's everyday environment, relatively low cost per patient per year, not capital intensive and with usage by a wide range of the population, but greatly assisted by diagnostic centers, pharmacies, etc. Around 90% of patient contacts with health systems are with primary care; and
- Secondary and tertiary care, focusing on escalated diagnosis and treatment of conditions that are more complex and cannot be managed through primary care. Takes place in a hospital setting, typically involves specialist care and has highest cost intensity.

The **health workforce, health information systems, and medical products and technologies** can all be seen as **health sector enablers**:

- The health workforce stock that exists in an economy, produced through investment in education and training;¹⁰
- Data generated and used in the health sector which should ideally be managed using digital information and communication tools, enabling advanced analytics to support actors in decision-making.
- The stock and range of vaccines and medicines imported or locally manufactured and distributed for use, the range of medical devices used for the delivery of healthcare, and a wide variety of consumables and supplies.

Healthcare financing and payment mechanisms pertain to how revenue is raised for the health system, the kinds of pooling mechanisms employed, and the method of purchasing health services. Health financing policy choices have a big impact on health outcomes and health equity. Approaches adopted by economies vary but all strive towards achieving Universal Health Coverage (UHC). UHC is defined by the WHO as people having access to the full range of quality health services where and when they need them, without financial hardship. Achieving UHC is a target under Sustainable Development Goal number three.

1.3 Post-pandemic focus on resilience

The coronavirus disease (COVID-19) pandemic highlighted the vulnerability of health systems across the world. It reinforced the need for an integrated approach to health system strengthening that includes health resilience to make progress towards UHC and health security goals.

According to the WHO, a resilient health system is one that has the capacity to respond effectively to shocks, maintain core functions during crises, and adapt and grow stronger in the face of adversity. It involves the ability to anticipate, prevent, and recover from health emergencies, as well as to continue providing essential health services during and after a crisis. Resilient health systems are characterized by strong leadership, effective governance, robust health information systems, adequate health workforce, reliable health financing, and accessible and quality health services for all.

A resilient health system must be financially sustainable to control healthcare costs for governments, insurers and households. Achieving financial sustainability requires market failures arising from moral hazard¹¹ and information asymmetries to be effectively addressed through extensive government intervention and conditional financing (Fabes et al., 2022). A

¹⁰ There are also several categories of health workers who are trusted and relied upon, but who are not necessarily formally qualified (e.g., community health workers, traditional birth attendants and practitioners of traditional medicine).

¹¹ Moral hazards arise in health care where (i) insured individuals bear a smaller share of their medical care costs, consuming more care than is needed; (ii) people tend to take less care of their health knowing they are protected by insurance should an insured event occur; (iii) healthcare providers may carry out more services than patients really need; (iv) insurers have an incentive to provide fewer services than those on which premiums are based.

wholesale *laissez faire* approach cannot lead to efficient and equitable outcomes. On the other hand, too much financial intermediation or profit-seeking can cause major fiscal problems.

Resilient health systems are even more relevant for a sectoral strategy in the post-pandemic period. COVID-19 has had a huge impact across Asia, testing the resilience of economies and health systems, and placing immense pressure on health workers operating at the front line. However, the impact has been unequal, amplifying existing inequities and inequalities (OECD, 2022).

The disease burden resulting from COVID-19 has drawn new attention not only to communicable diseases, but also to non-communicable diseases (NCDs). People with underlying non-communicable medical conditions, such as cardiovascular disease, diabetes, chronic respiratory disease and cancer, also have a higher risk of severe COVID-19 complications (WHO and UNDP, 2020), leading to a higher probability of death or prolonged periods of hospitalization (UN, 2021). In addition, shifting resources to COVID-19 services deprioritized the focus on NCD treatments in some cases.

From 2019 to 2021, life expectancy decreased by one year on average in lower middle-income Asian countries and by 0.4 years on average in upper middle-income countries. It increased slightly in high-income economies during the same period.¹² In Indonesia, life expectancy at birth decreased by four years from 2019 to 2021, compared with 2.5 years for the Philippines (OECD, 2022).

In terms of the overall health impact, India and Indonesia were the most affected among OECD member/partner countries, based on data on COVID-19 reported deaths (OECD, 2022). Fiji was also affected heavily by a second wave. In contrast, most of South-Eastern Asia and the other Pacific Islands were less adversely affected.¹³ Variations in population density, urbanization, geography, the number of international visitors, as well as demographic characteristics, may explain the observed differences in death rates (OECD, 2022).

With millions of excess deaths attributed to the pandemic globally, COVID-19 stands out as one of the most devastating pandemics in history. To improve a region's ability to detect and respond to pandemics, as well as overall global health, sustained investment in public health infrastructure and preparedness in every part of the world is required (WHO, 2023b). The pandemic demonstrated the importance of strong healthcare systems and UHC coverage (WHO, 2023b). COVID-19 has also highlighted the importance of mental health.

Accordingly, there is a heightened awareness of the importance of health resilience and pandemic prevention, preparedness and response to propel investment, commitment, and action towards building resilient health systems that are adequately prepared for the complex health challenges of the future. There is a recognition of the inequitable impact of the pandemic, and the importance of equity to resilience and preparedness.

¹² In Asia, there were approximately 10% more cases recorded for women than men in the economies with more complete data, but the number of deaths was about 20% lower.

¹³ Many governments in the Western Pacific region took early action via non-pharmaceutical interventions.

1.4 The role of multilateral development banks

MDBs are more important than ever for financing health in the wake of COVID-19 and in the context of macroeconomic uncertainty. Given their convening power and leveraging capacity, MDBs can play several roles in health: (i) providing advice and technical assistance on health policies, regulations, and institutions; (ii) financing health development; and (iii) catalyzing market development in healthcare.

MDBs support the following:

- **Provision of global and regional public goods:** As supranational entities, MDBs and related UN agencies and global philanthropies facilitate regional and global projects to build global and regional public goods. COVID-19 strengthened the case for interventions to improve global health;
- **Access to foreign currency:** Due to the small size of their economies and their import dependence, access to long-term foreign capital is essential for many low-income countries to help them buy necessary vaccines, equipment, drugs, and other imports to ensure quality health services;
- **Health systems strengthening:** MDBs bring an excellent appreciation of global best practices and an understanding of phased development. They are also well-versed in important cross-cutting themes relating to good governance, environmental and social practices relating to the health sector, and global best practices in procurement, among others;
- **Provision of advice on policies, laws and regulations:** Based on research and knowledge sharing across members, MDBs are able to provide policy, legal and regulatory support to build strong health sector institutions;
- **Project development and preparation:** Often, low capacity to prepare and execute projects constitutes a significant headwind for health system development. If not addressed, low absorptive capacity makes project approvals counterproductive, leading to commitment charges for undisbursed funds. To de-risk project execution, solid pre-project activities, including demand analysis, cost-benefit analysis, environmental and social safeguards, detailed designs, preparation of bidding documents, and establishment of a capable project management team, are all required. MDBs, with the help of technical assistance resources, work to ensure high-quality project preparation and implementation;
- **Health infrastructure development:** MDBs help bridge considerable gaps in health infrastructure investments. MDGs facilitate the prioritization of investments in health infrastructure to help governments achieve the Sustainable Development Goals (SDGs) related to health in a timely manner;
- **Enabling PPPs:** Traditionally, the government has financed and provided health services in lower-income countries where the private sector is still nascent. As members grow economically and reach middle-income status, the private sector becomes more vibrant and capable of undertaking funding and service provision challenges. However, this entails a shift in the policies of members from the government funding and provision model to one that entails more private sector

provision. In addition to policy reforms and regulatory capacity requirements, members need support to develop and implement appropriate PPP models. In more mature partnerships, where the private sector is expected to bring long-term debt and equity investments (build-own-operate-transfer models), MDBs can also support private sector investments through innovative financing; and

- **Expanding private sector investments:** Even where markets exist for health service product manufacturing, service delivery, and ancillary services, the private sector may be constrained by a lack of appropriate financing products to access foreign capital and mitigate currency risk, non-availability of longer tenure loans, and assurance of off-take of the product, among others. Through innovative financing and other non-market distorting initiatives, MDBs have expanded the private sector's role in health service provision.

The following two tables summarize the health portfolios for selected MDBs according to publicly available information. Annex 3 contains further detailed information.

Table 1 MDB health portfolios, 2016-2023

MDB	Asian Development Bank (ADB)	World Bank (IBRD)	World Bank (IDA)	African Development Bank (AfDB)	Inter-American Development Bank (IDB)	International Finance Corporation (IFC)	European Bank of Reconstruction & Devt (EBRD)	European Investment Bank
Overall	Health Sector accounted for 7.3% of a USD101.1bn portfolio (USD7.4bn) in 2022. A large part is COVID-19-related support.	A USD34 billion global health portfolio including over 240 projects in 2022.		Delivered USD3.6 billion between 1975 and 2020. Has approved USD436 million in health since 2017	In past five years, approved USD2.57 billion in health sector. Outstanding health sector loans of USD5.8 billion in 2022	Active portfolio of USD3.5 billion in healthcare companies in emerging markets	Health cap USD110m per year EUR1.458 billion health bond portfolio as of end 2022	EUR5.1bn in the healthcare sector in 2022. Approved EUR42 billion for healthcare related projects since 1997
Health portfolio	Commitments (USD million)	Commitments (USD million)	Commitments (USD million)	Approvals (USD million)	Approvals (USD million)	Approvals (USD million)	Bank investments (EUR million)	Signed investments (EUR million)
2023		3,128	2,261					
2022	823	6,252	4,269	27	133	na	na	3,926
2021	5,882	2,606	3,840	0.3	438	na	na	5,043
2020	3,512	3,980	4,295	349	623	na	na	2,971
2019	644	1,674	1,736	156	348	na	na	1,331
2018	524	2,204	2,062	35	799	na	na	673
2017	211	1,189	1,246	1	183	na	na	1,726
2016	226	1,181	1,191	23	341	na	na	1,380

Health portfolio % of total								
2023		8.1%	6.6%					
2022	4.0%	18.9%	11.3%	0.4%	0.9%	na	na	5.2%
2021	25.8%	8.5%	10.7%	0.0%	3.0%	na	na	9.0%
2020	11.1%	14.2%	14.1%	8.4%	4.4%	na	na	3.6%
2019	2.7%	7.2%	7.9%	2.1%	2.7%	na	na	2.1%
2018	2.1%	9.6%	8.6%	0.5%	5.6%	na	na	1.0%
2017	1.0%	5.3%	6.4%	0.0%	1.4%	na	na	2.2%
2016	1.7%	4.0%	7.4%	0.3%	3.2%	na	na	1.6%

COVID-19 = Coronavirus Disease, MDB = multilateral development bank, na = not available. Note: The reporting year for the World Bank Group is July to June; 2023 refers to the period from July 1, 2022 to June 30, 2023

Table 2 MDB health lending portfolios by area

Category	Area	ADB	WB	IFC	IDB	AfDB
Service Delivery & Infrastructure	Polyclinics	✓	✓	✓	✓	✓
	Secondary care	✓	✓	✓	✓	✓
	Tertiary care	✓	✓	✓	✓	✓
	Integrated delivery networks	✓	✓	✓	✓	✓
	Water and wastewater management	✓	✓	✓	✓	○
	Reliable energy	✓	✓	✓	✓	○
	Effective access to quality services	✓	✓	✓	✓	✓
	Primary care units/centers	✓	✓	○	✓	✓
	Non-communicable diseases	✓	✓	○	✓	✓
	Maternal and child health	✓	✓	○	✓	✓
	Healthy aging	✓	✓	○	✓	✓
	Urban health	✓	✓	○	✓	○
	Communicable diseases	✓	✓	○	✓	✓
	Disease prevention and control	✓	✓	○	✓	✓
	Healthy, livable, and age-friendly city infrastructure	✓	✓	○	✓	○
	Pharmacies	✓	✓	○	✓	✓
	Health Workforce	Medical colleges	✓	✓	✓	✓
Nursing colleges		✓	✓	✓	✓	○
e-learning infrastructure		✓	✓	○	✓	○
Improved policies for performance incentives		✓	✓	○	✓	○
Private medical and nursing training institutions		○	○	✓	○	○
Investments in equipping health workers with new technology		✓	✓	○	✓	✓
Upgraded health training institutions		✓	✓	○	○	○
Upgraded curricula for pre- and in-service training		✓	✓	○	○	○
Health Information Systems	Electronic health records modernization	✓	✓	✓	✓	✓
	Clinical information systems	✓	✓	✓	✓	✓
	Patient tracking systems	✓	✓	✓	✓	○
	Digital networks and connectivity	✓	○	✓	✓	✓
	Data warehousing	○	○	✓	✓	○
	Disease surveillance	✓	✓	○	✓	✓
	Integrated information system	✓	✓	✓	✓	✓

Category	Area	ADB	WB	IFC	IDB	AfDB
Medical Products and Technologies	Telehealth	○	✓	✓	✓	○
	Mobile health	○	✓	✓	✓	✓
	Diagnostic infrastructure	✓	✓	✓	✓	✓
	Health-related automation and interoperable systems	✓	✓	✓	✓	✓
	Cold chain and last mile logistics expansion	✓	✓	✓	✓	○
	Pharmaceutical manufacturing	✓	○	✓	✓	○
	Medical devices manufacturing	✓	○	✓	✓	○
	Biotechnology product development	✓	○	✓	✓	○
	Supply chain and logistics infrastructure	✓	○	✓	✓	○
	Vaccine manufacturing	✓	○	✓	✓	○
Health Financing	Public Private Partnerships	✓	✓	✓	✓	✓
	Innovative financing (e.g., blended financing)	✓	✓	✓	✓	✓
	Digitization of health financing processes	✓	✓	✓	✓	✓
	Private sector participation	✓	○	✓	✓	○
	Private health insurance	✓	○	✓	✓	○
	Sustainability and efficiency of health expenditure	✓	✓	○	✓	○
	Government-supported insurance schemes	✓	✓	○	✓	✓
Governance, Policy and Public Goods	Health sector reforms	✓	✓	○	✓	✓
	Governance and policy	✓	✓	○	✓	✓
	Health systems strengthening	✓	✓	○	✓	✓
	Strengthening national public health institutions	✓	✓	○	✓	✓
	Public health interventions	✓	✓	○	✓	✓
	Core public health capacities	✓	✓	○	✓	✓
	Multisectoral and integrated projects	✓	✓	○	✓	✓
	Health regulations	✓	✓	○	✓	○
	Health knowledge products	✓	✓	○	✓	○
	Link to public sector management and public financial management	✓	✓	○	✓	○
	Support to governance at the subnational level	✓	✓	○	✓	○
Pandemic preparedness	One health (controlling the spread of zoonotic diseases)	✓	✓	○	✓	○
	Regional collaboration for health security	✓	✓	○	✓	✓
	Partnerships for pandemic preparedness and response	✓	✓	○	✓	✓
	Sub-regional cooperation for improved control of communicable diseases	✓	✓	○	✓	✓

Category	Area	ADB	WB	IFC	IDB	AfDB
Thematic & Modality	Climate resilience	✓	✓	✓	✓	○
	Green infrastructure	✓	✓	✓	✓	○
	Strategic partnerships	✓	✓	✓	✓	✓
	Technical assistance	✓	✓	✓	✓	✓
	Knowledge as public good	✓	✓	✓	✓	✓
	Multisectoral and Integrated projects	✓	✓	○	✓	○
	Regional cooperation	✓	✓	○	✓	✓
	Results-based lending	✓	✓	○	✓	✓
	Multisectoral and integrated projects	✓	✓	○	✓	✓
	Policy-based lending	✓	✓	○	✓	○
	Social protection	✓	✓	○	✓	✓
	Nutrition	✓	✓	○	✓	✓
	Tobacco control	○	✓	○	✓	✓
	Demand side - Information, education campaigns; conditional cash transfers	○	✓	○	✓	○
	Job creation	○	○	✓	○	○

ADB = Asian Development Bank, AfDB = African Development Bank, IDB = Inter-American Development Bank, IFC = International Finance Corporation, MDB = multilateral development bank, WB = World Bank.

Note: 'O' denotes areas less likely to be financed.

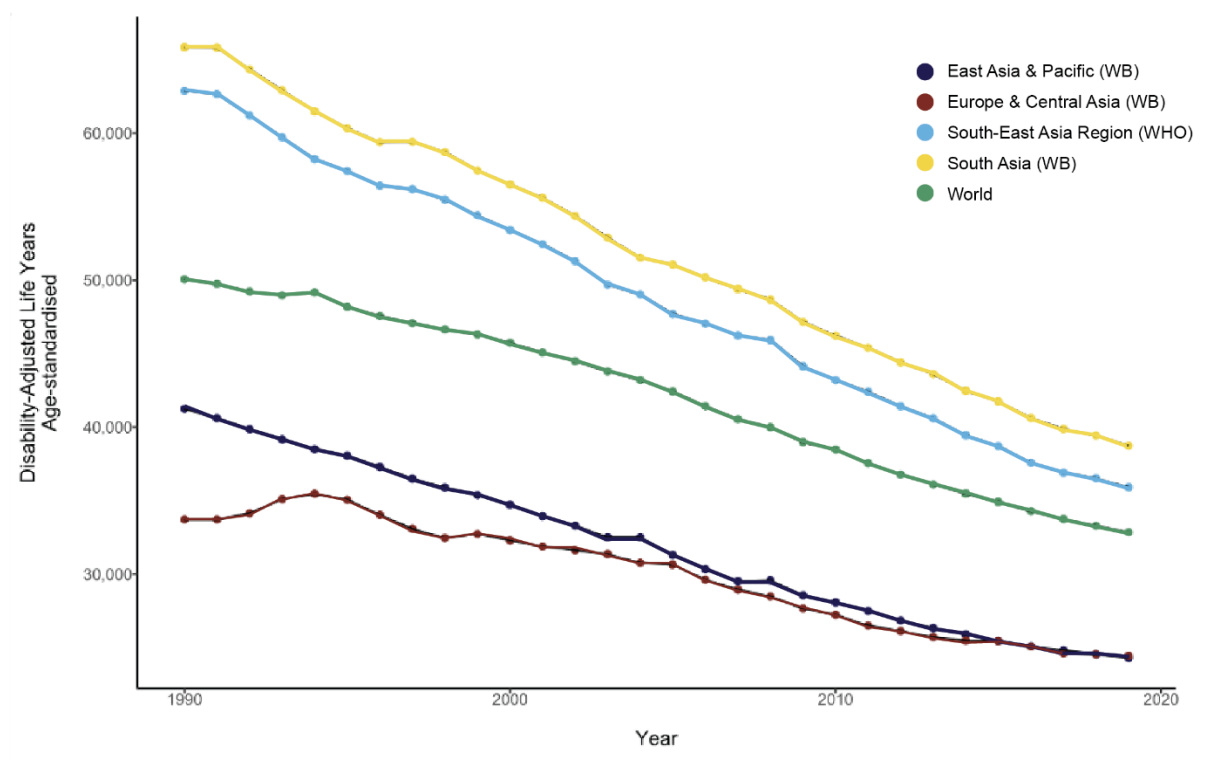
2 Health baseline in Asia

Across the world, health outcomes have been improving for several decades as economies and health systems develop. In the two decades prior to the COVID-19 pandemic, the world achieved major advances in health. From 2000 to 2019, global life expectancy increased from 67 years to 73 years, due primarily to the fall in child and maternal mortality from many infectious diseases. Expansion in access to health and related services, including improvements in prevention and reduction of NCDs, was also a significant factor.

2.1 Disease burden

While health outcomes have been improving across Asia, South Asia and South-Eastern Asia still have poorer health outcomes than the world average, although the gap has been steadily narrowing (see Figure 5 below).

Figure 5 Disease burden across major Asian sub-regions and over time, 1990–2019



Source: Our World In Data, Global Burden of Disease (2019).¹⁵

Economy-specific analysis provides a more nuanced picture. Almost all Members of the Asian Infrastructure Investment Bank (AIIB) have improved their health outcomes since 1990, but

¹⁵ <https://ourworldindata.org/burden-of-disease>. Data is only available in the Asian sub-regions shown in the graph.

progress in Pacific Island Members has occurred at a slower rate. Table 3 sets out the changes in DALYs for Regional Members.¹⁶

The data is ordered from highest DALY as of 2019 to the lowest, as higher DALYs is an indication of health needs. Annex 1 provides more information on five AIIB Members: China, Egypt, Fiji, India and Indonesia, representing five different sub-regions in Asia.

Table 3 Change in DALYs per 100,000 population for AIIB Regional Members over time, 1990-2019

Rank	Member	AIIB sub-region	2019	1990	% change
1	Afghanistan	Southern Asia	55425	86375	-36%
2	Pakistan	Southern Asia	48022	61521	-22%
3	Vanuatu	Oceania	46718	52935	-12%
4	Fiji	Oceania	40379	44592	-9%
5	Uzbekistan	Central Asia	40111	39462	2%
6	Mongolia	Eastern Asia	40025	60662	-34%
7	Lao PDR	South-Eastern Asia	39469	84058	-53%
8	Myanmar	South-Eastern Asia	38863	76743	-49%
9	India	Southern Asia	37843	66332	-43%
10	Cambodia	South-Eastern Asia	37509	69950	-46%
11	Tajikistan	Central Asia	37174	45885	-19%
12	Nepal	Southern Asia	35953	70024	-49%
13	Samoa	Oceania	35036	42400	-17%
14	Azerbaijan	Western Asia	34842	45928	-24%
15	Indonesia	South-Eastern Asia	33997	52319	-35%
16	Philippines	South-Eastern Asia	33798	43149	-22%
17	Kazakhstan	Central Asia	32475	41214	-21%
18	Iraq	Western Asia	31558	46691	-32%
19	Russia	Other regional	31110	38240	-19%
20	Tonga	Oceania	30739	34682	-11%
21	Bangladesh	Southern Asia	30475	67635	-55%
22	Georgia	Western Asia	29683	39479	-25%

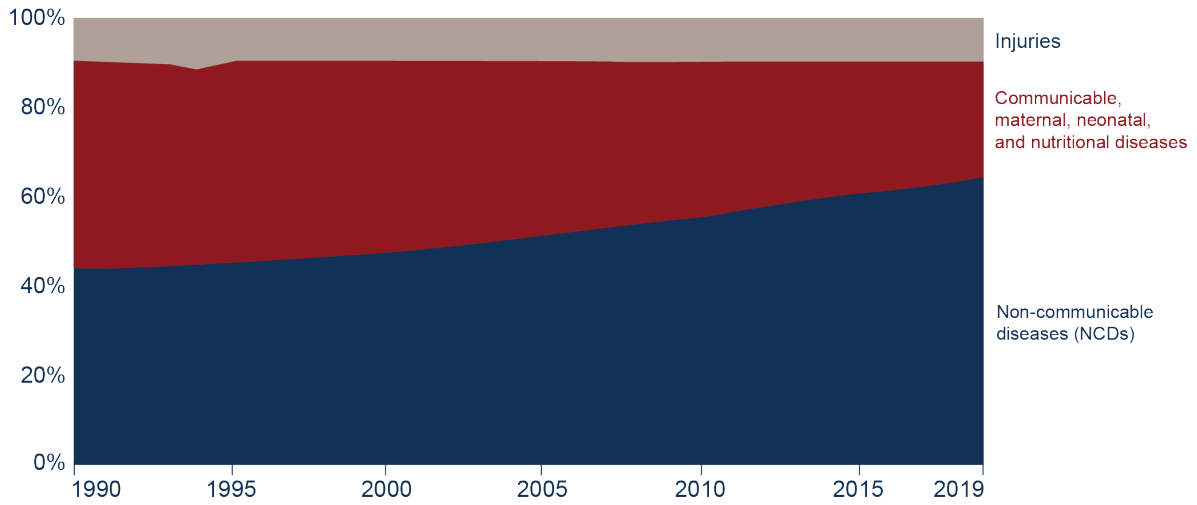
¹⁶ Data for Timor-Leste and Hong Kong, China was not available.

Rank	Member	AIIB sub-region	2019	1990	% change
23	United Arab Emirates	Western Asia	28894	39586	-27%
24	Oman	Western Asia	28845	43985	-34%
25	Saudi Arabia	Western Asia	28648	41797	-31%
26	Brunei Darussalam	South-Eastern Asia	27814	37591	-26%
27	Viet Nam	South-Eastern Asia	27543	38587	-29%
28	Cook Islands	Oceania	26941	38193	-29%
29	Malaysia	South-Eastern Asia	26887	32954	-18%
30	Qatar	Western Asia	25632	37203	-31%
31	Iran	Southern Asia	25029	46801	-47%
32	Sri Lanka	Southern Asia	24580	38462	-36%
33	Bahrain	Western Asia	24434	38255	-36%
34	Thailand	South-Eastern Asia	24227	35657	-32%
35	Türkiye	Western Asia	23763	42390	-44%
36	Jordan	Western Asia	23564	35033	-33%
37	China	Eastern Asia	22271	41105	-46%
38	Maldives	Southern Asia	22220	47986	-54%
39	New Zealand	Oceania	20682	28551	-28%
40	Cyprus	Western Asia	19743	28027	-30%
41	Australia	Oceania	19608	26009	-25%
42	Israel	Western Asia	17800	24212	-26%
43	Singapore	South-Eastern Asia	15045	25491	-41%

AIIB = Asian Infrastructure Investment Bank, DALY = disability-adjusted life year. Source: Our World In Data, Global Burden of Disease (2019).

While health outcomes continue to improve, the absolute burden of disease is changing in makeup. NCDs are increasing while communicable diseases are decreasing in general. This trend reflects the epidemiological transition from an era characterized by high mortality in childhood and a high burden associated with infectious diseases and maternal, perinatal and nutritional conditions, to an era with a high burden from NCDs (World Health Organization, 2023i). This shift is most pronounced in developing regions, including parts of Asia.

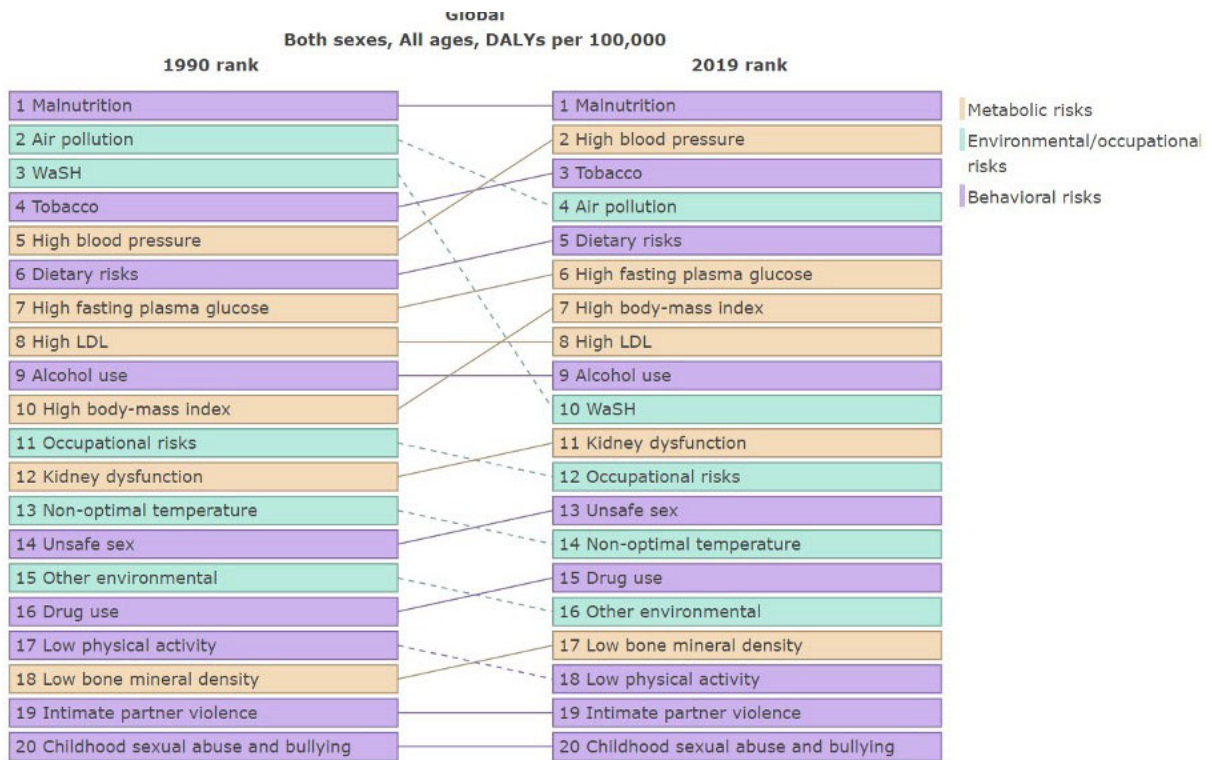
Figure 6 Total disease burden by cause, worldwide, 1990–2019



Source: Our World In Data.

The changing makeup of DALYs from specific causes from 1990 to 2019 shows an increase in high blood pressure, high fasting plasma glucose, high body mass index and cholesterol problems.

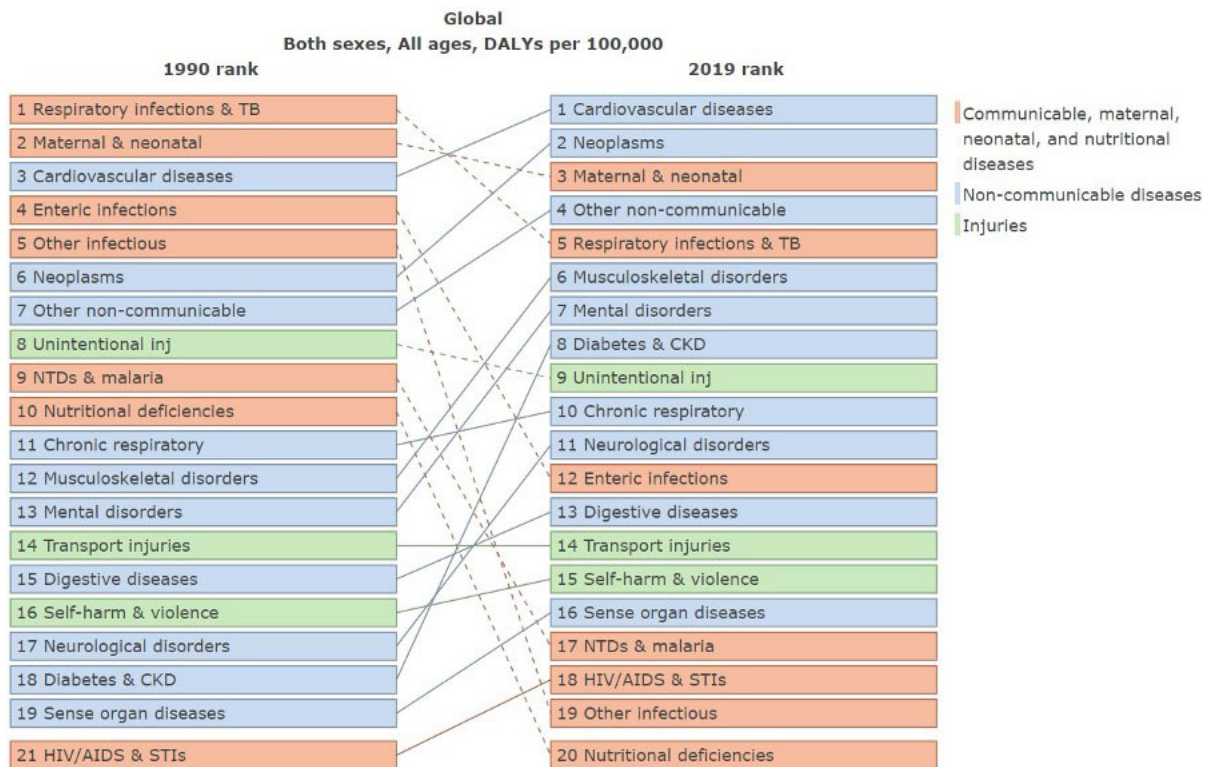
Figure 7 Changing makeup of DALYs by specific cause from 1990 to 2019



DALY = disability-adjusted life year; LDL = low-density lipoprotein; WaSH = water, sanitation and hygiene.
 Source: [Global Burden of Disease \(GBD\) \(healthdata.org\)](https://www.healthdata.org/global-burden-of-disease-gbd)

Figure 8 breaks down the change in DALYs from 1990 to 2019 with an overlay of communicable vs non-communicable diseases, showing clearly the dramatic increase in NCDs over time.

Figure 8 Change in DALYs from 1990 to 2019 with CD/NCD overlay



CD = communicable disease, CKD = chronic kidney disease, DALY = disability-adjusted life year, NCD = non-communicable disease, NTDs = Neglected Tropical Diseases, STIs = Sexually Transmitted Diseases, TB = Tuberculosis. Source: [Global Burden of Disease \(GBD\) \(healthdata.org\)](https://www.healthdata.org)

Gender influences health, yet significant knowledge gaps exist in the evidence base for the prevention, diagnosis, and treatment of NCDs which disproportionately affect men. While studies have shown that the death rate due to NCDs has gradually decreased over the past three decades, men have persistently higher death rates from NCDs than women. Men faced 644.3 deaths per 100,000 compared to 452.2 per 100,000 for women in 2019 (Ngaruiya, 2022). The presentation, prevalence, and long-term effects of chronic conditions and multimorbidity differs in women (Temkin, 2023). Men and women are differently affected – for example, men generally die earlier, use fewer health services and are exposed to more occupational hazards.

The risk factors of alcohol consumption, tobacco smoking, physical inactivity and obesity that are common to NCDs are prevalent and rising in some Members. Population growth and population aging will only serve to increase the future NCD burden. The implications for healthcare costs, labor productivity and economic sustainability are significant. The future NCD burden will increase costs and lead to significant demand uncertainty and difficulty

in forecasting health system needs (WHO, 2017). These all have implications for AIIB's health strategy.

2.2 Basic infrastructure baseline

Health systems vary widely across economies. At the upper end, the United States spends around 18.8% of its GDP on health. Other developed economies spend closer to the world average of 10.9%: Canada (12.9%), United Kingdom (12%) and Japan (10.9%). Most Asian economies spend well below the world average: Bangladesh 2.6%, India, Indonesia and Pakistan 2.9%, Sri Lanka 3.7%, Thailand 3.9%, Viet Nam 5.0%, China 5.4%. See Table 4 for details of AIIB Regional Members and Annex 1 for all economies.

Health systems also vary significantly with respect to the contribution to health expenditure by government and private sources. Government expenditure on health as a share of GDP tends to increase as income increases. On average across Asia, as of 2022, two-thirds of health expenditure was financed by governments or compulsory insurance schemes, and the rest by private financiers, voluntary schemes or from households' OOP expenses (OECD, 2022). Government expenditure ranges from a low of 18% of total health expenditure in Bangladesh to a high of 90% in Oman and Kuwait. See Table 4 and Annex 1 for further details.

Private expenditures are either pooled through health insurance, or OOP costs at the time of care. In most economies, OOP costs dominate private health expenditure. OOP costs can become catastrophic, with a potential to draw households back into poverty. In Asia, OOP costs as a percentage of total health expenditure are as high as 78% in Myanmar and Armenia and 77% in Afghanistan. Other Asian economies with high OOP costs include Turkmenistan (77%), Bangladesh (74%), Azerbaijan (65%), Tajikistan (65%), Pakistan (55%), Nepal (54%), India (51%), Sri Lanka (47%). See Table 4 and Annex 1 for further details.

Another key input to consider is physicians per 1,000 population, which is as low as 0.2 in Cambodia, 0.4 in Lao PDR, 0.5 in Indonesia and Bhutan, 0.6 in the Philippines, 0.6 in Bhutan, and 0.7 in India. New Zealand (3.5), Azerbaijan (3.2), Saudi Arabia (2.8), Kuwait (2.6), and China (2.2) have much higher availability of physicians. There is also a large variation in nurses per 1,000 population, from as low as 0.4 in Bangladesh and 0.5 in Pakistan to as high as 13 in Australia, 11 in Uzbekistan and New Zealand, 8.2 in Korea, and 3.1 in China. See Annex 1 for further details.

Capital expenditure on health for most of Asia is below 0.5% of GDP. Several economies are above this figure: Maldives at 1.9%, Tajikistan at 0.7%, and China and Australia at 0.6%. Low investments in health systems have resulted in low levels of health infrastructure, making it unable to meet demand during normal times, let alone under the tremendous stress of public health emergencies, such as COVID-19.

Table 4 Health expenditure and bed capacity by AIIB Regional Members, 2017-2023

Economy	Region	Health spending per capita (USD)	Health spending as % of GDP	OOP as % of total health expenditure	Capital health expenditure (% of GDP)	Hospital beds per 10,000 population
Pakistan	Southern Asia	38	2.9%	55.4	0.1	6.30
Bangladesh	Southern Asia	51	2.6%	74.0	0.0	7.95
India	Southern Asia	57	2.9%	50.6	0.3	5.30
Myanmar	South-Eastern Asia	58	4.7%	78.2	0.2	10.44
Nepal	Southern Asia	58	4.5%	54.2	0.5	3.00
Kyrgyzstan	Central Asia	64	4.5%	45.9	0.3	44.13
Papua New Guinea	Oceania	64	2.3%	8.8	0.3	-
Lao PDR	South-Eastern Asia	68	2.6%	41.8	0.1	15.00
Tajikistan	Central Asia	70	7.0%	65.2	0.7	46.67
Afghanistan	Southern Asia	80	14.8%	77.2	0.4	3.90
Vanuatu	Oceania	114	3.3%	7.4	0.3	-
Cambodia	South-Eastern Asia	116	6.9%	60.6	0.1	9.00
Uzbekistan	Central Asia	121	5.4%	53.1	0.1	39.78
Timor-Leste	South-Eastern Asia	121	6.0%	6.7	0.0	59.00
Indonesia	South-Eastern Asia	133	2.9%	31.8	0.1	10.40
Sri Lanka	Southern Asia	151	3.7%	46.6	0.3	41.50
Philippines	South-Eastern Asia	165	4.2%	41.5	0.4	9.90
Viet Nam	South-Eastern Asia	166	5.0%	39.6	0.3	31.80
Fiji	Oceania	186	3.8%	13.7	0.2	19.98
Azerbaijan	Western Asia	191	4.1%	65.2	0.2	48.22
Mongolia	Eastern Asia	200	4.2%	27.0	0.4	80.00
Iraq	Western Asia	202	4.3%	44.8	0.0	13.20
Samoa	Oceania	202	6.0%	11.4	0.2	10.00
Tonga	Oceania	248	4.8%	5.0	0.2	-
Jordan	Western Asia	299	7.6%	30.2	-	14.70
Thailand	South-Eastern Asia	305	3.9%	10.5	0.2	21.00
Georgia	Western Asia	320	6.7%	46.8	0.1	28.94
Kazakhstan	Central Asia	342	2.8%	27.5	0.1	60.57
Türkiye	Western Asia	395	4.4%	16.4	0.3	28.50
Malaysia	South-Eastern Asia	419	3.8%	35.9	0.4	18.77
Cook Islands	Oceania	532	3.1%	-	-	-
Armenia	Western Asia	552	11.4%	77.9	0.1	41.63
Iran	Southern Asia	573	6.0%	37.1	-	15.60
China	Eastern Asia	583	5.4%	34.8	0.6	43.10
Brunei Darussalam	South-Eastern Asia	651	2.2%	6.0	0.1	28.50

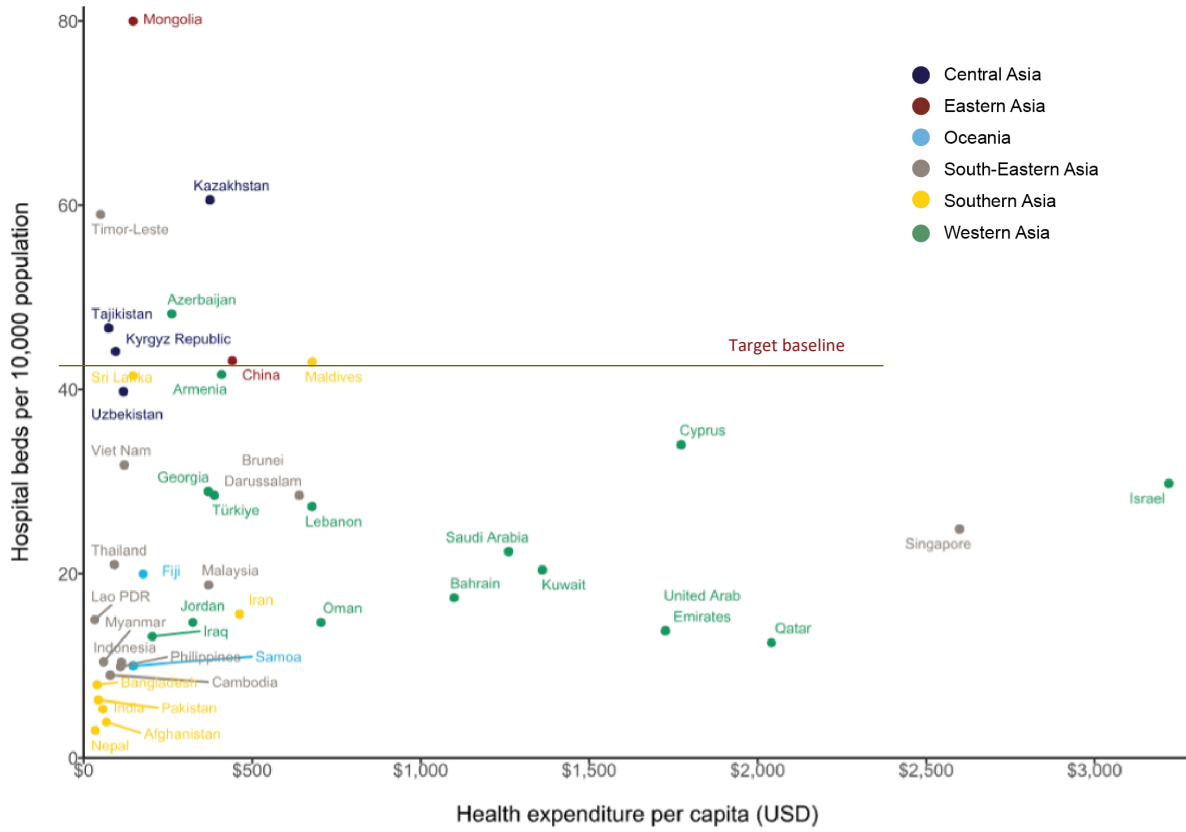
Economy	Region	Health spending per capita (USD)	Health spending as % of GDP	OOP as % of total health expenditure	Capital health expenditure (% of GDP)	Hospital beds per 10,000 population
Maldives	Southern Asia	826	7.7%	16.9	1.9	43.00
Oman	Western Asia	845	4.4%	4.7	-	14.70
Lebanon	Western Asia	995	7.9%	44.2	-	27.30
Bahrain	Western Asia	1,110	4.0%	26.6	-	17.40
Saudi Arabia	Western Asia	1,291	5.5%	15.9	-	22.40
Kuwait	Western Asia	1,533	5.4%	9.1	0.5	20.40
Qatar	Western Asia	2,188	3.5%	9.5	-	12.50
United Arab Emirates	Western Asia	2,192	4.3%	11.2	-	13.80
Cyprus	Western Asia	2,245	7.0%	14.0	0.2	34.00
Korea	Eastern Asia	2,642	8.1%	26.7	0.4	124.30
Singapore	South-Eastern Asia	3,537	4.4%	19.0	0.3	24.86
Israel	Western Asia	3,867	7.5%	17.1	0.2	29.80
New Zealand	Oceania	4,202	9.5%	11.6	-	25.70
Australia	Oceania	5,901	10.2%	13.8	0.6	38.40

AIIB = Asian Infrastructure Investment Bank, GDP = gross domestic product, OOP = out-of-pocket. Sources: Our World In Data, Global Burden of Disease (2019), WHO Global Health Expenditure Database. Health capital expenditure figures are from World Bank Health Nutrition and Population Statistics and are for the latest year data if available from 2017 (latest is 2023). Capital expenditure consists of gross fixed capital formation (e.g., hospital buildings or ambulances), changes in inventories (e.g., vaccinations kept in stock), acquisitions less disposals of valuables. Note red highlight indicates where OOP costs are above the WHO recommendation of 40%, and where hospital beds per 10,000 population are below 30.

Figure 9 sets out the number of hospital beds per 10,000 population compared with health expenditure per capita. As a point of comparison, the developed economy average is 50-60 beds per 10,000; upper middle-income country average is 36 beds per 10,000, while middle-income countries have 23 per 10,000. Significant variations in hospital beds per 10,000 population are seen in Asia. South Asia, in particular, has low hospital beds per 10,000, which is in line with low overall expenditures on health. Many Central Asian economies have high bed numbers.

While the number of hospital beds per 10,000 population will vary depending upon the disease burden and aging, a minimum availability of 20-30 beds per 10,000 population is expected. Taking into consideration the resilience that is needed for pandemics, disasters, aging and increasing prevalence of NCDs, one should expect requirements for hospital infrastructure to be over 30 per 10,000 population. The COVID-19 pandemic highlighted the need to have sufficient hospital beds and flexibility in their use (OECD, 2023). A rate of about 85% bed occupancy is often considered a maximum to reduce the risk of bed shortages (National Institute for Health and Care Excellence, 2018).

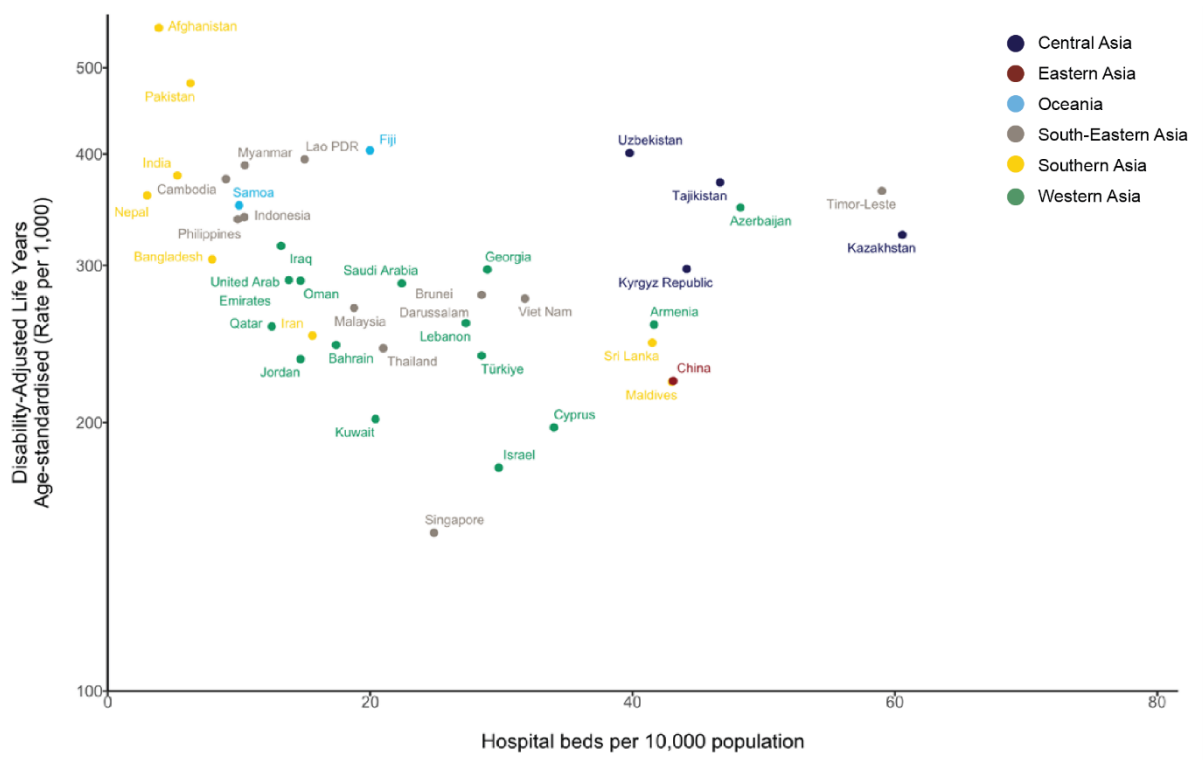
Figure 9 Hospital beds compared with health expenditure - AIIB Regional Members, 2019



Source: Our World In Data, Global Burden of Disease (2019). Note: Excludes Australia, New Zealand and Korea as they are outliers.

Finally, Figure 10 shows the number of hospital beds versus a logarithmic DALY axis. Countries with higher beds per 10,000 population have lower DALYs in general. Some central Asian countries are exceptions, with higher hospital beds per 10,000 population yet high DALYs. This shows that hospital beds are important to reduce DALYs and serves as a good indicator on the sufficiency of investments and infrastructure. However, it is not the only element. Human resources, as well as the availability of critical drugs, equipment, diagnostics, and health financing, are all important for improving health outcomes.

Figure 10 Hospital beds versus logarithmic view of DALYs



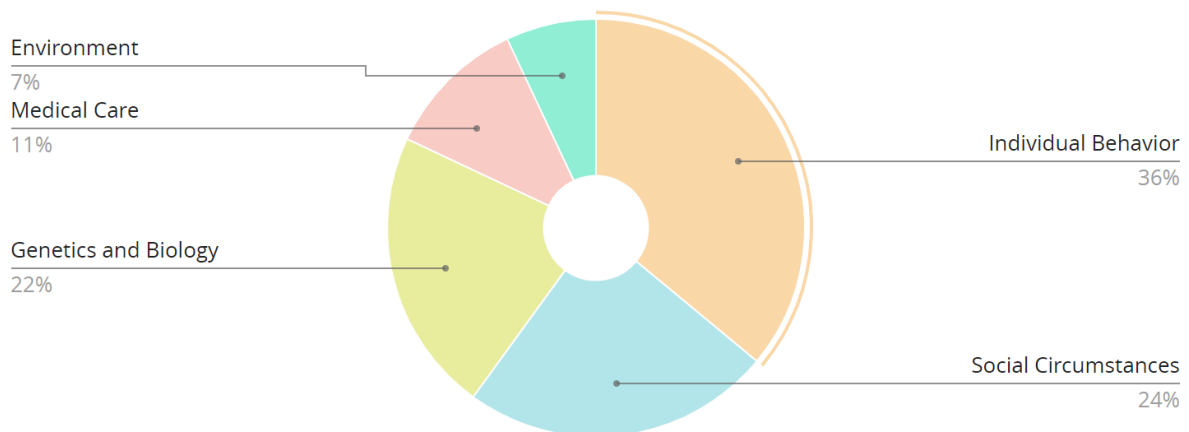
Source: Authors.

3 Megatrends and determinants of health

For AIIB to finance Infrastructure for Tomorrow, it needs to understand the long-term drivers of change and foresee needs in the coming decades. This section analyzes long-term megatrends, their impacts on the determinants of health, and the broad implications these have on health infrastructure.

“Determinants of health” provide a framework for understanding the factors that influence health outcomes, both at the individual and population levels. They can be categorized in several ways. The chart below presents these determinants based on an analysis of global data from the WHO. The analysis shows that the greatest influence on health is individual behavior, followed by social circumstances, genetics and biology, and lastly, medical care and the environment.

Figure 11 Determinants of health and their relative contributions



Source: WHO, GoInvo, Determinants of Health.

Since factors unrelated to medical care account for approximately 89% of an individual’s health outcomes, the WHO has coined a broad phrase, “social determinants of health,” to refer to all these non-medical factors that influence health outcomes. These include income and social status, education, the built environment, social support networks, and gender, which intersects with all the other factors. These factors can affect access to healthcare, and ultimately health outcomes. The WHO and many economies are increasingly focusing on these social determinants of health as a way to influence health outcomes.

Figure 12 Social determinants of health



Source: Adapted from U.S Department of Health and Human Services¹⁷ and WHO Determinants of Health.¹⁸

The key point is that healthcare itself makes up only a small proportion of the overall impact on an individual's health outcomes. The other determinants of health together have a much greater influence. Thus, the Bank's health strategy can consider infrastructure investment in areas outside of the health sector itself (e.g., hospitals and medical centers), but directly support health outcomes.

Long-term megatrends influence the determinants of health. Megatrends are major movements, patterns or trends that arise from a wide range of factors and conditions, including income levels, the natural environment and climate, the built environment, demographic and population shifts, and developments in science and technology. Megatrends redefine the overall landscape of health over an extended period, influencing health outcomes of individuals and populations. For example (see also Figure 11 below):

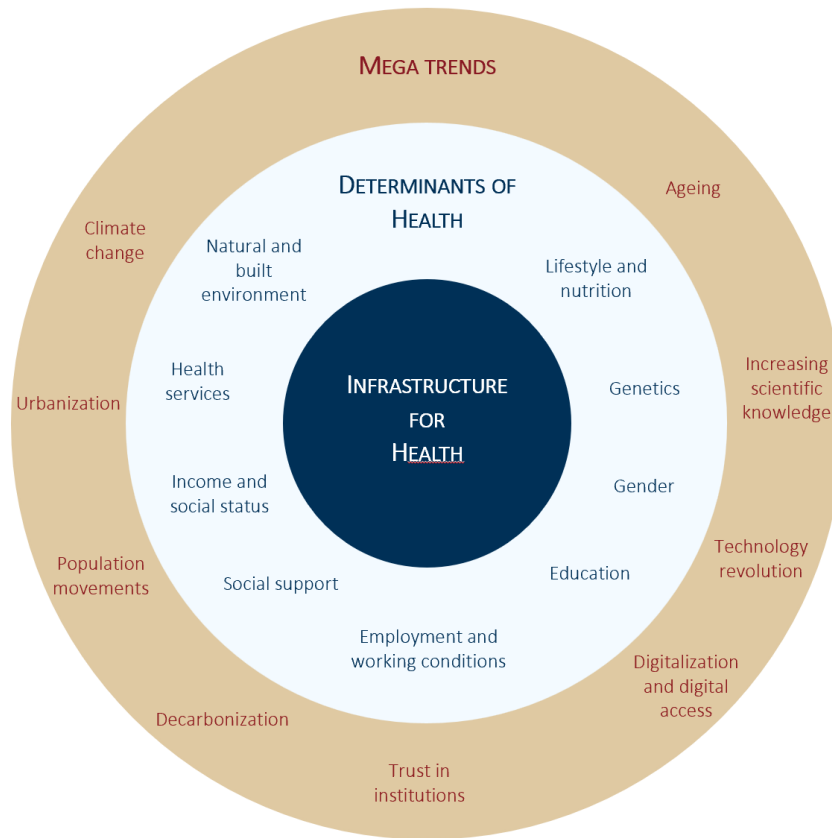
- An aging population (megatrend) may have implications for the prevalence of chronic diseases and the need for healthcare services (determinant of health). This may be particularly true for women, who tend to live longer but face inequitable differences in well-being, productivity and engagement, security, and social cohesion associated with societal aging (Chen et al., 2021).
- Technological advancements (megatrend) can affect health behaviors (determinants of health) both positively and negatively, through increased development and use of digital health tools and telemedicine, or reductions in physical activity (due to more time on digital devices).

Figure 11 is a simplified diagrammatic view of the relationship between megatrends, determinants of health and health infrastructure. It shows how megatrends influence the determinants of health, which in turn drive the needs and requirements of infrastructure for health.

¹⁷ <https://health.gov/healthypeople/priority-areas/social-determinants-health>

¹⁸ <https://www.who.int/news-room/questions-and-answers/item/determinants-of-health>

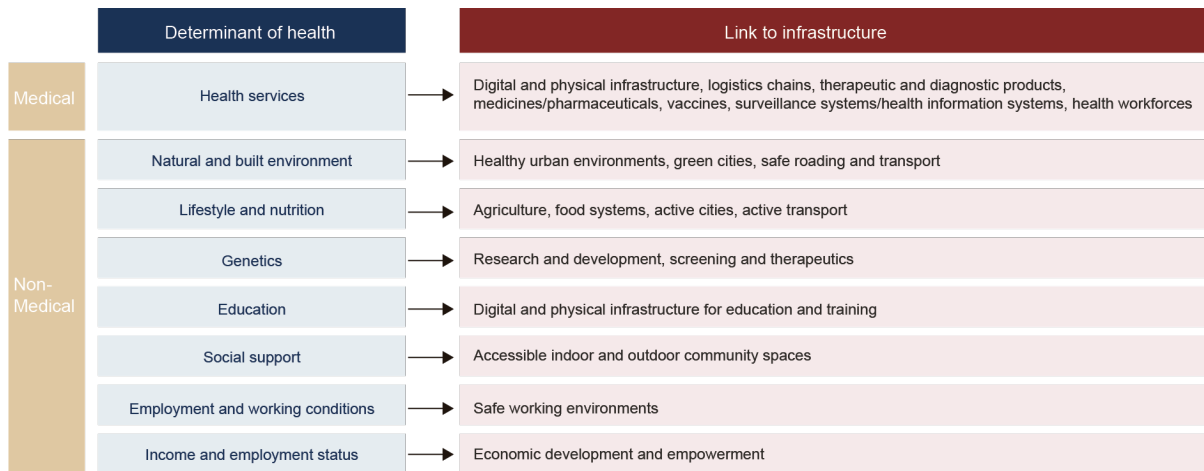
Figure 13 Megatrends, determinants of health, and health infrastructure



Source: Authors.

Both megatrends and determinants of health have implications for public health policies, interventions and financing. Recognizing megatrends helps investors to anticipate and plan for long-term shifts in the healthcare landscapes, while understanding the determinants of health is crucial for developing effective, targeted interventions at the individual and community levels.

Broadly, the infrastructure to address the determinants of health can be summarized as follows:

Figure 14 Infrastructure to address determinants of health

Source: Authors.

The following sub-sections discuss current key megatrends.

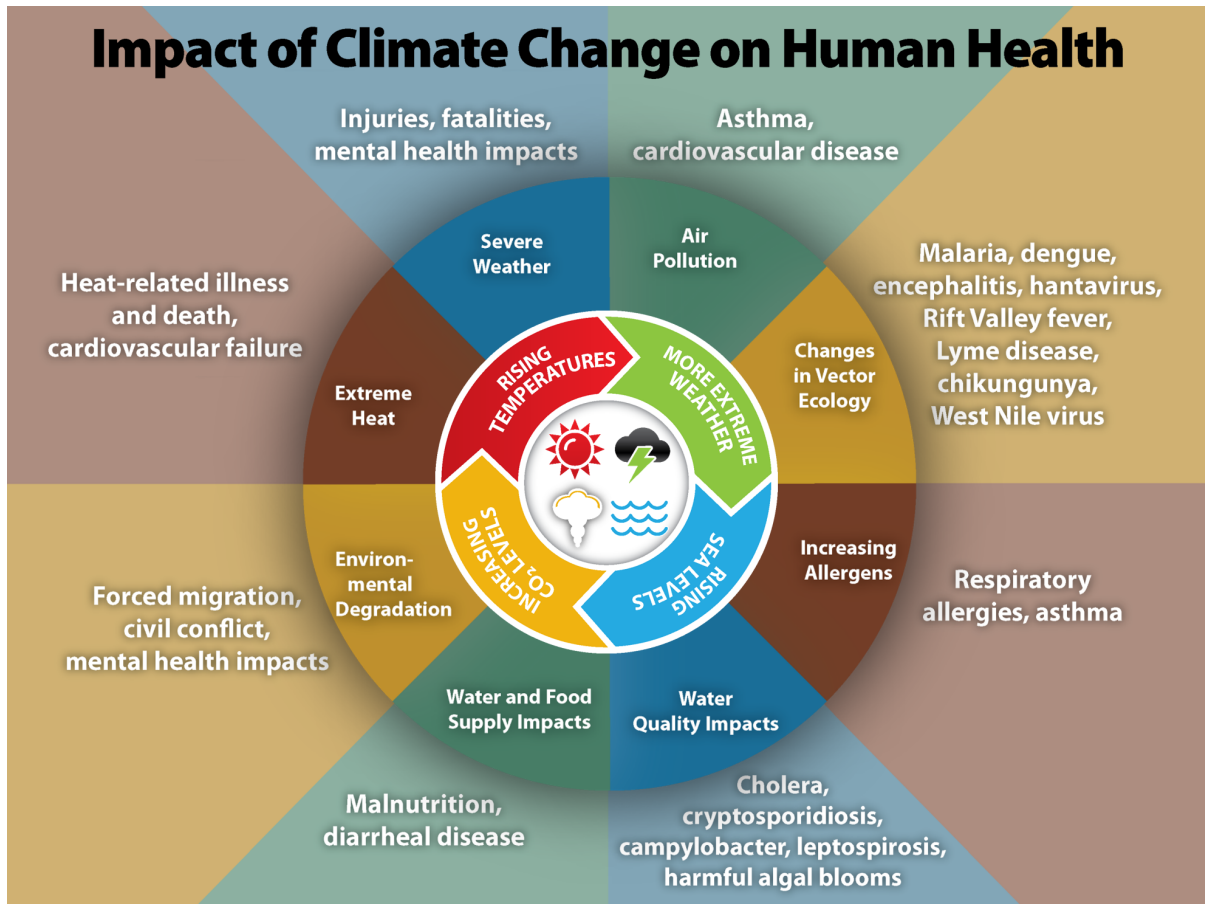
3.1 Climate change and decarbonization

Climate change is an urgent challenge that poses serious health risks to species, populations and ecosystems. With the warming of the planet, the frequency and severity of extreme weather events, such as intense storms, heat waves, droughts and floods, will continue to increase, with dramatic consequences for health (*Global Burden of Disease 2019, 2020*). The South-Eastern Asia and Oceania regions are disproportionately more vulnerable to the impacts of climate change. Recognizing the threat from climate change, AIIB has set an ambitious target of ensuring that 50% of overall approved financing by 2025 will be directed towards climate finance. The health strategy provides an opportunity to articulate the effects of climate change on health and the appropriate response from AIIB in pursuit of its climate financing target.

Figure 15 summarizes the key effects on health, including:

- Disruption of food systems resulting in food shortages and volatile prices, potentially increasing malnutrition;
- Increase in infectious diseases, such as zoonoses and food-, water- and vector-borne diseases;
- Increase in respiratory and cardiovascular diseases, heat stress, and mental health issues;
- Potential increase in conflict associated with resource scarcity, population movements, and economic factors that deepen health inequities; and
- Increased severe weather events increasing injuries, heat-related illness and death, and mental health issues.

Figure 15 Impact of climate change on human health



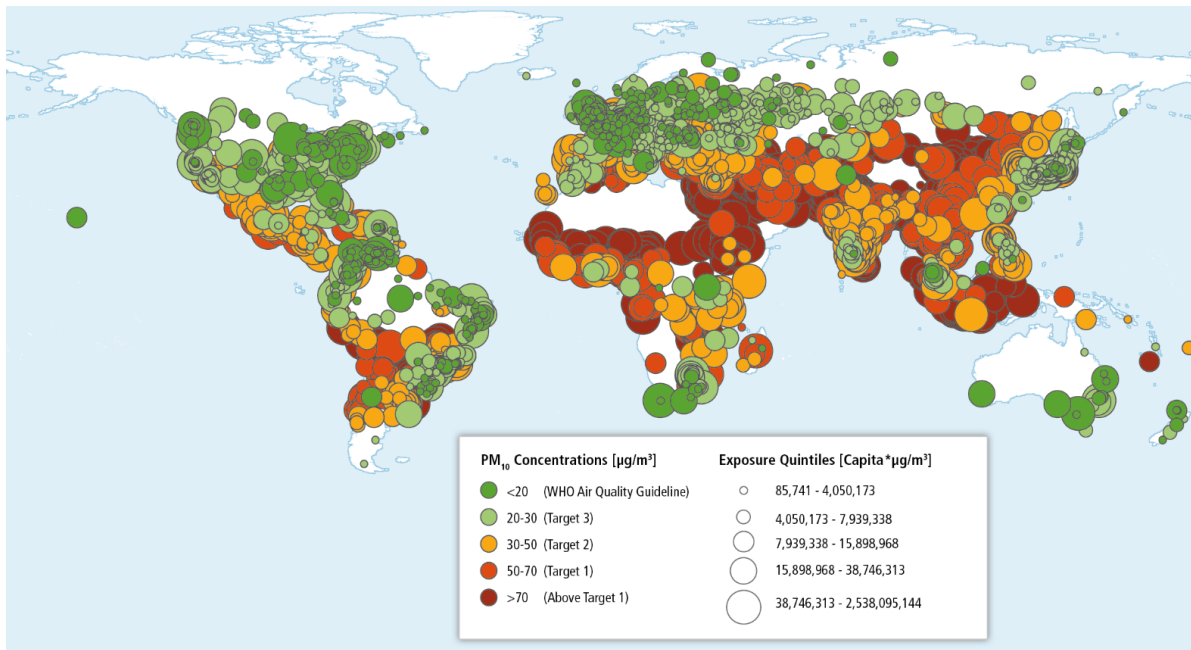
Source: Centers for Disease Control and Prevention.¹⁹

Determinant effects

The natural environment is a key determinant of health. To date, air pollution has been the greatest environmental risk to public health. Throughout life, 99% of the world's population breathes polluted air (Roser, 2023) and the issue disproportionately affects the poorest and most vulnerable populations. The World Bank has estimated that air pollution led to productivity and healthcare costs of USD8.1 trillion in 2019 (World Health Organization, 2023d). There are many sources of air pollution. These include, among others, use of fossil fuels for energy generation and transportation, burning of waste, forest fires and industrial activities. Prolonged heat waves and higher temperatures will increase forest fires and ground-level ozone, worsening air pollution.

¹⁹ <https://www.cdc.gov/climateandhealth/effects/default.htm>

Figure 16 Air pollution levels



Source: Intergovernmental Panel on Climate Change (IPCC).²⁰

Climate change also has a wide range of impacts on other determinants of health (World Health Organization, 2017), including:

- Environmental:
 - Temperature extremes and changing patterns of temperature;
 - Increased frequency and intensity of extreme weather events, including drought and storms;
- Social:
 - Displacement and migration, leading to challenges in accessing housing, support, healthcare;
 - Climate changes that have an impact on economies, affecting employment and income levels;
- Biological:
 - Food security, supply chains and availability and quality of food that can be affected by climate, contributing to food-related health issues;
 - Food-, water-, and vector-borne disease distribution and prevalence changed or worsened by changes in climate;
- Behavioral:
 - Mental health and well-being;
 - Disruptions in lifestyle factors important to overall health and well-being;
- Healthcare:

²⁰ <https://www.ipcc.ch/report/ar5/wg3/human-settlements-infrastructure-and-spatial-planning/>

- Damage to health and non-health infrastructure from extreme weather events and environmental changes; and
- Increased demand for emergency response and pandemic prevention, preparedness and response (PPR) to address the health impacts of natural disasters and disease outbreaks.

Health risks from climate change are disproportionately higher among the most vulnerable and disadvantaged groups, including poor communities, infants and children, women, ethnic minorities, migrants or displaced persons, older populations, indigenous peoples, and persons with pre-existing health conditions (see for example, World Health Organization, 2014 and 2023e).

Lower middle-income countries and areas where malnutrition is widespread, education is poor, and infrastructure is limited will have the most difficulty adapting to climate change and related health hazards, due to limited health budgets, infrastructure, and workforce capability.

Vulnerability is also determined by geography and is higher in areas where climate-sensitive diseases are already endemic (such as Cambodia, India, and Viet Nam), and where there are situations of water stress, low food production and isolated populations.

Mitigating the impacts of climate change can have direct and immediate health benefits. Policies to reduce greenhouse gas emissions, if implemented, would likely also bring about substantial reductions in heart disease, cancer, obesity, diabetes, asthma and other respiratory diseases, road deaths and injuries, and air pollution. This is so because policies to reduce emissions necessarily have an effect on two of the most important determinants of health: human nutrition and human movement (Roberts, 2009).

In terms of nutrition, reducing consumption of animal products would help to stabilize the climate while also reducing the amount of saturated fat and meat that people eat, which in turn would lead to reductions in cardiovascular disease and bowel cancer.

In terms of human movement, changes to the built environment and urban planning can lead to reduced urban car use and an increase in walking, cycling and public transport, all of which are beneficial for physical and mental health. This would also reduce emissions as well as road traffic injuries and air pollution.

Extreme climate events can also lead to disruptions in health systems. Hospitals may need to be evacuated, facilities may be damaged or closed, power outages may disrupt care, and damaged roads or transit systems may prevent people – both patients and healthcare workers – from getting to health facilities (The Commonwealth Fund, 2022).

The WHO has recently released a framework for climate-resilient and low-carbon health systems (World Health Organization, 2023h). It stated, “Around the world, health systems are vulnerable to the impacts of climate change, but they also contribute to it... therefore, we have a dual responsibility to build health systems that can withstand climate-related shocks, while at the same time reducing their carbon footprint.”

Healthcare systems account for 4% of global CO₂ emission, and around 10% in many developed economies (World Economic Forum, 2022). If the systems were a single country, it would be the fifth-largest emitter globally. Healthcare systems also account for more emissions than either the aviation or shipping sectors.

The United States is the world's number one emitter in the health sector in both absolute and per capita terms, producing 57 times more emissions per person than does India (Health Care Without Harm, 2019). While India has the seventh-largest absolute climate footprint in the health sector, its per capita health-related emissions were the lowest of all 43 nations considered in a study by the World Economic Forum. Hospitals have the highest energy intensity of all publicly funded buildings and emit 2.5 times more greenhouse gases than commercial buildings (World Economic Forum, 2022). Governments are moving to reduce the carbon footprint of the health sector. However, this must be balanced against the growing demand for services. This balance hinges in part on health sector efficiency.

Addressing the health impacts of climate change requires a comprehensive and multisectoral approach that includes mitigating efforts to reduce greenhouse gas emissions, adaptation strategies and public health interventions. The WHO has set out a framework for climate-resilient and low-carbon health systems, which provides guidance on how the health sector can systematically and effectively address the dual challenge of addressing the issues presented by climate change while also reducing its own contribution to climate change.

Figure 17 Operational framework for climate-resilient and low-carbon health systems



Source: World Health Organization.²¹

²¹ WHO (2023) *Operational Framework for building climate resilient and low carbon health systems*. <https://www.who.int/publications/i/item/9789240081888>

3.2 Pandemics – emerging infectious disease and anti-microbial resistance

The COVID-19 pandemic showed the entire world the massive economic, social and health costs of a global public health emergency. The risk of pandemics is growing and significant. While intervals between pandemics have been shortening, the timing and scale of the next pandemic is unknown. This can be attributed to several reasons. The loss of natural habitat for animals and humans' continuous encroachment on wildlife habitat increase the risk of zoonotic diseases, which are infections that can be transmitted from animals to humans. A connected world brought about by increasing travel and trade means infections can spread easily and quickly across borders. Increased population density due to urbanization also facilitates the spread of disease.

The development of anti-microbial resistance is another example. As a result of over and inappropriate use of antibiotics, antibiotics and other anti-microbial medicines become less effective and infections become difficult or impossible to treat, increasing the risk of disease spread, severe illness, disability and death.

These have given rise to the “One Health” agenda, an integrated, unifying approach to balance and optimize the health of people, animals and the environment.²² The One Health approach is particularly important to prevent, predict, detect, and respond to global health threats such as the COVID-19 pandemic.

Better preparation for future pandemics includes several key areas of focus (UNICEF, 2023):

- Recruiting, training and – more than ever – prioritizing healthcare workers. This can be achieved by ensuring adequate financial and emotional support and addressing key issues that hinder them from effectively carrying out their duties;
- Effective surveillance and response systems – because viruses constantly move and change, effective testing and reporting mechanisms are needed. That means that if an outbreak occurs or a new variant emerges, it can be flagged quickly to a health authority. Larger investments in testing and laboratories are required, particularly at the community level (since many lower middle-income countries have limited access to and capacity for testing); and
- Building community health services and primary healthcare – including communicating effectively with the public about the healthcare services that are available to them – particularly in rural and remote communities.

In April 2023, the WHO launched a new initiative to improve pandemic preparedness, providing guidance on integrated planning for responding to any respiratory pathogen such as influenza or coronaviruses (World Health Organization, 2023g). The Preparedness and Resilience for Emerging Threats Initiative incorporates the latest tools and approaches for

²² For example, see <https://www.who.int/news-room/questions-and-answers/item/one-health>

shared learning and collective action established during the COVID-19 pandemic and other recent public health emergencies.

Improving pandemic PPR requires investments in health infrastructure. Examples include:

- Infrastructure for disease surveillance, such as those needed in laboratories and digital infrastructure for outbreak early warning and response;
- Manufacturing infrastructure to produce medical devices (including consumables) and pharmaceuticals;
- Emergency health response infrastructure such as operation centers and treatment or isolation facilities which can respond to a potential surge in demand;
- Livestock management infrastructure to improve sanitation and monitoring of animal health.

3.3 Aging populations and NCDs

Population ageing signals the extraordinary collective success in improving living conditions for billions of people around the world. Better sanitation and medical therapies, greater access to education and family planning, and strides towards gender equality and women's empowerment have all contributed to, and in some cases benefitted from, the steady move from high to low levels of fertility and mortality (United Nations, 2023).

All regions of the world are experiencing aging populations, but each is at different stages of the transition. Population aging is furthest along in advanced economies, and most of Eastern and South-Eastern Asia is experiencing aging at an accelerated pace, or will do so soon. In these places the proportion of older persons – by convention, those aged 65 years or older – exceeds 10% and in some cases 20% of the total population. Most parts of sub-Saharan Africa and Oceania (excluding Australia and New Zealand) are still in an early stage of the transition, while most countries in Central and Southern Asia, Western Asia and Northern Africa, and Latin America and the Caribbean are at an intermediate stage. The share of the population aged 65 years and over is expected to double in lower middle-income and lower-income Asia-Pacific economies in the next decades, reaching 13.4% in 2050 (OECD, 2022). In some other economies, populations may start to decline after 2050.

Over several decades, both the number and population share of older persons have risen globally, while the number and share of children and youth have begun to shrink (UN, 2023). Declining mortality at all stages of life has driven the increase in life expectancy at birth. Greater global life expectancy reflects underlying improvements in health. In economies with available data, the number of years lived in good health also has climbed, accounting for most of the increase in years lived overall.

Over the next few decades, across Asia, the increase in the population aged 65 years or more will outpace the increase in the economically active population aged 15–64 (*GBD2019*, 2020). In effect, this means there will be greater demand for services for the elderly and fewer people to deliver those services.

A greater number of older people also means higher rates of chronic disease, increasing demand and need for health and services, and long-term healthcare. Aging population also

means higher levels of disability, a shift to a much greater number of DALYs occurring at older ages, and a greater burden of disease from morbidity rather than premature loss of life. Analysis of the top 10 contributors to health loss in 2019 shows the growing burden of NCDs:²³

- Ischemic heart disease (up 50% between 1990 and 2019);
- Diabetes (up 148%);
- Stroke (up 32%);
- Chronic kidney disease (up 93%);
- Lung cancer (up 69%);
- Age-related hearing loss (up 83%);
- HIV/AIDS (up 128%);
- Musculoskeletal disorders (up 129%);
- Low back pain (up 47%); and
- Depressive disorders (up 61%).

Cognitive function plays a central role in determining the well-being and quality of life of adults as they pass from midlife to older ages. This includes people's decisions to work, retire, and spend or save their money. As people age, functional capacity declines, which results in declining labor productivity and a loss of independence in daily life. For many, life expectancy increases are not matched by rises in *healthy* life expectancy due to the effects of NCDs. Costs of care therefore last longer.

Conditions such as dementia and the need for psychogeriatric care are on the rise. Dementia has wide-ranging, direct and indirect effects on the well-being of older adults, their families, and the costs imposed on health systems. Because the incidence of dementia rises sharply after age 75, the expected growth in the worldwide elderly population in the decades ahead has been projected to lead to a tripling of dementia cases by 2050, absent new interventions to prevent or slow the trajectory of cognitive decline (Langa, 2018).

Social determinants of health significantly affect people's chances of staying healthy as they age. Older adults on lower incomes are more likely to have disabilities and die younger. Social isolation and loneliness are associated with a higher risk of dementia and other health problems, while positive social relationships can help people live longer, healthier lives. Many older adults have at least one chronic health condition, making access to affordable, high-quality care important. As mobility decreases with age, the accessibility and safety of the built environment become increasingly important. Oral frailty is one of the most significant risk factors, as poor oral health and difficulty in eating lead to poor nutrition, poor social connections, and poor mental and physical health.

²³ (*Global Burden of Disease 2019, 2020*). The final four causes are common from teenage years into old age.

Implications for infrastructure. The implications of aging populations with regard to infrastructure include the following:

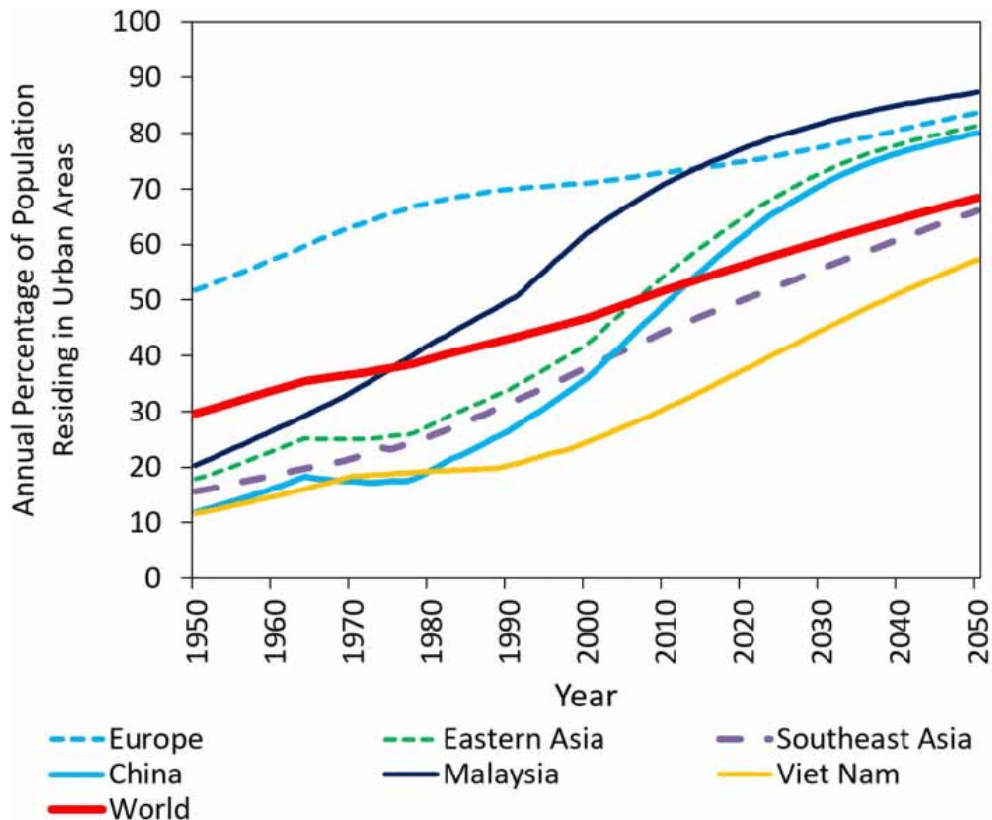
- Higher use of healthcare services and a greater need for primary healthcare and long term care;
- Increased likelihood of multiple health conditions, posing challenges for traditional specialty-based health services, and requiring more integrated and multi-disciplinary care;
- An increased need for social and mental health support; and
- Better access to and safety of the built environment.

As populations age, Members will need further support on how to best respond to rising numbers of older people in the face of escalating pension, healthcare, and long-term care costs, particularly if equitable and sustainable systems are not sufficiently in place to distribute resources among age groups.

3.4 Urbanization and population movements

Today, more than half of the global population lives in urban areas, up from around one-third in 1950 and projected to increase to around two-thirds in 2050 (UN, 2018). Also by 2050, the urban population in Asia is expected to grow by 50% – an additional 1.2 billion people (UN-Habitat). Figure 18 shows the increases in urbanization by region expected by 2050, especially dramatic in Asia and Africa.

Figure 18 Levels and trends of urbanization in selected regions by 2050



Source: Lechner et al. (2020), accessed November 8, 2023.²⁴

In some areas, urbanization creates greater population density, crowding people into smaller geographic areas, and in others, it leads to urban sprawl. Both types of urban development place pressure on existing infrastructure. Providing more infrastructure and municipal services to meet the growing population and, in some cases, expanding urban space are needed to manage growing demand. Peri-urban areas may call for particular attention.

Increased population density, pollution (air, soil, and water), and biodiversity losses due to human settlement and industrial activities in cities all contribute to climate change, increase the risk for new pathogens to emerge, and raise the rate of transmission of communicable diseases as well as heat-related deaths.

Pollution is most acute in urban areas and is the world's largest environmental cause of disease and premature death – nearly 92% of pollution-related deaths occur in lower middle-income countries. Most of the 4.2 billion people living in cities suffer from inadequate housing and transport, poor sanitation and waste management, and air quality that fails WHO guidelines. Other forms of pollution, such as noise, water and soil contamination, heat stress,

²⁴ https://www.researchgate.net/figure/percentage-of-population-residing-in-urban-areas-in-Asia-historical-and-projected_fig1_347604435

and a lack of space for walking, cycling and active living, further combine to make cities epicenters of NCDs and drivers of climate change.

Another key population shift at present is the growth in migrants and refugees. Both tend to settle in urban areas, especially in informal settlements, which places pressure on health systems and other urban services. There are an estimated 89.3 million forcibly displaced persons worldwide, the highest level documented (Sherif et al., 2022). The difficulty in forecasting future migration and refugee flows makes planning harder. The displacement of refugees and asylum seekers has public health implications apart from contingency planning for health systems, including exposure to hazards, communicable and NCDs; re-emergence of neglected diseases; limited access to health services; and intrinsic health-system barriers (cultural, social and linguistic) (Sherif et al., 2022).

If climate change is not arrested, it is likely that the number of displaced people and crises will increase in the coming decades. While the world has seen large displacements of refugees at times, climate change could increase these displacements dramatically – to include even entire segments of a population – which, among other serious impacts, would place significant pressure on health systems.

In such a setting, integrated primary care, including mental health, is of great importance. Yet in many developing economies, primary healthcare infrastructure is weak in urban areas, often as a result of government focus on addressing primary healthcare in poorer rural settings. As governments seek to expand urban primary healthcare to address the demands of urbanization, a partnership with existing public and private providers to provide a system that is digitally enabled and agile can lead to more efficient and effective outcomes.

Implications for infrastructure

- Need for better urban planning and management of existing and new urban infrastructure that takes account of migrant and refugee displacement;
- Potential need for more infrastructure in urban areas, particularly water and sanitation, green space, clean energy, clean transportation, energy-efficient housing, schools and community facilities;
- Increased availability of primary healthcare; and
- More efficient, and disaster- and climate-resilient infrastructure in urban areas.

3.5 Scientific and technological advances

Increases in scientific knowledge have transformed people's health over the last two centuries. Scientific and technological advances will continue to transform the health sector, which is a sector receptive to such advances. Accordingly, consumer expectations are high. New technologies in health are particularly relevant to AIIB's thematic priority of technology-enabled infrastructure.

Increasing understanding of human biology (e.g., the mapping of the human genome completed in 2022), animal biology, the environment, immunology, and other areas has deepened understanding of health and opened up new forms of healthcare and its delivery. Disease pattern analysis, novel methods for drug discovery and delivery of therapeutic agents

are examples of this. Digital technologies are improving the ability to provide health services in different settings, e.g., mobile diagnostic services and telemedicine. While COVID-19 sped up some of these changes, the potential for new technology to propel changes in healthcare delivery remains vast.

New technologies are a major source of health and welfare improvements but are also major drivers of increased healthcare costs (Sampat, 2011). While some new technologies may improve outcomes for both patients and healthcare workers, it is not always a foregone conclusion. Investment decisions must therefore be based on robust assessment of potential health impacts for each technology. The introduction of new technologies into the health system also needs to be well planned so as not to exacerbate healthcare inequities.

McKinsey predicted in 2019 that technology-driven innovation in healthcare held the potential to improve our understanding of patients, enable the delivery of more convenient, individualized care, and create USD350-410 billion in annual value by 2025 (McKinsey & Company, 2019). From 2010 to 2019, worldwide investment in health technology and digital health grew 186% (McKinsey & Company, 2019). New medical technologies are being developed that have the potential to increase productivity and accessibility of the health system as well as prolong life. Yet attention must also be paid to the quality of life, and not just its length.

Through a gender lens, technology has the opportunity to deliver equitable health outcomes for women. For example, various digital health tools have been used in Rwanda, including drones, to transport blood and medicines to isolated areas. The digitization of paperwork has also meant that medical record-keeping is more robust, particularly for maternal health (World Health Organization, 2023j). However, where little or no digital infrastructure is in place (such as rural areas), technological advancement may do little to reduce, or could potentially exacerbate, gender health inequalities, by hindering affordability and accessibility of healthcare, timely diagnoses, awareness and education and quality of treatment (World Health Organization, 2023j and Ellingrud et al., 2024). Digital infrastructure and connectivity for rural and isolated areas should be developed before health technology is implemented.

Technologies with transformative potential for human health and redesign of healthcare include:

- The “**Internet of Things**” applied to health, or the “**Internet of Medical Things**” (**IoMT**), which comprises health trackers, wearables, portable diagnostic devices, and sensors. With the ability to monitor one’s health at home and share results remotely with healthcare professionals, these devices empower people to take control of their health and make more informed decisions. Brain-Computer Interfaces are a relatively new technology that can be used by people with neuromuscular disabilities or people undergoing physical rehabilitation after, for example, a stroke. These interfaces take brain signals and translate them into commands that are carried out by output devices like robotics (e.g., Shih et al., 2012);
- **Digital technologies** in health – data-driven risk-stratification models, clinical decision aids, telemonitoring and remote consultation systems, technology-assisted provider networks, communications infrastructure and electronic data;

- **Artificial intelligence (AI):** AI algorithms are able to mine medical records, design treatment plans or create drugs much faster than any current actor in healthcare. More broadly, AI has the potential to reduce human error, assist medical professionals and staff, support better diagnosis and provide patient services 24/7. This requires that consideration be given to health workforce implications as well as ethical and governance dimensions;
- **Genomics:** The cost of genome sequencing has declined dramatically, accuracy has improved significantly, and speed has increased such that results can be returned within a hospital shift (Beachy, S., Hackmann, M., Asalone, K., et al., 2023). As genetic diagnosis and treatment translate from cell to bedside, the information and armamentarium available to the clinician will increase significantly over the next ten years. As with AI, this topic also has health workforce implications as well as ethical and governance dimensions. DNA chip technology or genetic fingerprinting will vastly improve risk assessment;
- **3D printing** is being explored for rapid “bioprinting” of human organs such as ears, corneas, bones and skin; and
- **Robotics:** Robots have been in use in healthcare for 30 years. They range from simple laboratory robots to highly complex surgical ones that can either aid a human surgeon or execute operations by themselves. In addition to surgery, they’re used in hospitals and labs for repetitive tasks, in rehabilitation, physical therapy and in support of those with long-term conditions. AI combined with the advancements in humanoid design are enabling robots to interact with people to keep aging minds sharp (PricewaterhouseCoopers, n.d.).

Implications for infrastructure

- Potential for new technologies to be adopted in infrastructure for health with transformative potential;
- Growing demand for more technology-based medical services;
- More digital infrastructure such as connectivity infrastructure and data centers;
- Opportunities for health workforce education, R&D and manufacturing of diagnostics and therapeutics; and
- Opportunities for development of new specialist, high-value industries in Members.

3.6 Changing consumer demands and expectations

As economies develop, consumers are spending more on health and wellness and increasingly demanding access to convenient, quality and personalized care. Research has indicated that consumers are trading up on health and safety. For example, consumers in China were willing to spend more on health-branded products during the pandemic (McKinsey & Company, 2021). According to McKinsey, a new type of global “21st-century” patient is emerging, one who is actively engaged in health maintenance, treatment options, and preventive care.

About 80% of consumers say they are interested in health maintenance and lifestyle changes, and almost half are willing to spend more OOP to receive better health outcomes and experiences (Bain & Company, 2022).²⁵

Related to this is the growing importance of trust in the health consumer-provider relationship. Adequate participation, funding, recruitment and retention of talent, and adherence to best practices in public health all depend on trust in health institutions. Trust proves to be critical for optimal health, as this influences willingness to get preventive screenings, and crucial medical and mental healthcare. Trust between a patient and a healthcare provider is also linked to improved patient experience, health outcomes, and the patient's perception of the care they receive (Deloitte, 2021). Conversely, rising misinformation across the world has been identified as a major threat to global health by the WHO, affecting vaccination rates and health behaviors.

Implications for infrastructure

- Building additional or upgrading of health facilities to meet the level of comfort and convenience expected by patients, including infrastructure for telemedicine;
- Infrastructure that promotes health maintenance and lifestyle, such as green spaces for physical activities;
- A greater desire for transparency and accountability of public services whereby digital systems could support improvements; and
- A need for more training of fit-for-purpose workforces (enhancement of training infrastructure).

²⁵ Note that for this study, consumers were polled in Australia, China, India, Indonesia, Malaysia, the Philippines, and Singapore.

4 Health sector opportunities and challenges

The preceding section discussed the long-term drivers of health, such as climate change, aging populations, gender, and scientific advances, and their effects on the determinants of health. Because they have effects on health, all infrastructure sectors are determinants of health, along with the healthcare sector itself. This section focuses on the challenges and opportunities for investors in the health sector.

Healthcare in the 21st century is characterized by “more to know, more to manage, more to watch, more to do, and more people involved in doing it”, colloquially referred to as the “21st-century health system.” A key feature is the explosion in health data being generated and provided by consumers.

Today, no single clinician can retain all the information necessary for sound, evidence-based practice. No unaided human being can read, recall, and act effectively on the volume of clinically relevant scientific literature. Multidisciplinary teams are becoming the norm and integrated care has become the direction for health service development. This presents an opportunity to develop a more efficient model of care that uses technology and medical developments to its advantage.

The growing complexity of healthcare necessitates more sophisticated and carefully designed care processes. Most health systems are highly decentralized, contributing further to complexity problems. There is a need for well-integrated, efficient and productive health systems that meet the needs of the 21st-century consumer.

Along with these challenges come many opportunities for the greening of the health system, digitization and developments in medical technology, addressing health workforce shortages and focusing on integrated, people-centered care.

4.1 Equitable, integrated people-centered care

Integrated, people-centered health services constitute a paradigm shift in healthcare that prioritizes the holistic needs of individuals and communities over the narrow focus on diseases and interventions.

For healthcare to be truly universal, it requires a shift from health systems designed around diseases and health institutions towards health systems designed for people (World Health Organization, 2016). The Sixty-Ninth World Health Assembly in May 2016 formally adopted a framework for integrated, people-centered health services at regional and country levels, in accordance with national contexts and priorities (World Health Organization, 2016).

This approach encourages active participation and empowerment of individuals in managing their own health and emphasizes a comprehensive view of health, and the importance of a continuum of care throughout one’s life. The term “continuum of care” refers to the practice of providing consistent and coordinated healthcare for a patient over a period of time and across the spectrum of care (Regis College, 2023).

The strategy involves delivering health services at the right time, in the right place, and in the right manner, ensuring accessibility for communities. It makes the patient a partner with the

clinician, and moves away from a paternalistic approach. It also fosters enduring relationships among individuals, healthcare providers, and health systems, promoting shared information, decision-making, and service delivery.

This model aims for respectful and responsive care that not only addresses current health issues but also aims to prevent illness, and empower individuals to understand how and where to seek care. Importantly, the implementation of integrated people-centered health services necessitates a commitment from the entire government and collaboration among all stakeholders, forming an integral part of a comprehensive development agenda. This approach is applicable globally, transcending economic classifications, as each economy's unique context and health system present challenges related to fragmentation and poor-quality care that require a unified and inclusive strategy.

There is a need to increase the sharing of health records across clinical teams, strengthening linkages between hospitals and primary healthcare, and between public health, primary healthcare in the community, and mobile health.

There is also a need to focus on addressing inequities and poor quality of care in certain regions. This could be managed, for example, by providing networking services and care closer to home, making more choices about access to healthcare available, and using modalities such as AI, mobile health/telehealth, and surveillance and information systems.

Healthcare priorities are also changing over time. The combination of an aging population and the increase in a variety of chronic diseases is driving changes in the way consumers think about healthcare. A report from Sandpiper Communications in 2021 (Sandpiper Health, 2022) found that healthcare was a top priority in almost all economies,²⁶ representing a seismic shift from 2019 when healthcare was only a top-three priority in half of the those polled. This change can be attributed almost completely to the COVID-19 pandemic.

In the 20th century, healthcare providers maintained a care delivery structure that encouraged patients to conform to existing provider-driven care delivery methods. All of this is now changing. Going forward, healthcare systems are trending towards a predict-and-prevent model. Policymakers are focusing on how to improve the health stock of communities overall, so governments are better placed to withstand any future health shocks.

Healthcare systems must now focus on creating engaging, integrated, and transaction-ready experiences. Their task is to develop means that allow patients to engage in a way that suits them. On the whole, healthcare has been slower as an industry to catch up to what consumer brands have been doing for years. Technology companies like Tencent, Apple and Samsung are well integrated into the wearables market, for example, with watches and products that gather personal health information.

There is longstanding evidence that health systems with a strong primary care orientation are the most effective and efficient in addressing the health of populations. Scaling up primary healthcare interventions across lower middle-income countries could save 60 million lives and increase average life expectancy by 3.7 years by 2030 (WHO, 2023). Starfield's seminal work

²⁶ Sandpiper's study included Australia; China; India; Indonesia; Japan; Malaysia; Philippines; Singapore; Thailand; and Hong Kong, China.

in the 1990s demonstrated the power of primary healthcare to address health needs efficiently, and this work has repeatedly been confirmed since that time (National Library of Medicine, 1992). Health systems with a strong community-oriented primary care component were identified as key to the attainment of Health For All in the Alma-Ata Declaration of the WHO in 1978 and reaffirmed with the Astana Declaration in 2018. In addition, health systems with sex- and gender-appropriate care delivery could reduce women’s health burden by 25 million DALYs per year globally, corresponding to 2.5 days per woman per year (Ellingrud et al., 2024).

4.2 Greening of the health system

There is a growing trend toward “greening” of health systems and healthcare. Healthcare providers are not only working to reduce their carbon footprint but also bringing attention to the environmental impacts of medical interventions and diagnostics. The incorporation of environmentally friendly practices into healthcare delivery is increasing.

Green healthcare involves integrated, networked care based on primary healthcare and strong logistics that create efficiencies. Green healthcare allows healthcare institutions to demonstrate leadership in their communities. It can be a platform for educating students and members of the public. Importantly, it can save money (e.g., through greater energy efficiency) (Institute of Medicine (US), 2007).

Green or sustainable building is the practice of designing, constructing, operating, maintaining, and removing buildings in ways that conserve natural resources and reduce pollution. This definition is applicable to healthcare facilities at all stages of design, construction and operation. There are opportunities to enhance environmental performance in the following domains: site selection, water conservation, energy efficiency, recycled and renewable materials, low-emitting materials, low-carbon transportation, daylighting (the use of natural light in a space to reduce electric lighting and energy costs), reduced waste generation/new waste management systems, local and organic food use, and green cleaning materials (Institute of Medicine (US), 2007).

There is evidence that a greener healthcare enterprise is not only affordable but that, in most cases, it results in reduced cost. In 2014, it was estimated that if the United States healthcare industry conserved energy, reduced waste, and more efficiently purchased operating supplies, it could save more than USD15 billion over 10 years (a small percentage of the US health budget, estimated at USD4.2 trillion in 2021, but still, a material saving) (Kathy Gerwig, 2014).

Examples of green health include (Globe Locums, 2023; Kathy Gerwig, 2014):

- Touchscreen technology (new touchscreen technology in exam rooms is less energy intensive than older electronic devices);
- Low-flow plumbing (and automatic light sensors in restrooms);
- Switching to organic food for patients and staff;
- Building sustainability into the training curriculum for the health workforce;
- Remote and telemedicine technology to give greater access to remote patients; and

- Removing mercury thermometers and shifting to digital thermometers.

There is also a need for the development of more green pharmaceutical markets and supply chains. Companies in the pharmaceutical and biotechnology industries are significant contributors to climate change. Of the estimated two gigatons of carbon dioxide equivalent emitted by the healthcare industry (4.4% of total global emissions), 71% comes from the supply chain, which includes the pharmaceutical and biotechnology industries. Further, the pharmaceutical and biotechnology industry is projected to keep growing, from an estimated USD1 trillion in 2021 to USD3.9 trillion by 2030. The need for greening the sector is recognized by industry leaders. 35 companies (representing 53% of the sector by revenue) have committed to the UN's Race to Zero initiative (My Green Lab, 2023).

4.3 Revolutionizing care through digitalization and technologies

Like so many industries, digital technologies and tools are completely transforming both what is possible in healthcare and how healthcare is delivered.

Over the last couple of decades, many major transitions have occurred within health systems: more intelligent electronic health records; dramatic declines in length of hospital stays; flexible workforces with more diverse skill mixes (e.g., physician assistants and specialized nursing cadres); increased focus on the high quality of work performance; and a gradual shift away from paternalistic medical culture.

COVID-19 accelerated the changes, sparking wholesale moves toward digitally delivered care, more community-driven support for the sick, new population health surveillance techniques and mass public participation in clinical trials. Remote medicine usage nearly doubled for both consumers and physicians. Now also, consumers in China and Indonesia, for example, are more trusting of healthcare technology companies today than they were before the pandemic (Bain & Company, 2022).²⁷

Smarter use of digital technologies and data, through appropriate governance and financing arrangements, can contribute to improved efficiency and effectiveness of health systems and help to make them more people-centered. Digital technologies enable better targeting of services and coordination of care and communication (OECD, 2019). They also enable people to engage in the management of their own health and care. The proportion of adults going online to search for health information in OECD economies has doubled over the last decade. However, they are often the healthiest people; vulnerable groups, older people and those with complex conditions all need assistance to make better use of digital information.

Intelligent digital platforms are likely to be part of the foundational infrastructure of tomorrow's health ecosystem. They can generate insights for decision-making, supporting a connected system that allows for seamless monitoring and analysis of health data that underpins consumer-driven health (Deloitte, 2023).

²⁷ This study only looked at China and Indonesia.

Three key trends – largely driven by new players and business models that are emerging to build the data and platforms – have been identified in this area:

- Data-gathering organizations will have an economic model built around aggregating and storing individual, population, institutional, and environmental data. They will also promote interoperability and help ensure privacy/security. Much greater and richer data will be used to drive the future of healthcare decision-making;
- Some other organizations will likely have an economic model driven by their ability to derive insights and define the algorithms that power the future of health. These organizations will conduct research, develop analytical tools, and generate data insights that go far beyond human capabilities in care delivery; and
- As Deloitte has noted, “Someone will need to lay the pipes” (Deloitte, 2023). Data and platform infrastructure builders will develop health infrastructure. The onus of managing the infrastructure to link consumers and health stakeholders and set standards for platform components, on the other hand, will fall on health providers, data-gathering organizations, and/or policymakers.
- The trend to commoditize health data has been receiving pushbacks. Concerns are mainly around data privacy and security risks. The growing use of AI in the health sector compounds these concerns. The capacity of regulators to set safeguards is limited, especially in low-resource settings. In 2023, WHO, the International Telecommunication Union and the World Intellectual Property Organization seek to address this with the formation of the *Global Initiative for AI in Health*. It seeks to establish governance structures, normative technical guidance, policies and standards that can help governments navigate the space and protect their citizens while maximizing the benefits of data analytics and AI in health (World Health Organization, n.d.-e).

These trends indicate opportunities to invest in digital platforms that meet data security standards (be they the foundational infrastructure such as broadband networks, or software-based data platforms or IT systems). The near future will see a significant increase in health data, collected from existing and new platforms/systems, data from IoMT devices (virtually all digital devices will be connected to networks) and other personal devices. In addition, communications infrastructure will need to be in place to provide the basis for these digital applications. Governments that can harness the insights from this data without compromising on data privacy and security will achieve much better overall health outcomes.

The growth in telemedicine and remote patient monitoring since the COVID-19 pandemic is another aspect of the digitization trend. Current projections estimate the global telemedicine market to expand from USD60.8 billion in 2022 to USD225 billion by 2030, marking a significant transformation in healthcare delivery (Andrew Burak, 2023). The online model has been overwhelmingly adopted in China, with a proliferation of so-called “internet hospitals” emerging.

Asia is primed for rapid healthcare change, driven by all of the factors discussed above. Together with the environment and context, these factors suggest a need and opportunity for health system transformation, given the gaps and lagging indicators, post-pandemic in UHC.

Collectively, these factors could enable governments, financiers, providers, and consumers to reimagine healthcare delivery and management. In response to these trends, consumer-centered digital health ecosystems are forming across Asia at unprecedented speed and scale. Today, digital health impacts more than a billion lives, and estimates show that digital health in Asia could collectively create up to USD100 billion in value by 2025, up from USD37 billion in 2020 (McKinsey & Company, 2021).

A move to a 21st-century health system will optimize the issues of cost, access and quality by harnessing a more integrated care model.

Section 3.5 discussed many new technologies, such as AI and the IoMT, with transformative potential in health. New technologies, such as diagnostics, therapeutics and telehealth, can improve the quality and safety of healthcare. Operational efficiency in health services management is growing as a result of new technologies and health information systems. Technologies can help with more coherent management and sharing of electronic health records, remote patient monitoring, 3D printing of body parts, personalized medicine and predictive analytics. Health insurers are also realizing the benefits of wearables, with some offering reduced insurance premiums to those who take preventive measures and provide monitoring data.

While there are clear benefits, many new medical technologies and big data in health will require policymakers, health professionals and investors to resolve a series of new ethical questions and to consider challenges such as:

- **Data interoperability:** To reap the benefits mentioned above (especially the intelligent digital platforms that form the foundation of tomorrow's health ecosystem), it is critical to overcome today's challenges of data silos. This requires setting standards, employing flexible architectural design practices, and more.
- **Data privacy and cyber security:** With increasing amounts of personal sensitive data being collected in the health space, security should be considered very carefully and as a priority.

These considerations could increase the complexity and costs of investments in areas such as health. However, if ethical issues and potential data challenges are borne in mind from the outset, and policy and governance systems are in place, this can help to minimize the costs of remedial measures.

Digital health can improve gender equity through increased access to healthcare and access to one's own health data. However, digital health technologies have not sufficiently utilized the opportunity to incorporate an equity lens in their design. Studies have shown that being excluded from development means women are disadvantaged in terms of digital health. There should be ample recognition for women and girls to be involved in the development of digital health technologies through app design and representation in leadership roles.

Finally, science and technological advances are underpinned by investments in R&D. At a global level, there is a mismatch between the R&D effort and the disease burden. Commercial research activity does not appear to be primarily driven by DALY factors. At a global level, medical and pharmaceutical innovation activities are not directly associated with global DALYs. However, when analyzed by income level, innovation activities were associated with

DALYs in high-income and upper middle-income countries but not with those in lower middle-income and low-income countries (Farlow et al., 2023). This means that there are potential opportunities for AIIB to mobilize capital to improve medicines for diseases in lower middle-income countries, targeting opportunities based on the disease burden (among other factors) as a high-level proxy for demand for health services.

4.4 Health workforce shortages

WHO estimates a projected shortfall of 10 million health workers by 2030, mostly in lower middle-income countries (World Health Organization, 2020).

It has been estimated that, in 2019, the world had 104 million health workers, including 12.8 million physicians, 29.8 million nurses and midwives, 4.6 million dentistry personnel, and 5.2 million pharmaceutical personnel (GBD 2019 Human Resources for Health Collaborators, 2022).

The greatest costs in healthcare are human capital and pharmaceuticals/medicines. Human capital management within the healthcare sector is an important factor in helping attract, engage, and retain a highly skilled workforce. Considering the challenges facing healthcare – discussed herein – health systems can support organizational success through the development and execution of a robust human capital strategy. The roles of specialists versus generalists versus allied/community health providers are complex. Each region needs a fit-for-purpose workforce as requirements and systems differ.

The demand for the healthcare workforce in India in particular is currently on the rise, due to multiple factors such as population growth, aging, changing epidemiology, and increased prevalence of NCDs. With the rise in demand, the existing gap between the required workforce and the one available will inevitably widen. Acknowledging this challenge, the Indian government has undertaken initiatives to expand its medical education infrastructure. However, remedying the healthcare workforce shortage presents the dual challenge of not just quantity but also quality (Nilachal Mishra, 2023).

Gender equity means a fair distribution of benefits, power, resources, and responsibilities between women and men. Gender equity is of particular importance in the healthcare sector, for both workers and patients. According to a 2019 WHO report, women comprised 70% of workers in the health and social sectors in 104 economies. According to Rowley & Argaw, (2023):

“Health system resilience greatly depends on a government’s ability to support the health workforce in providing quality and accessible health care for all,” says Nanthalile Mugala, MD, PATH’s Africa Region Chief. “This means supporting women health workers, who are often the first point of care for their communities yet face disproportionate challenges.” “We must recognize women’s vital role in the global health workforce by prioritizing their safety and well-being, reducing gender-based pay gaps, and creating opportunities for women to advance.”

Furthermore, an uneven geographical distribution of health workers is a serious concern. The majority of health workers tend to be concentrated in urban areas, leaving a shortage in remote and rural areas that results in poor availability of health services particularly for vulnerable populations (OECD, 2022). There could be benefit in looking more closely at opportunities for

infrastructure investment in rural and remote areas, especially in regions with archipelagos (for example, drones for communication and delivery of medicines).

Human resources to achieve UHC fall short of minimum thresholds in large parts of South Asia, Africa, and the Middle East (GBD 2019 Human Resources for Health Collaborators, 2022). There is a need for increased financing and coordination to train, employ and retain an estimated total of 6.4 million physicians, 30.6 million nurses and midwives, 3.3 million dentistry personnel, and 2.9 million pharmaceutical personnel (GBD 2019 Human Resources for Health Collaborators, 2022).

Health workforce shortages can exacerbate existing social determinants of health and create new challenges in the following ways.

- Access to healthcare services: shortages in the healthcare workforce can limit access to essential healthcare services, particularly in underserved and remote areas. This lack of access can lead to delayed or inadequate medical care, affecting health outcomes and contributing to disparities;
- Economic impact: health workforce shortages can impact the economy, for instance, if there are not enough healthcare providers to meet the demand for services, people may face longer wait times, increased healthcare costs, and decreased productivity due to illness;
- Social cohesion: a well-functioning healthcare system contributes to social cohesion by fostering trust in institutions and promoting a sense of community. Health workforce shortages may erode this trust and contribute to dissatisfaction with the healthcare system; and
- Public health emergency response: during public health emergencies a shortage of healthcare workers can limit the ability to respond effectively and provide timely and adequate care to those affected.

Addressing health workforce shortages can have a positive impact on social determinants of health and contribute to more equitable and healthier communities. The above shows there are abundant “gaps” relating to workforces, where investment could be targeted. Importantly, each region has its own specific requirements, which means a fit-for-purpose approach is required.

5 Infrastructure for health

Infrastructure for health includes both infrastructure in the health sector, such as medical facilities, and infrastructure in other sectors that contributes to health.

5.1 Infrastructure outside the health sector that improves health

Many health improvements come from advances outside of the health sector itself. Infrastructure from many sectors can be designed and built to improve health. This includes:

- Clean energy and transportation, to support lower emissions and reduce air pollution;
- Age-related care housing, recreational spaces and healthy food systems for aging people;
- Housing, schools and community facilities to support refugees and migrant populations;
- Water and sanitation, green space, energy-efficient housing and schools, and community facilities to manage the effects of urbanization;
- Broadband and internet access, especially for remote and rural areas, to support telemedicine and remote health/mobile health;
- Training facilities for medical and regulatory workforce development to meet growing demands; and
- Emergency health services infrastructure such as coordination centers and digital tools to manage.

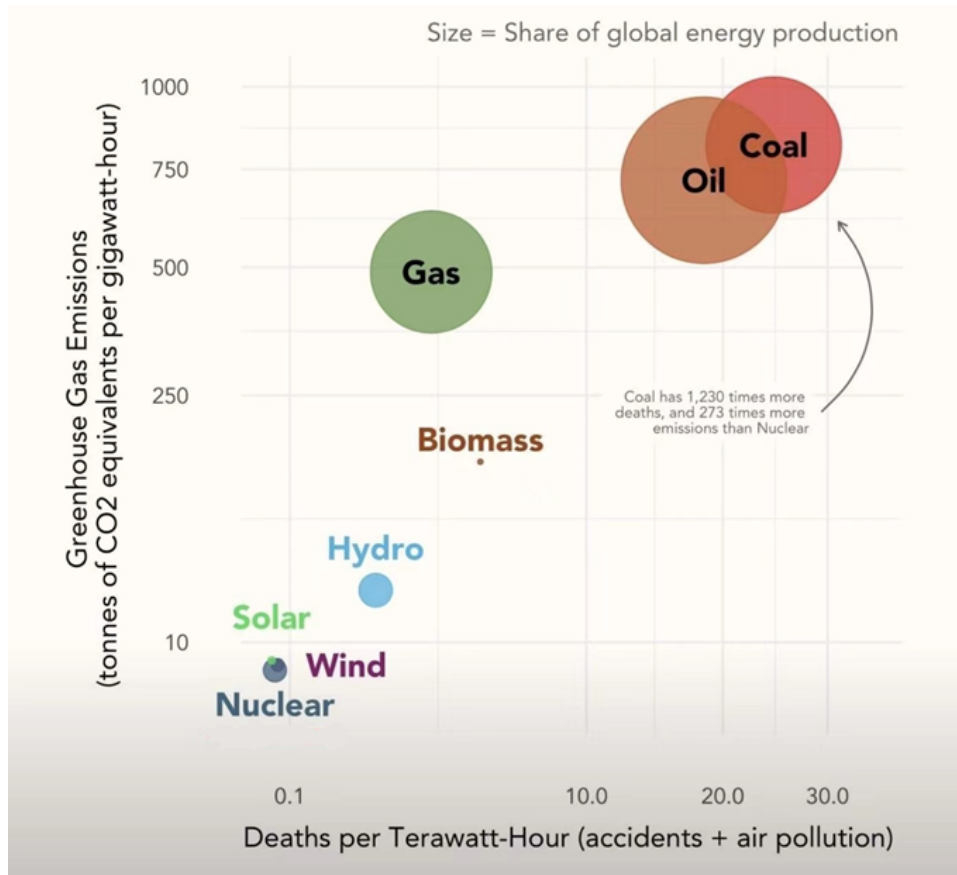
AIIB is already involved in some of these areas.

Energy

Management, transportation and consumption of solid and liquid fuels all have a major bearing on air pollution, both ambient and household, which is the greatest environmental threat to public health. Throughout their lives, 99% of the world's population breathe polluted air (Roser, 2023). The World Bank estimated that air pollution cost USD8.1 trillion in 2019 (World Health Organization, 2023d) and that 4.2 million premature deaths could be attributed to outdoor air pollution, especially in South-Eastern Asia and the Western Pacific region (World Health Organization, n.d.). Inefficient household energy, transport, waste burning, industrial pollution and power generation in communities all contribute to toxic air pollution – disproportionately affecting the poorest and most vulnerable populations. Children, the elderly and pregnant women are more susceptible to air pollution-related diseases. Transitioning to clean energy for cooking fuels brings health co-benefits, particularly for women. There are 2.4 billion people who cook using polluting fuels and technologies, which causes some 3.2 million premature deaths (World Health Organization, 2023d). Close to 250,000 pneumonia deaths in children under the age of five are due to household air pollution from cooking.

The cleanest energy sources are also the safest and healthiest. There is no trade-off between the cleanest forms of energy and those with the greatest health benefits. Figure 19 shows the relationship between greenhouse gas (GHG) emissions and deaths per energy source. The global death rates are sourced from a research paper in 2007 and are likely to be an underestimate (Ritchie & Roser, 2023).

Figure 19 GHG emissions and deaths per energy source



GHG = greenhouse gas. Source: Ritchie (2020),²⁸ visualization from @rubenbmthisen (X).

Energy infrastructure supports modern health systems. Hospitals, running 24 hours a day to care for sick patients, are energy intensive. A large part of healthcare is provided with digital and medical equipment, which requires a reliable energy supply. One billion people in low- and lower middle-income countries are served by healthcare facilities without reliable electricity or with no electricity access at all (World Health Organization, 2023d).

²⁸ <https://ourworldindata.org/safest-sources-of-energy>

Transport

According to the WHO (2023a), in 2021, road traffic accidents resulted in the deaths of approximately 1.19 million people around the world, and injured 20 to 50 million people. The young are particularly vulnerable and road traffic injuries are the leading cause of death for children and young adults aged 5–29. Road traffic accidents also disproportionately affect males, who are three times more likely than females to be killed in a road traffic accident. Developing economies record higher rates of road traffic injuries, with 92% of fatalities coming from low- and middle-income countries. WHO released a manual in December 2023 to help curb the incidence of road traffic deaths and injuries by managing speed limits. Also, in 2023, major MDBs signed a joint statement on an integrated approach to working on road safety (European Investment Bank, 2020). Road traffic injuries have a serious impact on national economies; some estimates show that road traffic accidents account for 10-12% of global GDP, or as high as USD1.8 trillion. Emergency care infrastructure is critical for dealing with traffic accidents.

Transport emissions contribute significantly to excessive PM_{2.5} exposure. Transport electrification has a large role to play in solving this issue. Shifting from tailpipe emissions to emissions at the source of electricity generation will have a positive impact on health, even if the electricity does not come from a renewable low-emissions electricity grid. A study by the International Council on Clean Transportation confirmed that electric cars have lower GHG emissions, no matter the source of the electricity (Bieker, 2021).

Safer transport infrastructure involves the design of roads and intersections to reduce speeds and minimize the possibility of crashes, dedicated pedestrian and cyclist paths, and traffic calming measures that help reduce vehicle operating speeds. Clear signage, well-maintained road markings, and effective traffic management contribute to a safer environment, while adequate lighting, especially at crosswalks and intersections, enhances visibility at night. Education campaigns and driver training programs play a role in raising awareness, while regular maintenance and inspections help address potential hazards promptly. By implementing these measures, transport infrastructure can be designed to significantly reduce injuries and fatalities, fostering a safer environment for all road users.

As an example of best practices, Vision Zero is a multi-national road safety initiative that aims to eliminate all traffic fatalities and severe injuries. Introduced in Sweden in 1995, Vision Zero has developed practical guidelines covering road safety, including suggested maximum speeds, road design features and relevant soft programs. These have been shown to reduce road injuries and deaths. To date, Vision Zero has been adopted by and has achieved success in over 25 economies worldwide.

In areas of high urban density, shifts toward walking and cycling can help to address problems resulting from current transport patterns – including emissions of air pollutants, greenhouse gases and noise; and traffic injuries. Specific traffic infrastructure that promotes active lifestyles includes walkable urban environments, strong public transport infrastructure, traffic calming measures, cycle lanes and tracks, sidewalks, parking for bicycles at public transport stations, infrastructure that supports children walking or cycling to school, and clear road signage for pedestrians and cyclists.

The transportation system and logistics infrastructure enable the smooth functioning of the health system. The COVID-19 pandemic highlighted the crucial role logistics play in responding to public health emergencies, providing care, preventing illness (e.g., through surveillance and testing), and running immunization programs. Many Members did not have the cold chain storage infrastructure required for immunization with the new mRNA technology vaccines. Logistics is particularly important in dealing with infectious and hazardous medical wastes, which make up 10% and 5%, respectively, of total hospital waste (Božić et al., 2022).

Transportation to access healthcare services is a major issue for health. Lack of transportation contributes to poorer health outcomes and the worsening of chronic illnesses—which may in turn lead to the need for more costly healthcare. People experiencing barriers to adequate transportation report late arrivals, canceled/rescheduled or missed appointments, and also missed or delayed medication use. Transportation barriers include structural or service characteristics (e.g., geographic distance) or personal constraints (e.g., logistical difficulties in coordinating transportation or financial limitations). Transportation barriers to accessing healthcare include: lack of access to a private vehicle or reliable public transportation; long distance and time needed to reach healthcare providers; costs associated with transportation; and the inability to operate or utilize transportation options due to disability or limited mobility. People living in rural areas, those on lower incomes, older people and migrant populations are more affected by transportation barriers (Oluyede et al., 2022). Planning and design of transport often overlooks the needs of women, which can raise barriers to women accessing healthcare (Kunieda et al., 2007).

Water

Safe drinking water, sanitation and hygiene (WASH) are crucial to human health. An estimated two billion people, one-quarter of the world's population, still go without safe drinking water. Unsafe drinking water and the diarrhea it causes are responsible for the deaths of more than 1.5 million people every year, most of them infants and small children (World Health Organization et al., 2022).

In 2020, almost half of the world's population, 3.6 billion people, used sanitation services that left human waste untreated, threatening human and environmental health (World Health Organization, 2023c). Detailed data for Asia is not available as there is insufficient data for Oceania, Eastern and South-Eastern Asia (World Health Organization et al., 2022).

Lack of adequate drinking water infrastructure has unequal gender impacts. When water must be collected far from home, the task falls disproportionately on women and girls, exposing them to fatigue, injury and risks to their personal safety, and in the case of girls, affecting their school attendance and completion. Women and girls are responsible for fetching water in 7 out of 10 households without direct water supply, according to the first in-depth analysis of gender inequalities in WASH (World Health Organization, 2023b).

Health systems must have appropriate infrastructure and tools in place to prevent and control infection and this is not possible without WASH. Global gaps in access to basic WASH services in healthcare facilities affect 1.7 billion people. Globally, around one in five healthcare facilities lack basic water facilities, one in 10 have no toilets and one in four do not segregate

waste (World Health Organization, 2023c). Clean water is required for medical facilities to ensure good sanitation practices and sterilization of medical equipment.

Poor WASH infrastructure, services and practices, and inadequate infection prevention and control, lead to infections and over-reliance on anti-microbials, accelerating the spread of anti-microbial resistance.

Urban

Access to healthcare is a crucial component of urban infrastructure financing. Health inequities can be stark in urban areas, with significant variations across districts. Migrants and other disadvantaged groups tend to be clustered in the most deprived and environmentally degraded neighborhoods, such as squatter settlements, with the least mobility, work and educational opportunities, the poorest access to health services and below-average health outcomes. Access to healthcare also aligns with the “resilient” objective of the strategy; the key objective here is that city residents and local governments are able to withstand shocks and impacts such as pandemic outbreaks and chronic diseases.

The COVID-19 pandemic showed how cities often bear the brunt of emergencies. Infectious diseases like tuberculosis, dengue and diarrhea thrive in poor and overcrowded environments and are closely related to unhealthy housing and poor sanitation and waste management. Poor urban waste management fuels the transmission of diseases such as the Zika and Ebola viruses. Continued unmanaged urbanization is expected to lead to cities becoming epicenters of disease transmission, including vector-borne diseases.

Active and healthy cities can facilitate healthy lifestyle choices. A healthy city is an active city: a city that is conscious of health and striving to improve it (World Health Organization, n.d.-d) Active living is a way of life that integrates physical activity into daily routines. It brings benefits to individuals and lowers health system costs because people are healthier. Infrastructure can promote active and healthy cities by having less air and noise pollution, better access to green spaces, pedestrian and cycle-friendly streets, safe and accessible public transport, and accessible facilities for physical activity. Safety is a particularly important aspect for girls and women.

Digital infrastructure

Digital infrastructure advancement will form part of the foundation upon which modern health systems function, enabling the delivery of modern healthcare. Digitalization in the health sector has already been discussed in Section 4.3.

5.2 Health services infrastructure value chain

With infrastructure as its core mandate, AIIB supports infrastructure along the value chain, which refers to the entire production chain, from the input of raw materials to the final product output to the consumer.

The infrastructure value chain for health services includes physical facilities to support the delivery of healthcare services, the healthcare workforce, medicines and other health

products, life sciences, manufacture supply chains, associated logistics, health information and surveillance systems and technologies for health.

In terms of health, there has been a gradual shift from a reactive, disease-based approach to one that focuses on well-being, that is, a proactive, resilient, and sustainable healthcare system that emphasizes preventive measures. This involves integrated, consumer-centered forms of healthcare delivery including, for example, remote video and telehealth services available to people using broadband networks.

Figure 20 below provides a diagrammatic representation of the building blocks of the healthcare value chain.

Figure 20 The health services value chain and supporting infrastructure

	Service delivery	Health workforce	Health information system	Essential medical products and technologies
Health system building block				
Supporting infrastructure	<ul style="list-style-type: none"> • Primary care units & centers • Laboratories • Hospitals • Polyclinics • Pharmacies • Integrated delivery networks • Telehealth • Mobile health 	<ul style="list-style-type: none"> • Trained doctors & specialists • Support staff • Individuals • Public health • Medical education & training institutions • E-learning infrastructure 	<ul style="list-style-type: none"> • Networks & connectivity • Data warehouses and cloud storage • Integrated information systems • Surveillance systems 	<ul style="list-style-type: none"> • Manufacturing facilities for pharmaceuticals, biotechnology, medical devices, other health products • Supply chain and logistics infrastructure • Life sciences infrastructure • Online/AI

Source: Authors.

The right health infrastructure needs to be in place for the public health and clinical workforce to deliver care safely and effectively, and for people to receive high-quality services.

A strong health infrastructure includes a capable and qualified workforce; up-to-date and highly specialized data and information systems; strong systems, competencies, spaces, relationships and supply chains/medical resources that enable healthcare delivery. It should take into account the particular context of the natural environment, social connections, and religious and cultural norms of the Members.

Areas of potential strategic focus for AIIB are listed below. All involve a mix of public and private finance depending on the particular location and market settings. For each area, the influences of infrastructure outside of the health sector are noted.

Greening health systems

- Mitigation opportunities – decarbonization supply chains, greening health infrastructure such as hospitals;
- Addressing health waste – a long-standing issue highlighted during COVID-19; and
- Adaptation and resilience – strengthening emergency health services and disaster response, retrofitting of health facilities to enhance resilience to extreme weather events.

Opportunities for PPPs exist in this strategic direction.

Strengthening global health security

- For emerging infectious diseases and anti-microbial resistance, essential public health functions (surveillance, labs, vaccines, public health workforce) and public education/health literacy;
- Strengthening health security at border infrastructure such as land crossings, airports and ports; and
- Environment, agriculture and emergency infrastructure are other sector factors with impacts.

This strategic direction is most likely to be supported by public sector actors through global, regional, and country-level compacts and initiatives.

Responding to changing populations and disease patterns

- Aging population – culturally appropriate home help and age-related care facilities; trend is away from hospital care to home-based or age-related care facilities;
- Genetics and genetics-related disorders – many developing areas, for example genomic and personalized medicines and medical technologies;
- Reducing/mitigating NCDs – a multifaceted, challenging problem but mainly affects primary care facilities in the short term;
- Challenges caused by population movements and refugee populations – primary healthcare (including mental health) with emphasis on preventive services, and digital health;
- Optimizing existing assets – strategic asset management/tools, e.g., machine learning – better investment decision-making/improved planning; increased capacity to meet demand; and
- Senior housing and aging in place, recreational space and a healthy food system are other infrastructure sectors with impacts.

This strategic direction is most likely to be supported by private sector actors in higher middle-income economies and public sector or PPPs in lower middle-income economies.

Improving health facilities with a focus on primary healthcare

- Upgrade and modernize health facilities, encompassing aspects such as electrification, increasing space availability, better hygiene and sanitation for infection prevention and control, waste management and medical devices;
- Shift towards more primary health infrastructure in the community – infrastructure deficit in some developing countries, especially in rural areas; increased access/coverage to address inequality;
- Laboratories for diagnostics and disease surveillance; and
- Adoption of digital infrastructure enabling improved management practices within facilities and the use of telemedicine to reach underserved populations.

Strengthening the workforce

- Investment in training facilities for regulated occupations and increased consistency across regions in this regard; and
- Physical and digital infrastructure to support training.

6 Market size and infrastructure gaps

Health systems are a major part of all economies and the question of an infrastructure gap is highly dependent on the stage of development of a country and its ambitions in health.

6.1 Demand for and growth of health infrastructure

Demand for health infrastructure is relatively sheltered from macroeconomic factors, thus is attractive to investors. There is strong confidence that demand for health services (and health infrastructure) will continue to increase as economies develop, but the extent and nature of that increase is unclear. The aging population as well as higher rates of NCDs (and other features as discussed earlier) will put more pressure on the health systems of Members by increasing demand, especially on primary and age-related healthcare services.

The global healthcare market was estimated at USD10 trillion in 2021 and is expected to rise to USD21 trillion by 2030 (Verified Market Research, 2021). In Asia, the healthcare market was estimated at USD1.0 trillion in 2010, USD3.2 trillion in 2020, and is forecast to rise to USD4.2 trillion in 2024 (Quadria Capital, 2020). On this trajectory, the healthcare market in Asia will reach USD5.7 trillion in 2030. Governments remain the dominant payer of healthcare in Asia, accounting for 64% of health expenditures in 2018 (McKinsey & Company, 2021).

The table below summarizes the market size (by revenue) and growth rates of specific sub-sectors along the health infrastructure value chain.

Table 5 Summary of market size and growth of specific sub-sectors in Asia, 2023-2030

Market	Asia estimated revenue 2023 (USD billion)	Asia estimated revenue 2030 (USD billion)	Compound average growth rate (%)
Hospitals	1,360	1,889	4.81
Ambulatory health facilities	340	590	8.17
Therapeutics	226	346	6.27
Digital Health	66-73	160-261	11.96-21.80
Medical devices	113	213	5.97
Home healthcare	99	205	8.4

Table 6 Market sizes of specific sub-sectors

Market	Size	Notes
Medical devices	<p>By 2030 estimated at USD800 billion globally, USD225 billion in Asia.</p> <p>Revenue in the Medical Technology market in Asia is projected to reach USD142.10 billion in 2023. The market's largest segment is Medical Devices, with a projected market volume of USD112.80 billion in 2023. Revenue is expected to show a compound annual growth rate (CAGR) for 2023–2028 of 10.98%, resulting in a market volume of USD189.90 billion by 2028 (Statista, 2023c).</p>	<p>Growth rates of over 10% expected in this industry over the coming decade.</p> <p>Opportunities range from investment in R&D to financing access to devices for populations.</p> <p>One of the biggest drivers of growth in the Medical Technology market is the aging population, which ensures a sustained capital flow into R&D, the proliferation of health services, and the implementation of existing technological changes. However, in the opposite direction, the highly regulated structure of the Medical Technology market slows down the entrance of innovative products, and thus also slows the implementation of new technologies. (Statista, 2023c).</p>
Therapeutics	<p>Pharmaceuticals Asia – revenue in the pharmaceuticals market is projected to reach USD225.90 billion in 2023. The market's largest segment is oncology drugs, with a projected volume of USD38.63 billion in 2023. Revenue is expected to show a CAGR (2023–2028) of 6.27%, resulting in a market volume of USD306.20 billion by 2028 (Statista, 2023e).</p>	<p>A key opportunity for value is the coverage of generic and biosimilar medicines, which can deliver health gains for a fraction of the cost of branded medicines, and improve access to specialist health treatment. The pipeline of soon to be off-patent medicines provides ongoing opportunity for expanding value and security of supply where investment in local manufacturing is developed.</p>
Digital health solutions	<p>The digital health market in Asia was valued at USD54.5 billion in 2022 and is projected to expand at a CAGR of 21.80% from 2023 to 2030. The market grew at a rate of 21.7% from 2020 to 2021 and is forecast to have year-on-year growth ranging between 23.5% and 29.5% in the next five years. Revenue forecast in 2030 is USD260.7 billion (Grand View Research, 2021a).</p> <p>Statista's forecasts are more conservative, however, with revenue in the Asian digital health market projected to reach USD73 billion in 2023. Revenue is expected to show a CAGR (2023–2028) of 11.96%, resulting in a projected market volume of USD128 billion by 2028. The market's largest segment will be Digital Fitness & Well-Being, with a total revenue value of USD40.36 billion in 2023 (Statista, 2023a).</p>	<p>Major factors anticipated to drive market growth are an increasing consumer base for remote healthcare consultation, growing investments in digitalization of healthcare institutions, and a rising number of chronic and infectious disease patient populations. In addition, growing adoption of virtual healthcare services and increasing internet penetration are also expected to accelerate market growth (Grand View Research, 2021a).</p>

Market	Size	Notes
Ambulatory health facilities	Outpatient care Asia – Revenue is estimated to reach USD340 billion in 2023 and will continue to expand at a CAGR of 8.19% from 2023 to 2028, resulting in a market volume of approximately USD504 billion by the end of 2028 (Statista, 2023d).	Hospitals are expected to put a stronger focus on preventive care, which is projected to drive the growth of the market (Statista, 2023d).
Hospital facilities	Asia healthcare construction projects have a total regional value of USD143 billion, which includes projects from the announced to execution stages (GlobalData, 2021).	While the pandemic accelerated investment in the healthcare sector, the pre-crisis growth trend of investment in new healthcare infrastructure across Asia had already been strong, driven by the region's buoyant population growth, strong economic growth and increasing demand from an expanding middle-class cohort (GlobalData, 2021).
Hospitals	Revenue for the hospitals market in Asia is estimated to reach USD1.36 trillion by 2023 and is estimated to continue to expand at a CAGR of 4.81% between 2023 and 2028, resulting in a market volume of USD1.72 trillion by 2028 (Statista, 2023b).	The increase in diseases and an aging population are the main drivers of the hospitals market. A restrictive factor is the limited access to healthcare facilities in many emerging economies. Poor quality of healthcare facilities and the lack of professional healthcare staff and hospitals play a negative role in the development of the hospitals market in developing countries (Statista, 2023b).
Home healthcare	The Asia home healthcare market was USD99 billion in 2021 and is expected to increase to USD189 billion by 2029. This translates to a CAGR of 8.4% during the 2021 – 2029 forecast period. (Data Bridge Market Research, 2022).	<p>Market definition: The home healthcare industry encompasses a wide range of healthcare services. The purpose of home healthcare is to treat injuries and disease and enhance the patient's overall health. These services are more suitable for the home setting and less expensive than hospitals, and they are effective for chronic diseases, the elderly, nutrition therapy, and critical illness in some cases (Data Bridge Market Research, 2022).</p> <p>An aging population, an increase in the incidence of target diseases such as dementia and Alzheimer's, as well as orthopedic ailments, are expected to drive market expansion. Governments and health organizations are concerned about rising treatment costs and seek to lower them. Home healthcare is less costly (Data Bridge Market Research, 2022).</p>
Health workforce	The global healthcare staffing market was valued at USD37 billion in 2022 and is forecast to reach a value of USD66 billion by	The global healthcare staffing market is experiencing strong growth due to the shortage of healthcare workers and

Market	Size	Notes
	<p>2030 at a CAGR of 7.6% between 2023 and 2030 (Coherent Market Insights, 2023).</p> <p>In 2021, an estimated 47 million people in Asia were employed in the health and social work sector. However, significant labor shortages exist, highlighting the need for greater investment (International Labour Organization, 2021). Asia is expected to witness robust growth in the global healthcare staffing market owing to the rise in chronic diseases, increasing number of healthcare facilities, and shortage of healthcare staff in these regions. For example, India has grappled with a shortage of health workers for decades. In 2019, the Ministry of Health and Family Welfare informed the Parliament that India had only one doctor for every 1,457 people, 1.7 nurses for every thousand people, and one bed for every 2,239 persons, which is well below the WHO's recommended ratio. This in turn is driving the market growth (Coherent Market Insights, 2023).</p>	<p>growing burden of chronic disease around the world. Moreover, a growing geriatric population and an increasing number of healthcare facilities around the world are expected to augment the growth of the market. However, factors such as a shortage of skilled health workers and stringent rules and regulations are expected to hamper market growth (Coherent Market Insights, 2023).</p> <p>Asia is expected to attain the fastest CAGR of regions analyzed during the forecast timeline, as demand for a contract workforce rises in the region. The increased demand might be linked to the fact that contract hire does not carry the obligations that are traditionally connected with permanent employees. Furthermore, the recruitment process is faster, and recruiters have access to a bigger pool of prospects (Grand View Research, 2021b).</p>

To give a more qualitative sense of the size of potential healthcare investments by the Bank, private sector healthcare equity and debt investments may be used as a gauge:

Equity in private healthcare companies

- A rough proxy is the market cap of publicly listed companies, i.e., the companies that trade on an exchange;
- The United States (US) market is where the majority of the world's healthcare market cap sits – representing about 80% of the world's publicly tradable healthcare market cap. The US healthcare market cap is currently around USD6.5 trillion; and
- Healthcare companies outside the US have a market cap of around USD2 trillion, of which around USD1.5 trillion is China-listed companies.

Debt issued by healthcare companies

- US companies represent about 70% of global healthcare corporate debt outstanding, which is around USD2.4 trillion (this number includes only bonds and loans that are searchable on Bloomberg);
- Companies outside the US represent around USD670 billion of the healthcare corporate debt outstanding (as a side note, there is minimal China healthcare corporate debt); and
- Adding the equity and debt amounts for non-US markets, the total is around USD2.7 trillion, and without China the total is around USD1.2 trillion (i.e., 10% of the global total capital in healthcare). Taking out Japan and the European Union, leaves the emerging markets, with less than half of that number.

Activities financed by the private sector

- Most private sector investments are concentrated in the "tools" of the health delivery value chain and not the health delivery infrastructure;
- Most of the market caps and debts are represented by companies in pharmaceuticals, medical devices, health insurance and healthcare IT products;
- The US and China are the two key hubs of innovation for healthcare tools, with the US dominating on cutting-edge research and products (which is why most healthcare investment capital is in the US). China is fast closing on the number two position in healthcare R&D, and is the manufacturer of the most active pharmaceutical ingredients and medical devices; and
- While hospitals in the US use debt funding structures, they are private hospital systems.

6.2 Quantifying the infrastructure financing gap

The scale of market growth within key segments of the Healthcare Infrastructure Value Chain was summarized in the section above. An approach focused purely on commercial returns might pursue the largest and fastest-growing economies to secure the most competitive financial return on investment. For MDBs, once an investment fulfills a sustainable rate of financial return on an investment relative to its risk, the key consideration is the scale of development impact, addressing preventable and treatable ill health and premature death along with the economic and social benefits that these, in turn, bring.

In considering its preferences for a future healthcare infrastructure portfolio mix that will inform the investment pipeline, AIIB may wish to review the size of the current gap in infrastructure for each segment of its portfolio, alongside growth projections.



As an example, hospital beds provide a marker of the overall level of hospital infrastructure. Comparator country benchmarks – taking the median country from each WHO region using the latest data (typically 2017) – provide a starting point.

Table 7 Average beds per 10,000 population by Asian sub-region

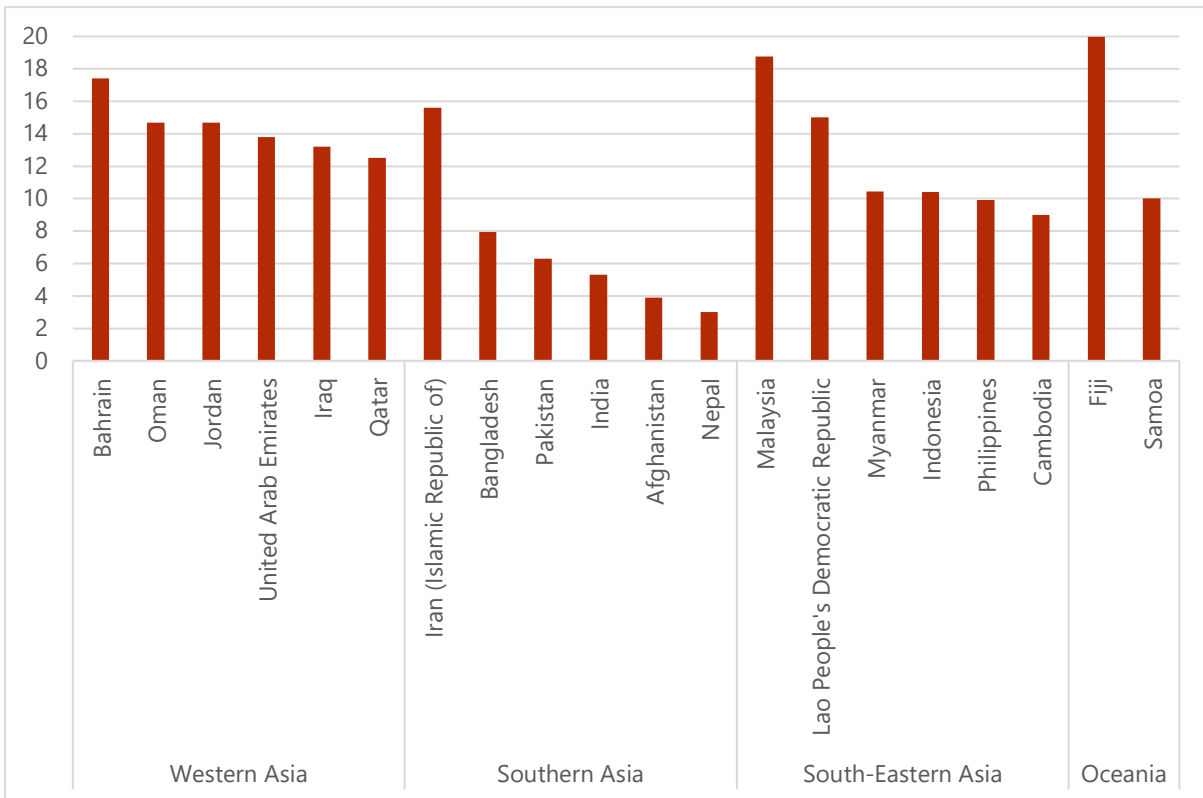
Region	Hospital beds per 10,000 population
Eastern Asia	62.7
Western Asia	24.5

Oceania	23.5
South-Eastern Asia	21.7
Southern Asia	15.8

Source: World Health Organization.

The WHO-recommended minimum standard for hospital beds per 10,000 population is 20. Using WHO data (2017 or latest), a number of AIIB Members have a national-level gap in this regard.

Figure 21 Members with less than 20 beds per 10,000 population



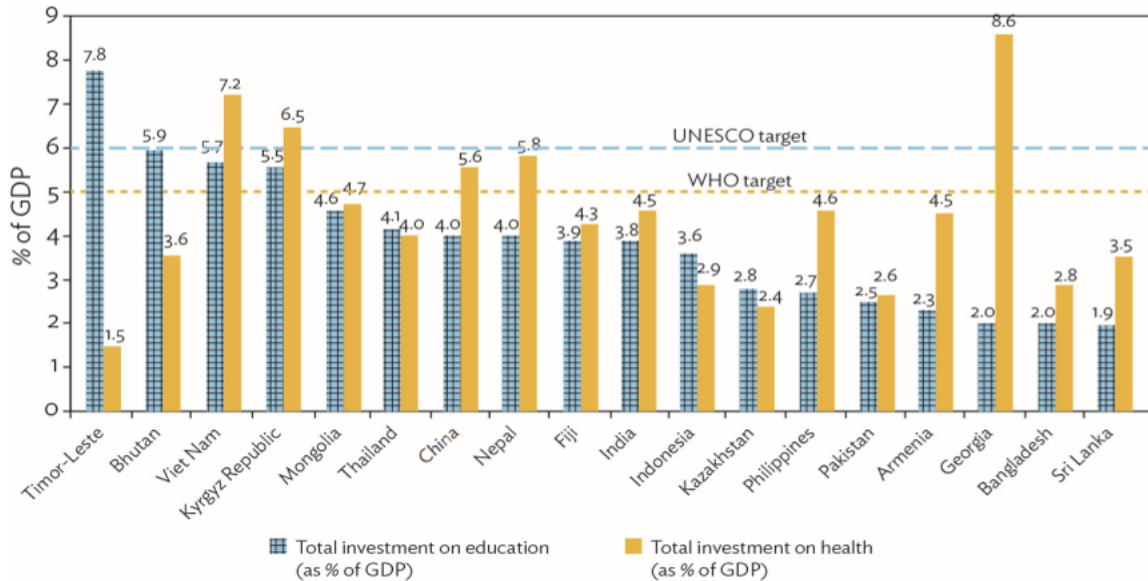
Source: World Health Organization data (2017 or latest).

These gaps, together with population projections, can quantify the projected bed shortfall together with replacement demand that will be needed to reach WHO minimums and/or benchmark levels, where this fits with government health policies or the expected purchasing power of consumers for OOP or self-insured care, as incomes rise.

India has recently taken this approach to identify healthcare investment gap, and has found it needs to increase hospital beds from 13 per 10,000 population to 30 by 2025, doctors from 6.5 per 10,000 population to 25 by 2034, and nurses from 13 per 10,000 population to 50 by 2034 (Sarwal et al., 2021).

Several other possible approaches exist to quantify the health infrastructure financing gap. One is to use health expenditure as a percentage of GDP as the benchmark (see Figure 22, below), for example, 5-6%. When government expenditure on health is greater than 5-6% of GDP and OOP costs are no more than 15-20% of total health expenditure, fewer households face financial difficulties in paying for health services (World Health Organization, 2010). One ADB paper used a target of 5% of GDP to calculate a USD72 billion gap for health in Asia (Ra & Li, 2018).

Figure 22 Current infrastructure investment in social sector



GDP = gross domestic product; UNESCO = United Nations Educational, Scientific and Cultural Organization; WHO = World Health Organization.

Notes:

Years covered: 2009 (Education) and 2013 (Health) for the Philippines; 2013 for Fiji, India, Thailand, and Viet Nam; 2014 for Armenia, Bangladesh, Bhutan, Indonesia, Nepal, Pakistan, Sri Lanka, and Timor-Leste; 2011 (Education) and 2014 (Health) for Mongolia; 2015 (Education) and 2014 (Health) for Kazakhstan; 2014 for the Kyrgyz Republic; 2012 for Georgia; 2012 (Education) and 2014 (Health) for China; and 2015 for Singapore.

Sources: United Nations. United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics. Available at: <http://uis.unesco.org/> (accessed October 2017); World Health Organization. Global Health Expenditure database. Available at: <http://www.who.int/health-accounts/ghed/en/> (accessed October 2017); Country government budget documents for education and health capital investment.

Source: Ra & Li, 2018.

7 Strategy implementation

In implementing the strategy, it will be important to prioritize opportunities and to develop partnerships. The sections below set out some criteria for prioritizing opportunities for investment in health infrastructure and identify the important role that partnering with MDBs and other investing institutions will play in realizing these investments.

7.1 Prioritizing opportunities

There are two reasons why explicit prioritization criteria are needed for investment in infrastructure in the health sector. First, such criteria guide financing in the context of lending capacity constraints. Second, they signal to prospective borrowers what type of lending AIIB would consider and therefore improve the alignment of borrowers' needs with AIIB's financing objectives.

Strategically, decisions will concern the broad areas and key partners with which AIIB wishes to work, particularly as the Bank is likely to co-invest with either the private sector or other MDBs. The criteria will have implications for decisions about AIIB capability and direction and will set the context for both active and passive relationships with other MDBs and partnership organizations.

At a project level, it will be necessary to assess specific opportunities as they arise in a systematic, consistent manner, in order to decide whether to proceed with the project or not. The assessment should also be consistent with the priorities set at the strategic level.

There are three broad dimensions of prioritization set out in table 8.

Table 8 Criteria to prioritize investments

Strategic fit	Market value-addition	Operational considerations
<ul style="list-style-type: none"> • Is the option aligned with the member's health strategic plans and will address pressing needs? • Is the option consistent with AIIB's thematic priorities of: green infrastructure; connectivity and regional cooperation; technology-enabled infrastructure; and private capital mobilization? 	<ul style="list-style-type: none"> • Will AIIB help establish a market? • Will AIIB help to build preventive, promotive, inclusive and resilient health systems, in places where markets are not responding? • Will AIIB help to build a vibrant private sector where markets can respond by reducing risk and increasing financing? 	<ul style="list-style-type: none"> • Does the proposed investment area have acceptable readiness, efficiency, and practicality? • Does AIIB have access to the expertise to manage the investment product? • Does AIIB have the necessary partnerships in place to ensure quality projects and effective implementation?

Strategic fit	Market value-addition	Operational considerations
<ul style="list-style-type: none"> • Is the option complementary to health investments made by other MDBs? • Is the option complementary to investments made by sovereign or philanthropic investors? 	<ul style="list-style-type: none"> • Where vibrant markets exist, will AIIB provide innovative financing to boost private sector investments and derisking? 	<ul style="list-style-type: none"> • Is the risk profile acceptable, and what confidence exists in the targeted return?

AIIB = Asian Infrastructure Investment Bank, MDB = multilateral development bank.

The answers to the questions provide a framework to consider, and potentially score, a given individual investment option. At a higher level, the questions help to articulate AIIB's strategic goals in health investment across dimensions and provide guidance on high-level strategic areas of interest in which to explore opportunities.

The questions related to market value-addition are particularly important for mobilizing private capital and generating outcomes that contribute to economic, social and environmental sustainability. These are discussed in more detail below.

Where markets are not responding

Where markets are not responding, public sector investments are needed, together with some private sector financing.

Healthcare that is preventive and/or promotive may not be amenable to monetization and private sector investment, especially in many developing country settings. Where the private sector is unlikely to invest in infrastructure directly, governments may need to consider various PPPs, which could include viability gap financing or even the assumption of the majority of the infrastructure costs, with the private sector responsible for service provision. The type of private sector participation would depend on the maturity of the market, private providers and the financing available. The majority of the funding would likely need to be provided by the public sector. AIIB, in partnership with other funding agencies like ADB and the World Bank, could consider supporting the public sector funding needs while encouraging reforms in the health sector to incorporate private sector efficiencies in operations and maintenance.

Where markets can respond by reducing risk and increasing financing

Where markets can respond by reducing risk and increasing financing, the financing mix would be largely composed of the private sector, with some public sector involvement.

Significant infrastructure gaps exist in health service delivery. Public sector expenditures alone are not adequate to bridge very large gaps in funding requirements. The private sector can bridge the funding gap to a certain extent if the right incentives are created. The prevailing model of public financing and public provision has not always delivered optimal results. A more efficient model could be based on the purchase of services by the public sector from private providers but with strong safeguards against inequity.

Health insurance or tax-financed schemes are ways towards better prepayment and risk pooling, reducing the risk of catastrophic healthcare spending. On the government side, solid regulatory capacities will be required to facilitate a vibrant private sector on the one hand but also control healthcare costs, ensure high quality of care and protect against inequity on the other hand.

Where vibrant markets exist

Where vibrant markets exist, innovative financing is needed to boost private sector investments and to derisk.

Vibrant markets exist for vaccine development, diagnostic and medical equipment, pharmaceuticals, and health insurance. Yet the private sector is not invested fully due to tail-end risks and cost of financing. With appropriate risk mitigation measures and long-term financing, among others, it is possible to expand the scope of the private sector role. However, a good understanding of the bottlenecks and non-market distorting interventions will be required, as well as equity and pricing.

AiIB has strong private-sector financing capabilities as well as various tools to support the private sector. With the help of staff capabilities, strategic partnerships, and innovative financing, AiIB can expand the scope of the private sector contribution to health sector development.

One such example is partnering with entities like Gavi and The Global Fund to Fight AIDS, Tuberculosis and Malaria to assure financing for the purchase of vaccines and other services. Likewise, frontloading the availability of funds to these two global health organizations based on grants assured by their donors is another innovative instrument to provide private sector comfort about the uptake of vaccines and related services.

7.2 Partnerships

Partnerships provide opportunities for innovative financing strategies. Partnerships also derisk AiIB's transactions when the partner has deep knowledge of health sectors from which AiIB can benefit.

The global health architecture is shaped through the joint efforts of all development partners who bring different mandates and expertise. This includes, in many cases, partnerships among MDBs and co-investments or PPPs with governments or government-owned entities.

AiIB's distinct focus is on infrastructure. The business model of the Bank is different from other MDBs in that AiIB focuses on project implementation and not on policy interventions, knowledge products or technical assistance functions. AiIB operations are based on sound banking principles, which means its ability to provide concessional support to low-income Members is severely constrained. This has a major impact on AiIB's health operations, especially during high-interest period, when other MDBs are able to continue providing concessional resources.

On the other hand, AiIB is well-positioned in the health domain because its operations can switch between public and private sectors. The nature of health systems means that there will be a wide mix of sovereign and nonsovereign clients with whom to co-finance or partner.

Regardless of whether health financing is predominantly public or private, the provision of services is nearly always carried out by a mix of public and private entities. Some sub-sectors are often dominated by private sector provision (such as the supply of pharmaceuticals and devices), whereas others may be more mixed.

Partners for projects will range from grant entities to MDBs, and to sovereign and private sector partners. This provides opportunities for innovative financing approaches, such as swaps or guarantees that complement grants and other forms of funding from other agencies. The goal is to unify a network of clients, financiers, and donors to mobilize financing for health infrastructure.

AIIB can add value relative to the other MDBs:

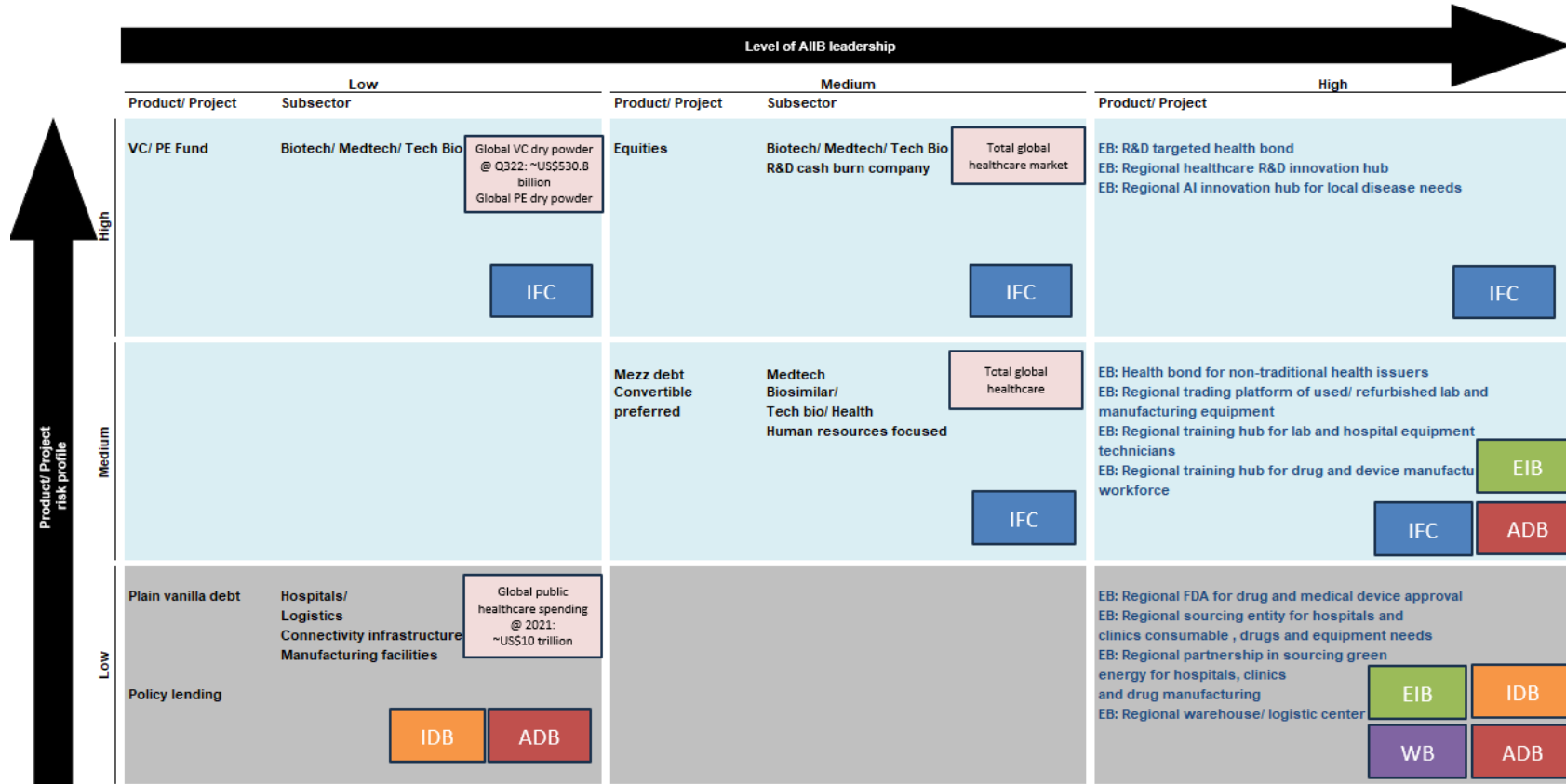
- Other MDBs are less flexible when it comes to working with the private sector and do not always have enough funds for infrastructure components, but they can provide valuable policy framework and technical support for the health sector;
- Other MDBs tend to work mostly with governments and sovereign lending on health service delivery, whereas AIIB can support the development of private sector capacity to produce health sector inputs; and
- Other MDBs often find it difficult to finance multi-country programs – but this is something in which AIIB has demonstrated capacity.

The financing mix, whether sovereign, private sector or grants, is also likely to have a significant influence upon who AIIB can partner with for financing infrastructure. Health funding creates opportunities for infrastructure investment. The decisions and priorities of health funders will have an important role in determining the consequent need for infrastructure to support services and interventions (such as vaccination programs, elderly care facilities, training facilities, etc.).

Facing the dual challenges of macroeconomic headwinds and recovery from the COVID-19 pandemic, governments are increasingly finding it difficult to finance healthcare. At the same time, post-pandemic governments are focused on preparing for the next pandemic and seeking to strengthen health systems, which is likely to create more opportunities for the Bank in partnering, developing PPPs, and entering into other co-financing arrangements with governments in healthcare.

The figure 23 shows a continuum matrix of risk appetite versus the level of AIIB leadership in an investment, mapped to potential MDB partners.

Figure 23 MDBs' health presence map



Note: Horizontal axis represents the level of AIIB leadership
 Vertical axis represents the estimated product and project risk profile
 EB: Ecosystem Building transactions are those that contribute to long term healthcare value chain/ supply chain sustainability and efficient delivery of health
 Blue = private sector; grey = public sector
 Source: Preqin Global Report 2023: Venture Capital
 S&P Global Market Intelligence

Last update 10/11/2024

ADB = Asian Development Bank, AIIB = Asian Infrastructure Investment Bank, EIB = European Investment Bank, IDB = Inter-American Development Bank, IFC = International Finance Corporation, MDB = multilateral development bank, PE = private equity, R&D = research and development, VC = venture capital, WB = World Bank.

In order to finance quality and impactful projects, AIIB needs to develop durable strategic partnerships with a range of partners. In its partnership approach, AIIB can seek to:

- Work with partners with common strengths and areas of geographic, sector and functional focus;
- Complement partners where the MDB instrument and focus differs from AIIB's but may give rise to opportunities for collaboration (e.g., not lending for policy but lending for the infrastructure implications of policy); and
- Step into gaps where existing MDBs in AIIB's regional markets are not operating.

The figure below describes a number of different possible MDB *partnering* approaches:

Figure 24 Potential partnering approaches

Partnering approach	Potential partners	Potential added value for AIIB involvement
Co-financing	World Bank and ADB Bilateral Agencies Multilateral & philanthropies (e.g. Global Fund, Gates Foundation) Private Banks	Project lending Sovereign lending
Health sector inputs	Medication & Vaccine Producers Diagnostic Equipment & PPE Producers Global Fund, GAVI, CEPI, UNICEF	Project and sovereign lending grants Equity
Multi-country programmes	Regional laboratory networks Data sharing across countries Regional surveillance & regulatory infrastructure	Project and sovereign lending grants Equity
Financial support for technical assistance	WHO/WPRO and WHO/SEARO	Project and sovereign lending grants
Information exchange	Regional Development Banks (IDB, AfDB, ADB) Universities, Research Institutions, other non-profit knowledge producers	Administrative budget

ADB = Asian Development Bank; AfDB = African Development Bank; AIIB = Asian Infrastructure Investment Bank; CEPI = Coalition for Epidemic Preparedness Innovations; GAVI = Gavi, the Vaccine Alliance; IDB = Inter-American Development Bank; PPE = personal protective equipment; SEARO = Southeast Asia Regional Office; WHO = World Health Organization; WPRO = Western Pacific Regional Office. Source: Authors.

There are also opportunities to take an approach that is *complementary* to that of other MDBs investing in health infrastructure, using several different possible instruments:

Figure 25 Potential approaches to complement MDBs

MDB instruments	Potential added value for AIIB involvement
Policy Lending	Complement with infrastructure financing
Project and programme lending	Directly cofinance Finance complementary projects (especially in private sector)
Technical assistance	Complement with infrastructure financing
Private sector windows (e.g., IFC)	Complement with infrastructure financing
Knowledge products	Financial support, co-financing
MDBs do not typically...	Role for AIIB to take novel approach to MDB instruments
Provide equity	Role for AIIB
Lend to private sector	Role for AIIB
Provide multi-country financing	Role for AIIB

AIIB = Asian Infrastructure Investment Bank, IFC = International Finance Corporation, MDB = multilateral development bank. Source: Authors.

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Annex 1. Quantitative comparison of health systems

Source: World Development Indicators <https://wdi.worldbank.org/table/2.12>

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Afghanistan	15.5	7.6	74.8	80.3	322.5	0.2	0.4
Albania	6.7	42.4	56.5	350.8	895.6	1.6	5.1
Algeria	6.3	62.6	35.8	214.9	735.8	1.7	1.5
Andorra	9.1	73.2	10.9	3,336.90	4,719.70	3.3	4
Angola	2.9	42.1	37.1	50.7	184.1	0.2	0.4
Antigua and Barbuda	5.6	60.2	23.2	830.3	1,082.50	2.8	9.1
Argentina	10	66.3	24.2	863.7	2,089.50	4.1	2.6
Armenia	12.2	19.3	77.8	551.5	1,721.10	2.9	5
Australia	10.6	75.1	13.8	5,901.10	5,930.00	3.9	13.1
Austria	11.5	76.4	16.8	5,585.10	6,400.90	5.3	7.1
Azerbaijan	4.6	34.5	65.2	191.2	655.9	3.2	6.4
Bahamas	7.6	60.6	21.7	1,851.00	2,390.60	1.9	4.6
Bahrain	4.7	62.7	26.6	1,110.00	2,379.70	0.9	2.5
Bangladesh	2.6	18	74	50.7	132.8	0.6	0.4
Barbados	7.2	52.1	40.6	1,199.70	1,041.70	2.5	3.1
Belarus	6.4	70.9	24.8	408.1	1,285.70	4.5	11
Belgium	11.1	79.2	16	5,009.50	5,883.10	3.1	11.7
Belize	6.9	71.8	21.9	278	436.2	1.1	2.3
Benin	2.6	33.5	41.2	32.1	87	0.1	0.3

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Bhutan	4.4	78	15.4	133.7	495.9	0.5	1.8
Bolivia	7.9	71.9	21.3	241.1	636.9	1	1.6
Bosnia and Herzegovina	9.8	69.5	28.9	591.4	1,517.00	2.2	5.7
Botswana	6.2	74.7	4.6	362.7	875.5	0.4	5.5
Brazil	10.3	44.8	22.4	700.7	1,529.40	2.3	7.4
Brunei Darussalam	2.4	94	6	650.5	1,555.20	1.6	5.9
Bulgaria	8.5	59.8	36.6	856.7	2,087.80	4.2	4.8
Burkina Faso	6.7	43.5	34.6	54.2	143.6	0.1	0.9
Burundi	6.5	37	30.2	16.4	46.2	0.1	0.7
Cabo Verde	6	61.5	23.2	176	366.3	0.8	1.3
Cambodia	7.5	27.7	60.6	115.8	331.6	0.2	1
Cameroon	3.8	16.3	68.3	58	145.9	0.1	0.4
Canada	12.9	75	12.4	5,619.40	6,049.90	2.4	11.4
Central African Republic	9.4	12.9	51.9	42	84.1	0.1	0.3
Chad	5.4	17.2	59.5	34.8	84.6	0.1	0.1
Chile	9.8	56.4	29.4	1,278.20	2,425.60	2.7	4.8
China	5.6	54.7	34.8	583.4	962.3	2.2	3.1
Colombia	9	72.7	13.6	477.3	1,335.90	2.3	1.4
Comoros	5.3	14.5	67.7	80.8	179.4	0.3	1.5
Rep. of Congo	4.1	16.1	39.7	21.3	44.6	0.4	1.1
Congo	4.5	43.2	25.2	80.8	158.6	0.1	1

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Costa Rica	7.9	71.8	20.3	953.1	1,737.40	2.9	3.4
Côte d'Ivoire	3.7	36.8	32	85.2	200.2	0.2	0.7
Croatia	7.8	81.9	10.4	1,094.50	2,229.00	3.5	6.2
Cuba	12.5	91	8.9	1,186.20	2,594.50	8.4	7.6
Cyprus	8.1	78.3	14	2,245.40	3,218.90	3.1	4
Czechia	9.2	87.4	11.5	2,119.80	3,846.00	4.1	8.9
Denmark	10.5	84.9	12.8	6,438.40	6,350.50	4.2	10.5
Djibouti	2	50.1	26.6	62.8	105.2	0.2	0.7
Dominica	5.6	62.3	29.3	426.7	661.2	1.1	6.1
Dominican Republic	4.9	65.7	24.6	354.1	873.8	1.5	1.5
East Asia & Pacific	6.9	65.9	25.3	790.3	1,159.70	1.9	3.9
Ecuador	8.5	58.6	33.8	478.5	931	2.2	2.5
Egypt.	4.4	31.9	59.3	150.9	524	0.7	1.9
El Salvador	9.9	59.2	32.9	385.7	855.1	2.9	1.8
Equatorial Guinea	3.8	22.4	74.2	236.6	594.3	0.4	0.3
Eritrea	4.1	20.7	45.2	24	74.3	0.1	1.4
Estonia	7.8	77.1	21.6	1,787.90	2,919.40	3.5	6.6
Eswatini	6.5	52.9	11.3	219.1	567.3	0.2	4.1
Ethiopia	3.5	28.2	33.1	28.7	82.7	0.1	0.7
Europe & Central Asia	10.5	75.5	15.8	2,529.90	3,477.10	3.5	8.5
Fiji	3.7	68.5	13.7	186.4	445.1	0.9	4

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Finland	9.6	81.3	16.4	4,726.10	4,896.90	4.6	22.3
France	12.2	76.7	8.9	4,768.70	5,740.40	3.3	11.8
Gabon	3.4	55.4	20.1	229	502.6	0.6	2.9
Gambia	2.6	52.2	23.5	18.6	54.7	0.1	0.6
Georgia	7.6	36.5	46.8	320	1,107.50	7.1	5.2
Germany	12.8	78.4	12.5	5,930.30	7,031.90	4.4	14.2
Ghana	4	49.7	30.8	85	221.3	0.1	2.7
Greece	9.5	54	33.4	1,675.10	2,653.00	6.3	3.7
Grenada	5.8	39.3	55.8	491.1	810.4	1.4	6.3
Guatemala	6.5	38.3	56.3	289.1	556.1	0.4	1.3
Guinea	4	24	47.3	46.8	110.5	0.2	0.6
Guinea-Bissau	8.4	8.5	64.4	61.4	164.6	0.2	0.7
Guyana	5.5	73	23.5	378.1	1,071.00	1.8	2.7
Haiti	3.2	12.6	46.9	44.2	100.6	0.2	0.4
High-income	14	65.8	12.1	6,176.50	6,741.80	3.2	11.3
Honduras	9	38	50	212.7	479.2	0.3	0.7
Hungary	7.3	71.1	25.5	1,163.20	2,407.70	3.5	6.9
Iceland	9.6	83.3	15	5,636.90	5,099.80	4.1	17.2
India	3	36.6	50.6	56.6	190.7	0.7	1.7
Indonesia	3.4	55	31.8	133	414.8	0.5	3.8
Iran	5.3	53.9	37.1	573.4	769	1.6	2.1
Iraq	5.1	54.8	44.8	202.3	463.9	0.7	2

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Ireland	7.1	78.8	10.5	6,092.20	6,657.60	3.4	13
Israel	8.3	70.8	17.1	3,867.40	3,457.00	3.6	5.6
Italy	9.6	76.1	21.3	3,057.00	4,032.00	4	6.4
Jamaica	6.6	68	15.1	325.7	645.3	0.5	0.9
Japan	10.9	84.2	12.6	4,388.10	4,628.00	2.5	11.9
Jordan	7.5	49.7	30.2	298.6	722.1	2.7	3.3
Kazakhstan	3.8	66.2	27.5	341.5	1,001.70	4	7.3
Kenya	4.3	47.4	24.1	83.4	203.2	0.2	1.2
Kiribati	11.6	79.8	0.1	166.6	240.2	..	3.8
Korea.	8.4	61	27.7	2,642.40	3,782.10	2.5	8.2
Kuwait	6.3	89.9	9.1	1,532.60	2,922.30	2.6	7.4
Kyrgyzstan	5.3	44.8	45.9	63.7	269.4	2.2	5.6
Lao PDR	2.7	42.9	41.8	68.3	214	0.4	1.2
Latin America & Caribbean	8.6	55.1	26.2	594.4	1,325.10	2.4	4.2
Latvia	7.4	63.4	32.1	1,313.40	2,331.20	3.3	4.8
Lebanon	8	33.1	44.2	994.5	1,059.50	2.2	1.7
Lesotho	11.8	51.7	14.6	107.1	298.8	0.5	3.3
Liberia	9.5	16.7	46.9	56.7	131.6	0.1	2
Lithuania	7.5	68.7	28.7	1,522.20	2,931.80	4.6	8.2
Low-income	5.1	24.4	42	34	104.7	0.4	1
Lower middle-income	3.9	41.1	47.1	95.2	266	0.8	1.8
Luxembourg	5.8	87.3	8.5	6,757.00	6,843.50	3	12.2

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Madagascar	3.9	37	34	17.9	58.8	0.2	0.3
Malawi	5.4	36.3	19.5	33	82.4	0.2	0.4
Malaysia	4.1	52.8	35.9	418.7	1,122.80	2.1	3.5
Maldives	11.3	80	16.9	825.6	1,602.90	2.1	4.8
Mali	4.3	34.4	28.7	35.5	96.5	0.1	0.4
Malta	10.8	66.7	30.3	3,135.40	4,694.70	2.9	9.5
Marshall Islands	13	48.7	1.1	731.1	634.6	..	3.3
Mauritania	3.4	40.2	46.6	59	187	0.2	0.9
Mauritius	6.7	52.2	41.3	560.4	1,333.50	2.6	3.9
Mexico	6.2	52.9	38.8	538.6	1,192.60	2.4	2.8
Micronesia	11.6	24.1	2.5	424.8	371	..	2.2
Middle East & North Africa	5.9	58.6	30	470.6	846.2	1.4	2.5
Moldova	6.8	64.8	30.9	306.6	876.8	2.6	3.9
Monaco	1.7	86.9	7.2	3,085.40	3,164.00	7.5	20.2
Mongolia	4.9	63.9	27	199.8	608.5	3.9	4.2
Montenegro	11.4	62.5	36.5	866.2	2,255.30	2.7	5.3
Morocco	6	43.5	42	187.4	451.5	0.7	1.4
Mozambique	7.6	31.7	10	34.3	99.1	0.1	0.5
Myanmar	4.6	15.9	78.2	72.1	243.5	0.7	1.1
Namibia	8.9	49.5	7.4	379.5	844.4	0.6	2
Nepal	5.2	30.1	54.2	58.3	205.9	0.8	3.3
Netherlands	11.1	68.8	9.3	5,846.20	6,612.80	3.8	11.1

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
New Zealand	10	77.2	11.6	4,201.60	4,510.80	3.5	11.2
Nicaragua	8.6	61.8	32.3	161.2	471.2	1.7	1.6
Niger	6.2	37.8	43.4	35	79.4	0	0.2
Nigeria	3.4	15	74.7	69.8	173.5	0.4	1.5
North Macedonia	7.9	60.4	38.9	453	1,295.00	2.9	3.8
Norway	11.4	85.7	13.9	7,704.40	7,168.40	4.9	18.3
Oman	5.3	90.3	4.7	844.6	1,814.60	1.9	4.1
Pakistan	3	35.2	55.4	38.2	158.1	1.1	0.5
Palau	18.4	73.5	11	2,640.10	3,025.30	1.4	6.3
Panama	9.7	60.7	32.5	1,214.50	2,600.20	1.6	3.2
Papua New Guinea	2.5	68.1	8.8	63.9	99.4	0.1	0.5
Paraguay	7.6	54.3	38.4	405.6	1,060.00	1.4	0.7
Peru	6.3	67.9	22.8	388.5	753.3	1.4	3
Philippines	5.1	44.6	45	164.7	419	0.6	5.4
Poland	6.5	71.9	20	1,026.00	2,234.60	2.4	5.7
Portugal	10.5	64.4	27.8	2,341.60	3,605.90	5.5	7.4
Qatar	4.2	79.1	9.5	2,188.40	3,928.00	2.5	7.2
Romania	6.3	80.1	19	809.6	2,012.40	3	6.1
Russian	7.6	70.5	27.8	773.9	2,278.20	4.2	8.5
Rwanda	7.3	40	10.3	57.5	159.6	0.1	0.9
Samoa	5.3	72.4	11.4	202.4	332.7	0.3	3.4
San Marino	8.7	89.4	10	3,937.70	5,167.20	6.1	8.2

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Sao Tome and Principe	4.9	50.7	20.4	106.9	208.2	0.5	2.1
Saudi Arabia	5.5	70.3	15.9	1,291.10	2,696.30	2.8	5.8
Senegal	5.2	33.4	41.6	76.8	182.7	0.1	0.5
Serbia	8.7	61	35.9	672.3	1,660.60	2.5	6.1
Seychelles	6.4	84.5	14.2	726.9	1,741.70	2.3	8.1
Sierra Leone	8.8	15.5	55.7	43.2	146.5	0.1	0.8
Singapore	6.1	52.4	19	3,537.00	5,827.60	2.5	6.2
Slovakia	7.2	80.3	18.8	1,393.60	2,268.10	3.6	6.1
Slovenia	9.5	72.6	12.5	2,417.20	3,767.20	3.3	10.5
Solomon Islands	4.4	81.2	3.8	99.1	115.4	0.2	2.2
South Africa	8.6	62.1	5.4	489.6	1,156.70	0.8	5
South Asia	3.1	34.6	53.4	55.7	189.2	0.8	1.5
South Sudan	5.3	7.9	23.2	33.2	54	0	0.3
Spain	10.7	73.3	19.6	2,900.60	4,047.80	4.4	6.1
Sri Lanka	4.1	45.8	46.6	151.1	542.7	1.2	2.3
Saint Kitts and Nevis	5.4	51.2	44.6	1,104.90	1,537.40	2.8	4.2
Saint Lucia	6.7	42.2	39.5	607.8	877.3	0.6	3.2
St. Vincent and the Grenadines	4.8	67.7	26.5	401.6	701.1	..	7
Sub-Saharan Africa	4.9	41.5	30.3	73.8	188.2	0.2	1.3
Sudan	3	34.2	53	23.4	157.4	0.3	1.1

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Suriname	6.8	64.6	20.5	459.6	1,095.10	0.8	3.9
Sweden	11.4	85.9	13	6,028.00	6,346.60	4.4	11.9
Switzerland	11.8	35.7	22	10,309.80	8,493.30	4.3	18.3
Tajikistan	8.2	26.3	65.2	69.7	313	1.7	4.8
Tanzania, United Rep. of	3.7	42.8	23.1	39.3	101.5	0.1	0.6
Thailand	4.4	70.4	10.5	305.1	774	0.9	3.2
Timor-Leste	9.9	55.3	6.7	120.9	347	0.8	1.8
Togo	6	20.9	61.5	53.5	130	0.1	0.5
Tonga	5.3	57.1	5	248	357.4	..	4.3
Trinidad and Tobago	7.3	46.2	46.3	1,030.70	1,672.00	4.5	4.1
Tunisia	6.3	58.7	36.4	221.7	681.3	1.3	2.5
Türkiye	4.6	78.8	16.4	395.2	1,260.80	1.9	3
Turkmenistan	5.7	17.7	77	483.7	907.3	2.2	4.4
Tuvalu	21.5	84	0.3	1,071.30	1,203.10	0.9	4.3
Uganda	4	17	37.4	33.9	94.7	0.4	1.2
Ukraine	7.6	49.3	47.9	269.7	945.3	3	6.7
United Arab Emirates	5.7	61	11.2	2,191.80	4,033.40	2.6	5.7
United Kingdom	12	83.7	13.6	4,926.60	5,577.40	2.9	8.6
United States	18.8	56.8	9.9	11,702.40	11,702.40	2.6	15.7
Upper middle-income	6.1	56.9	30.9	527.2	1,068.10	2.1	3.9

Economy	Health expenditure					Health workers	
	Current	Public	Out of pocket	per capita	per capita	Physicians	Nurses and midwives
	% of GDP	% of current	% of current	USD	current PPP USD	per 1,000 people	per 1,000 people
	2020	2020	2020	2020	2020	2014-19	2014-19
Uruguay	9.2	71.8	16.7	1,429.50	2,110.60	4.9	7.2
Uzbekistan	6.7	46.2	53.1	120.5	532.8	2.4	11.3
Vanuatu	4	65.7	7.4	114.2	119.8	0.2	1.4
Venezuela	3.8	43.9	25.9	142.5	590.1	1.7	2.1
Viet Nam	4.7	45.1	39.6	166.2	516.2	0.8	1.4
World	10.9	63.4	16.4	1,177.10	1,535.10	1.6	4
Zambia	5.6	43.5	8.8	53.8	188.7	0.1	1
Zimbabwe	3.4	22.1	10.4	50.7	118.1	0.2	1.9

Annex 2. Summaries of selected Member profiles

This Annex provides a view on the health situation and system design in selected Members: China, Egypt, Fiji, India and Indonesia. The Members are from different sub-regions, are of different sizes, and at differing stages of development. A range of large, small and geographically diverse Members were chosen to show the variation that AIIB will find across the region. The analysis uses the latest information available.

In general, Members with lower GDP per capita tend to also have higher DALY rates. Key trends identified in the five Member regions are:

- Aging of the population is apparent, especially in more developed Members;
- Climate change is a critical topic for healthcare and air pollution is a major issue in China;
- Egypt has the highest prevalence of chronic hepatitis C in the world but is successfully tackling this problem;
- The second wave of COVID-19 in 2021 had a particularly devastating impact on Fiji's healthcare system, exposing a lack of resilience. Fiji also struggles with UHC, partly due to its geography;
- Indonesia also struggles with coverage due to its archipelagic geography. Indonesia needs more healthcare workers, particularly in rural and remote areas; and
- There is a trend towards NCDs becoming the leading causes of DALYs in developing and developed economies; however, this trend is not (yet) evident in India.

China

Profile	<p>Over the past four decades, rapid urbanization in China has brought unprecedented health benefits to its urban population but has also created new challenges for protection and promotion of health in cities. People are living longer in China. The population-adjusted life expectancy was 77.4 years in 2019 (Wang et al., 2023).</p> <p>The Healthy China 2030 plan was released by the State Council of China in October 2016. It specifies that health management in China will focus on the promotion of healthy lifestyles, optimization of health services, improvements in healthcare coverage, provision and protection of a healthy environment, and development of service industries in healthcare. The plan presented health as the foundation for all socioeconomic development, called for the integration of health into all policies, and emphasized the importance of addressing the environmental and social determinants of health (Tan et al., 2017).</p>
Coverage	<p>China has developed a national healthcare system that is able to cover over 95% of the population (Yi, 2021). This comes at a time when demands continue to expand, especially with increasing incomes, an aging population, and economic growth.</p> <p>China achieves near-universal coverage through the provision of publicly funded basic medical insurance (Tikkanen et al., 2020). The health system is primarily public with a small number of private providers.</p>
GDP per capita	<p>USD12,524, 1/5 in the group (World Health Organization, n.d.-b)</p>
DALY	<p>China's DALY is the lowest of the five regions reviewed herein (181.56 per 100 population). Stroke, ischemic heart disease and chronic obstructive pulmonary disease (all NCDs) are the top three causes of death (World Health Organization, n.d.-a).</p>
Domestic government health expenditure	<p>China has more than tripled governmental health expenditure from CNY482 billion in 2009 to CNY1,640 billion in 2018. The percentage of OOP expenses in total health expenditure decreased from 37% in 2009 to 28% in 2018 (World Health Organization, n.d.-c). WHO figures show that domestic government health expenditure was USD369 per capita in 2022, or 3% of GDP (World Health Organization, n.d.-b).</p>
Trends	<ul style="list-style-type: none"> • China's healthcare industry is experiencing rapid growth, driven by rising incomes, increasing health awareness, and an aging population. • Aging of the Chinese population is projected to continue: the percentage of people aged 65 years or older will increase to 18% - 20% of the total population by 2030. The pace of population aging in China has been faster than most developed economies. • Other changes associated with rapid urbanization - including large-scale migration, aging, pollution, shifts in diet and lifestyle, and social inequality - have created new health challenges. By 2030, around

	<p>207 million people aged 65 years or older are projected to live in urban areas, compared with 52 million in 2010.</p> <ul style="list-style-type: none"> • NCDs have replaced infectious diseases as the leading cause of death among urban residents. • Air pollution is the most challenging environmental health issue faced by many cities in China.
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Egypt

Profile	<p>The health system in Egypt comprises government and parastatal organizations as well as private operators. The public health system faces many challenges, including underfunding, low quality care, lack of medical equipment, and lack of qualified personnel. Due to low standards of care in public facilities, many Egyptians seek care in private facilities if they can afford it.</p> <p>Egypt has been making concentrated efforts to improve health outcomes. It adopted a new constitution in 2014, which addresses health as a fundamental human right and commits to expanding coverage and access to quality services for all Egyptians. Egypt committed to allocating a percentage of government expenditure of no less than 3% of GDP to health, almost double the earlier allocation. It then took a major step towards UHC through the Universal Health Insurance Law in 2018.</p>
Coverage	Egypt aims for UHC, but there is significant regional variation; the least service availability and coverage was generally observed in Upper Egypt. However, some initiatives under the 2018 Law have received international recognition and Egypt continues to receive humanitarian aid to strengthen public health.
GDP per capita	USD3,634, 4/5 in the group (World Health Organization, n.d.-b).
DALY	Egypt's DALY is the second-lowest of the five Members reviewed (195.71 per 100 population). The top 3 leading causes of death in Egypt are all NCDs (ischemic heart disease, cirrhosis of the liver and stroke) (World Health Organization, n.d.-a).
Domestic government health expenditure	Domestic government expenditure on healthcare in Egypt was USD65 per capita or 2% of GDP in 2022 (World Health Organization, n.d.-b).
Trends	<ul style="list-style-type: none"> • Egypt's health sector has been challenged by disease-specific problems, particularly hepatitis C and then COVID-19. Despite successful efforts to reduce hepatitis C, Egypt has the highest prevalence of chronic hepatitis C in the world; nearly 4.4% of Egypt's adult population (some 4.5 million people) is infected. • Despite several gains in healthcare in previous decades, health outcomes are unequally distributed and certain populations (defined by income, education, gender, or geography) remain excluded from

	<p>gains in health outcomes. Public health facilities are not considered responsive to patients, leading patients to pay for private care.</p> <ul style="list-style-type: none"> • The population is aging, but to a lesser extent than many other Members. There has also been a high fertility rate in recent decades. • Poor maternal and child health is found in rural and remote areas. • Like other Members, Egypt is undergoing an epidemiological transition towards NCDs, with 72% of all mortality and morbidity in 2010 (captured in DALYs) due to NCDs. • The main vulnerabilities to climate change in Egypt are related to the rise in the level of the Mediterranean Sea, leading to inundation of coastal areas in and around the Nile Delta, change of precipitation patterns resulting in heavy rains causing urban flooding (along coastal areas) and flash floods (in Upper Egypt and Sinai), rise in average temperature and more frequent heat waves and dust storms.
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Fiji

Profile	Fiji aims for UHC in its healthcare system, which combines both public and private providers and financiers. The Constitution of the Republic of Fiji includes a provision that the state “must take reasonable measures within its available resources to achieve the progressive realization of the right of every person to health, and to the conditions and facilities necessary to good health, and to health care services, including reproductive health care.”
Coverage	Fiji’s Health Ministry envisions making health services available to all the people of Fiji and leaving no one behind as it strives to uphold the United Nations’ vision of UHC. While health services in Fiji are provided for free or at low cost for all residents, several factors hinder effective coverage for all. The geography of Fiji, as well as social and cultural factors, impede access to services. Private services are available but must be paid OOP (Fiji Ministry of Health and Medical Services, 2020).
GDP per capita	USD5,416, 2/5 in the group (World Health Organization, n.d.-b).
DALY	Fiji’s DALY is relatively high (258.8 per 100 population), despite its health expenditures as percentage of GDP being in the middle of the range of the five regions considered. Fiji has the highest DALY of the regions selected.
Domestic government health expenditure	Government expenditure on healthcare in Fiji has increased in recent years, with the most recent figure at USD151 per capita or 2.8% of GDP. This is in the middle of the pack of the regions we are looking at for this discussion (World Health Organization, n.d.-b).
Trends	<ul style="list-style-type: none"> • Although COVID-19 ravaged many regions around the world, the second wave in 2021 had a particularly devastating effect on Fiji’s healthcare system, exposing a lack of resilience.

	<ul style="list-style-type: none"> • There are three important environmental risk factors for people in Fiji: water, sanitation and hygiene, and household air pollution. • Like other economies, Fiji is transitioning towards a prevalence of NCDs, though more slowly than other regions. The DALY profile for Fiji shows that diabetes mellitus, ischemic heart disease and stroke (all NCDs) are the top three causes of DALYs. • Life expectancy has not increased significantly. The aging population trend found in other regions is not present in Fiji. The composition of the population was relatively unchanged from 2000 to 2020.
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India

Profile	<p>India also has a pluralistic healthcare system combining both public and private providers and financiers.</p> <p>All Indian citizens can get free outpatient and inpatient care at government facilities.</p> <p>The public healthcare infrastructure in rural areas has been developed as a three-tier system. Most of the private healthcare providers are concentrated in urban India, where they cover secondary and tertiary care healthcare services. Government expenditure on healthcare in India has been lower than many other Members, at 1.2% of GDP for 2022.</p> <p>Due to India's federalized system of government, areas of governance and operations of the healthcare system are divided between the union and the state governments.</p> <p>India's population-adjusted life expectancy was 70.8 years in 2019 as per the most recent WHO information. It is still significantly lower than the world average.</p>
Coverage	<p>There is widespread infrastructure, however the quality is variable and relatively poor in rural and remote areas. Medical insurance is not required for Indian citizens, but due to the limited nature of existing public health facilities and infrastructure, many Indians who can afford to choose to purchase private medical insurance.</p>
GDP per capita	<p>USD2,405, 5/5 in the group (World Health Organization, n.d.-b).</p>
DALY	<p>India's DALY is relatively high (238.4, with neonatal conditions, ischemic heart disease and tuberculosis the top three causes of DALYs per 100 population). This reflects the ongoing challenge of a developing territory with a very large population dispersed across a wide geographic region. It is the 2nd highest of the regions selected for this discussion. Neonatal conditions, ischemic heart disease and tuberculosis are the top three causes of death (World Health Organization, n.d.-a)</p>
Domestic Government	<p>2022 figures shows domestic government spending on healthcare at USD31 per capita or 1.2% of GDP (World Health Organization, n.d.-b).</p>

health expenditure	
Trends	<ul style="list-style-type: none"> • Generally, there is a trend towards NCDs becoming the leading causes of DALYs in both developing and developed economies, but this trend is not evident in India. However, it can be expected that as India continues to develop, there will be a shift towards NCDs. • The Government of India has undertaken deep structural and sustained reforms to strengthen the healthcare sector and has also announced policies to encourage foreign direct investment. The Aatmanirbhar Bharat Abhiyaan packages include several short-term and longer-term measures for the health system, including production-linked incentive schemes for boosting domestic manufacturing of pharmaceuticals and medical devices. • India has seen a growing acceptance of telemedicine since the pandemic. • Remote monitoring tools are becoming increasingly popular in India as more and more people seek ways to improve their health and wellness. With these tools, patients can take a proactive role in their healthcare and receive timely interventions when needed. • The Indian healthcare industry is expected to reach a valuation of USD132 billion in 2023, growing at a CAGR of 16-17%. The sector, with many small and medium-sized privately owned startups, needs more cohesion. Mergers and acquisitions are expected to play a vital role in the growth and consolidation of the sector.

Indonesia

<p>Profile</p>	<p>In 2023, the total population of Indonesia was approximately 278.3 million. Consisting of more than 13,000 islands spread over 1.9 million square kilometers, Indonesia is the third most populous country in Asia and the fourth largest region in the world.</p> <p>Indonesia has a pluralistic healthcare system combining both public and private providers and financiers. The Ministry of Health manages the public sector, which includes government-run hospitals, community health centers (puskesmas), and public health programs. The private sector includes private hospitals, clinics, and individual practitioners.</p> <p>Public healthcare is decentralized and is managed at three different levels, with central, provincial and district government responsibilities.</p> <p>The Indonesian health system is based on a primary healthcare concept: the community health center is the basic healthcare facility, supported by hospitals and other community-based healthcare facilities.</p> <p>Indonesia implemented a national health insurance scheme in 2014 designed to pave the way for the achievement of UHC. This scheme, known as Jaminan Kesehatan Nasional (JKN), sought to make comprehensive care available to the entire population.</p>
<p>Coverage</p>	<p>By 2021 the JKN membership included approximately 83% of the population (Asante et al., 2023). Indonesia also suffers from geographic challenges, similar to Fiji.</p>
<p>GDP per capita</p>	<p>USD4,731, 3/5 in the group (World Health Organization, n.d.-b).</p>
<p>DALY</p>	<p>The DALY is 214.98, the third highest in group. Stroke, ischemic heart disease (both NCDs) and tuberculosis are the top three causes of death (World Health Organization, n.d.-a).</p>
<p>Domestic government health expenditure</p>	<p>Public funding has increased in recent years, with the most recent figure at USD66 per capita, or 1.4% of GDP (World Health Organization, n.d.-b).</p>
<p>Trends</p>	<ul style="list-style-type: none"> • There is likely to be a 40% growth of elderly people by 2025, which will drive demand for healthcare systems, especially for age-related facilities. • There is a regional imbalance in healthcare delivery in Indonesia, which is not simply a matter of distribution of facilities among provinces and districts, but of geography, i.e., sparsely covered areas. • The poor state of Indonesian health and the healthcare industry presents one of the largest impediments to Indonesia's growth.

	<ul style="list-style-type: none">• Indonesia needs more healthcare workers, particularly in rural and remote areas. This shortage is due to inadequate training facilities, low wages, and poor working conditions.• Indonesia’s healthcare infrastructure, particularly in rural and remote areas, needs more basic equipment, medicines, and hospital beds.• The pandemic exposed the fragility of medical supply chains.
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Annex 3. Activities of key comparator MDBs in health

This Annex provides a more detailed analysis of the activities of key comparator MDBs in healthcare infrastructure investment. The intent is to provide context for the discussion in this paper about AIIB's health infrastructure investment strategy.

World Bank (WB)

The WB started its health operations with the 1997 Health, Nutrition, and Population (HNP) Strategy, with a focus on improving outcomes for the poor, protecting the population from the impoverishing effects of illness, enhancing the performance of health systems, and securing sustainable health financing. Over the first 10 years, the WB had more than 500 projects and programs in over 100 economies, totaling USD15 billion, or roughly USD1.5 billion per year during that initial period.

The HNP Strategy was updated in 2007, to reflect the WB's new strategic objectives and directions. It still serves as a guiding document for what is now a USD34 billion global health portfolio. The strategic objectives include: (i) improving the level and distribution of key HNP outcomes, outputs, and system performance, at country and global levels to improve living conditions, particularly for the poor and the vulnerable; (ii) preventing poverty due to illness (by improving financial protection); (iii) improving financial sustainability in the HNP sector and its contribution to sound macroeconomic and fiscal policy and to country competitiveness; and (iv) improving governance, accountability, and transparency in the health sector.

Compared to the 1997 HNP Strategy, the 2007 update sustained the WB's emphasis on poverty alleviation, health system strengthening, and sustainable health financing, recognizing that a multisectoral approach would be essential for achieving HNP results. The update reiterated the WB's strengths in generating knowledge and providing policy and technical advice in HNP, reinforcing the WB's efforts to: support Members' regulating of the private sector; improve public-private collaboration for HNP results; strengthen health system capacity; and undertake intersectoral work for HNP results.

In the context of the United Nations General Assembly's inclusion of UHC among the targets for SDG3: "ensure healthy lives and promote well-being for all at all ages," the WB's HNP Global Practice (GP) was created in 2014/2015. To align with the 2013 Corporate Strategy for the World Bank Group (WBG), the HNP GP adopted the mission of better connecting global and local expertise within the WBG (WB and IFC) to assist clients in accelerating progress toward UHC through financial protection, service coverage, and healthy societies, while reaffirming its focus on investing in people.

Asian Development Bank (ADB)

ADB, with its health portfolio of USD13 billion, has produced three health sectoral documents to date toward the achievement of UHC in Asia and the Pacific, namely: (i) the 2005 Policy for Health; (ii) the 2015-2020 Operational Plan for Health; and (iii) the Strategy 2030 Health Sector Directional Guide (2022). The last is the current guiding document for ADB's health sector investments, aligning with ADB's Strategy 2030 and its seven operational priorities (OPs),

namely OP1: Addressing remaining poverty and reducing inequality; OP2: Accelerating progress in gender equality; OP3: Tackling climate change, building climate and disaster resilience, and enhancing environmental sustainability; OP4: Making cities more livable; OP5: Promoting rural development and food security; OP6: Strengthening governance and institutional capacity; and OP7: Fostering regional cooperation and integration. It sets a target for ADB's health share of 6–10% by 2030, with a view to providing financing, training assistance, and knowledge solutions and services to accelerate progress toward UHC in Asia and the Pacific, including targeted investments in gender equality, climate resilience, and pandemic PPR.

Five focal areas respond to the challenge of restoring the region's progress toward UHC in a post-COVID-19 context. These are (i) improving governance, policy, and public goods; (ii) enhancing health financing and incentives; (iii) expanding health infrastructure and systems; (iv) strengthening the health workforce; and (v) enhancing pandemic PPR. These are accompanied by cross-cutting action on two fronts. First, the health sector must respond to the evolving impact of climate change through both adaptation and mitigation. Second, across all five areas, progress must be made on gender equality in health. Multisectoral solutions involving water and sanitation, agriculture, transport, urban, and education, are also required.

International Finance Corporation (IFC)

Since 2002, IFC has built an active portfolio in health of USD3.5 billion, guided in the first 10 years by its Investing in Private Health Care: Strategic Directions for IFC. The strategy's objectives were to support investment in hospitals and to diversify IFC's health portfolio into non-hospital investments, such as pharmaceuticals, private insurance in economies without universal risk pooling, and health worker education and training with a wider geographic cover. A central tenet of IFC investments under this strategy was that private spending on hospitals and clinics would relieve the burden on public health systems. IFC has been more successful in expanding its investments in hospitals and pharmaceuticals than in health insurance, with only two direct investments in private voluntary health insurance, for a total of USD127 million out of the net commitments of USD2 billion to 2013.

In 2013, the WBG corporate strategy promoted the "One WBG" approach. This was reflected in the 2015 WB/IFC report on the Joint WBG Approach to Harnessing the Private Sector in Health, which aspires to provide the best development solutions regardless of whether they are public or private. Specifically, IFC helps private providers meet the soaring demand for healthcare and supports governments in their goal of reaching UHC by 2030 through direct investments. IFC has also participated in several PPPs in healthcare. IFC works actively to create resilient and self-reliant health systems, which calls for ensuring stable supply chains, in some cases through local production of drugs, vaccines, and other healthcare products.

European Bank for Reconstruction and Development (EBRD)

EBRD, with more than EUR1 billion in health-related projects, does not have a policy paper specifically focused on the health sector. Its 2014 Updated Approach to Healthcare Services is the most relevant approach paper. It established that an estimated portfolio volume for eligible projects should not exceed EUR100 million per year. It also excluded policy

engagement as a potential area of activity. Most of its health-related deals are in the manufacturing & services, or sustainable infrastructure categories.

EBRD's Infrastructure Business Group team helps clients create conditions where PPPs can be credibly prepared, successfully tendered, and competently monitored to achieve value for money for the societies in which they take place. EBRD's recent health projects are concentrated in hospital PPP investment.

European Investment Bank (EIB)

Another Europe-oriented bank, the EIB does not have a health sector strategy, but its health support covers the following five areas:

- Hospitals and infrastructure investments;
- Medical research, education, and training;
- Health informatics and innovation;
- Integrated and people-centered approaches to healthcare networks, especially involving cross-border cooperation;
- Services providing universal access to safe and affordable care and designed to meet the varying needs of people across the course of their lives.

Further information on MDBs is provided in the table below.

Peers	Health Portfolio	Focus and Strength	Strategy Development Path	Regional Feature
IBRD, IDA	The World Bank has a vast portfolio in health financing spanning numerous priority areas. A USD34 billion global health portfolio includes over 240 projects that help member countries take a comprehensive approach to improving health outcomes, especially for poor and vulnerable people, by strengthening primary care and key public health functions.	<ul style="list-style-type: none"> Country health systems: health financing, insurance, demand-side interventions, regulation, and systemic arrangements for fiduciary and financial management. Provision of policy and technical advice to member countries and global partners. 	<ul style="list-style-type: none"> 1997 Health, Nutrition and Population (HPN) Strategy: improving outcomes for the poor, protecting the population from the impoverishing effects of illness, enhancing the performance of health systems, and securing sustainable health financing, with more than 500 projects and programs of USD15 billion in over 100 countries from 1997 through 2006. Put health at the center of the development community's agenda. 2007 Updated HNP Strategy: Sustained emphasis on the needs of the poor, health systems performance, and sustainable health financing. During 2014/2015, United Nations General Assembly embraced UHC among the targets for SDG3: "ensure healthy lives and promote well-being for all at all ages." 2013 Corporate Strategy. HNP Global Practice (GP), created in 2014, adopted the mission of better connecting global and local expertise within the WBG to assist member countries in accelerating progress toward UHC through financial protection, service coverage, and healthy societies. 	<p>Multi donor trust fund.</p> <p>Africa: Health workforce limitations; access to, and management of, pharmaceuticals; institutional frameworks, including planning and budgeting capacity for pro-poor service delivery; and expanding household demand for services.</p> <p>Lower-income Countries: HIV/AIDS, malaria, tuberculosis, maternal and child health, reproductive and sexual health, and micronutrient interventions are prominent.</p> <p>East Asia and Pacific: Making health financing more equitable; increasing access to healthcare; improving the performance of both public and private healthcare providers; strengthening pharmaceutical systems; addressing imbalances in the health workforce.</p> <p>Eastern Europe and Central Asia: Transparency, governance, informal payments, access to health services.</p>

Peers	Health Portfolio	Focus and Strength	Strategy Development Path	Regional Feature
IFC	IFC has had an active portfolio in healthcare companies in emerging markets since 2003, now totaling USD3.5 billion. ¹	<ul style="list-style-type: none"> Through its investments, IFC helps private providers meet the soaring demand for healthcare and supports governments in their goal of reaching UHC by 2030. Fosters best practices in healthcare and life sciences, promotes the deployment of innovative technologies and advances in quality care. Participates in several PPPs in healthcare. Supports creating resilient and self-reliant health systems, including 	<ul style="list-style-type: none"> 2002 Investing in Private Health Care: Strategic Directions for IFC: The strategy's objectives were to continue investing in hospitals and to diversify IFC's health portfolio into nonhospital investments, pharmaceuticals, private insurance in member countries without universal risk pooling, and health worker education and training with a wider geographic cover. A central tenet of IFC investments under this strategy has been that private spending on hospitals and clinics will relieve the burden on public health systems. IFC has been more successful in expanding its investments in hospitals and pharmaceuticals than in health insurance, with only two direct investments in private voluntary health insurance for a total of USD127 million out of net commitments of USD2 billion. 2010 Healthcare PPP promotion. WBG's 2013 corporate strategy acknowledged the importance of health services to achieve the twin goals of ending extreme poverty and promoting shared prosperity, and emphasized the "One World Bank Group" approach to find the best development solutions, regardless of whether 	<p>Latin America and the Caribbean: In high-middle-income and several low-middle-income countries where most of the population has access to basic healthcare services, governments are expanding social protection in health. Other low-middle-income countries where the provision of basic services is still an important challenge are focusing on strengthening health systems to expand the supply of these services.</p> <p>Middle East and North Africa: Health system modernization and health finance reforms to improve financial protection and access to healthcare; improvements in the performance of health service delivery systems; and enhancement of the governance and stewardship role of the state in the health sector.</p> <p>South Asia: Improvements in public sector service delivery, reduction of high OOP costs.</p>

¹ [Health | International Finance Corporation \(IFC\)](#)

Peers	Health Portfolio	Focus and Strength	Strategy Development Path	Regional Feature
		ensuring stable supply chains, which in some cases means local production of drugs, vaccines, and other healthcare products.	they are public or private. By fostering synergies among WBG institutions, this joint approach highlights the WBG's unique role in helping member countries in achieving UHC by harnessing the private sector.	
ADB	USD13 billion (incl. TA, grant, private sector operations 172 million). ² 2019 corporate results framework set a target of 3-5% for health financing as a share of total ADB financing to be achieved by 2024 and 6–10% by 2030.	<ul style="list-style-type: none"> • Focused on strengthening health systems, reaching UHC, and addressing the growing demand for better health infrastructure, quality care, and medicines. 	<ul style="list-style-type: none"> • 2005 Policy for Health. • ADB's Operational Plan for Health 2015-2020. • Strategy 2030 Health Sector Directional Guide³ Support for pursuit of UHC by improving the quality and coverage of healthcare services. Support of reforms in health financing, including health insurance systems, to improve access to quality healthcare services and reduce OOP expenses incurred by the poor. Management of the growing burden of NCDs and elderly care in a cost-effective and sustainable manner. Promoting the greater use of innovative and smart health service delivery systems. Support for health systems development, health security and 	Asia and Pacific: Rapid urbanization and climate change; demographic shifts; decentralization and regional cooperation; digitalization of health processes; threats due to pandemics.

² [Cumulative Lending, Grant, and Technical Assistance Commitments | ADB Data Library | Asian Development Bank](#)

³ [Strategy 2030 Health Sector Directional Guide: Toward the Achievement of Universal Health Coverage in Asia and the Pacific | Asian Development Bank \(adb.org\)](#) Contents: 1. Where are; 2. Where we want to be; 3. What we will do.

Peers	Health Portfolio	Focus and Strength	Strategy Development Path	Regional Feature
			communicable disease management, and health governance.	
AfDB	USD5 billion.	Seeks to address Africa's health infrastructure deficits, drawing on its core expertise in infrastructure development.	<ul style="list-style-type: none"> Strategy for Quality Health Infrastructure in Africa 2022-2030:⁴ There are three pillars: 1) primary healthcare infrastructure for underserved populations; 2) secondary and tertiary healthcare facilities, alongside specialist facilities for cancer, dialysis and pain management, especially for NCDs; 3) diagnostic infrastructure, utilizing a range of delivery models, including public-private collaborations to address serious bottlenecks in efficient and effective diagnosis. 	Africa faces major deficits in financing for health infrastructure. The USD4.5 billion in capital expenditure currently made by African governments each year is far below the estimated USD26 billion in annual investment needed to meet evolving health needs over the next decade.
IDB	USD15 billion.	Objectives are to promote better health conditions, reduce the risk of poverty associated with health problems, and achieve sustainability of health services for the entire population. Based on international evidence, to provide support to the member countries of the	<ul style="list-style-type: none"> Health and Nutrition Sector Framework Document 2021 Health Sector Framework Document⁵. IDB is committed to improvements in population health and progress toward UHC, focusing on 1) Information and co-responsibility in healthcare; 2) Timely and ongoing access to health and nutrition services; 3) Financial protection through efficient 	In the LAC region, public health spending is 3.6% of GDP.

⁴ [Strategy for Quality Health Infrastructure in Africa - 2022-2030 | African Development Bank Group](#) Contents: 1. Introduction; 2. The case for investing in the health infrastructure in Africa; 3. AfDB's comparative advantage on health infrastructure; 4. Lessoned learned; 5. Objectives and strategic approach; 6. Priorities under the strategic pillars; 7. Implementation of the strategy; 8. Risks and mitigation; 9. Conclusion.

⁵ [SECTOR FRAMEWORK | IDB](#) Contents: 1. The health sector framework document in the context of current regulations, institutional strategy, and international agreements. 2. Key challenges for the health sector in the region. 3. Evidence on the effectiveness of health policies and programs. 4. Lessons learned from the IDB Group's experience in health. 5. Lines of action for the IDB Group's work in health.

Peers	Health Portfolio	Focus and Strength	Strategy Development Path	Regional Feature
		region to strengthen their health systems.	spending on health; 4) Efficiency and intersectoral collaboration among health authorities.	
EBRD	EUR1 billion 2000-2018.	EBRD's Infrastructure Business Group (IBG) team helps clients create conditions where PPPs can be credibly prepared, successfully tendered, and competently monitored to achieve value for money for the societies in which they take place.	No sector strategy. 2014 Updated Approach to Healthcare Services established an estimated portfolio volume for eligible projects that should not exceed EUR100 million per year. It also excluded policy engagement as a potential area of activity. Health-related deals are mostly booked under manufacturing & services, or sustainable infrastructure. There is a focus on hospital PPP investment.	
EIB ⁶	EUR42 billion for health-related projects (EUR5.1bn in 2022 for COVID-19) ⁷ around the world since 1997.	EIB supports healthcare projects that aim to ensure universal access to high-quality and affordable services.	No sector strategy, but the following are eligible for financing: <ul style="list-style-type: none"> • Hospitals and infrastructure investments • Medical research, education, and training • Health informatics and innovation • Integrated and people-centered approaches to healthcare networks, especially involving cross-border cooperation • Services providing universal access to safe and affordable care and designed to meet the varying needs of people across the course of their lives. 	

⁶ [Health and life science \(eib.org\)](https://www.eib.org/en/press/2022/02/health-and-life-science)

⁷ [Financed projects \(eib.org\)](https://www.eib.org/en/press/2022/02/financed-projects)

Annex 4. Potential philanthropic health partners

List of OECD private philanthropic foundations included in the 2016 OECD Survey on Global Private Philanthropy for Development, by headquarters or main office location (data questionnaire, as of October 3, 2017)

BELGIUM

- King Baudouin Foundation

BRAZIL

- Ayrton Senna Institute
- Itaú Social Foundation

CANADA

- Lundin Foundation*
- MasterCard Foundation*

CHINA (People's Republic of), incl. HONG KONG, CHINA

- Chengmei Charity Foundation**
- Huamin Charity Foundation**
- Li Ka Shing Foundation*

DENMARK

- World Diabetes Foundation

EGYPT

- Sawiris Foundation for Social Development

FRANCE

- Fondation Chanel
- Fondation Daniel & Nina Carasso
- Fondation de France
- Fondation d'entreprise Groupe EDF
- Fondation Grameen Crédit Agricole

ITALY

- Fondazione Cariplo*

JAPAN

- Nippon Foundation
- Toyota Foundation

KENYA

- Kenya Community Development Foundation

MEXICO

- Carlos Slim Foundation

NETHERLANDS

- Bernard van Leer Foundation
- Dutch Postcode Lottery
- IKEA Foundation
- Philips Foundation*

NIGERIA

- Tony Elumelu Foundation

PANAMA

- Fundación Avina

PORTUGAL

- Calouste Gulbenkian Foundation

SOUTH AFRICA

- Nelson Mandela Children's Fund

SPAIN

- Fundación Telefónica
- La Caixa Banking Foundation

- Fondation Mérieux
- Fondation SANOFI Espoir
- Fondation Veolia

GERMANY

- Bertelsmann Stiftung
- Gerda Henkel Stiftung
- Robert Bosch Stiftung*
- Siemens Stiftung
- Volkswagen Stiftung*

INDIA

- Bharti Foundation
- K.C. Mahindra Education Trust
- Tata Trusts
- Wildlife Conservation Trust

IRELAND

- Small Foundation

SWEDEN

- H&M Foundation

SWITZERLAND

- C&A Foundation
- Human Dignity Foundation
- Jacobs Foundation
- MAVA Foundation
- Novartis Foundation
- Oak Foundation
- UBS Optimus Foundation

TÜRKIYE

- Hacı Ömer Sabancı Foundation
- Turkish Educational Foundation*
- Vehbi Koç Foundation*

UNITED ARAB EMIRATES

- Dubai Cares

UNITED KINGDOM

- Big Lottery Fund
- Children's Investment Fund Foundation
- Comic Relief*
- Lloyd's Register Foundation
- Queen Elizabeth Diamond Jubilee Trust
- SFCT: Gatsby Charitable Foundation
- SFCT: Indigo Trust
- SFCT: Staples Trust, True Colours Trusts
- Shell Foundation*
- Sigrid Rausing Trust
- Stars Foundation
- Wellcome Trust

UNITED STATES

- Abbott Fund*
- Alcoa Foundation*
- Andrew W. Mellon Foundation
- Annenberg Foundation*
- Arcus Foundation
- Atlantic Philanthropies*
- Bank of America Charitable Foundation*
- Barr Foundation*
- Bill and Melinda Gates Foundation
- Bloomberg Philanthropies*
- Blue Moon Fund*
- Bristol-Myers Squibb Foundation*

- General Electric Foundation*
- Goldman Sachs Charitable Gift Fund*
- Goldman Sachs Foundation*
- Google Foundation*
- Gordon and Betty Moore Foundation
- Hewlett-Packard Company Foundation*
- Howard G. Buffett Foundation*
- John D. and Catherine T. MacArthur Foundation
- Johnson & Johnson Fam. of Comp. Contrib. Fund*
- JPMorgan Chase Foundation*
- Kresge Foundation*
- Lemelson Foundation*
- Leona M. and Harry B. Helmsley Charitable Trust*
- Margaret A. Cargill Foundation
- Marisla Foundation*
- McKnight Foundation
- Merck Company Foundation*
- Metlife Foundation
- Michael and Susan Dell Foundation
- Mondeléz International Foundation
- NoVo Foundation*
- Omidyar Network*
- Open Society Foundations
- PepsiCo Foundation*
- Pfizer Foundation*
- Rockefeller Brothers Fund
- Rockefeller Foundation
- Segal Family Foundation
- Silicon Valley Community Foundation*

- Carnegie Corporation of New York
- Caterpillar Foundation
- Charles Stewart Mott Foundation
- Christensen Fund*
- Citi Foundation
- Coca-Cola Foundation*
- Conrad N. Hilton Foundation*
- Dalio Foundation*
- David and Lucile Packard Foundation*
- Doris Duke Charitable Foundation*
- eBay Foundation*
- ExxonMobil Foundation*
- FHI Foundation
- Ford Foundation
- Skoll Foundation, Skoll Global Threats Fund*
- Susan Thompson Buffett Foundation*
- UPS Foundation*
- W.K. Kellogg Foundation*
- Walmart/Walmart Foundation
- Walton Family Foundation*
- Weberg Trust*
- William and Flora Hewlett Foundation*
- Zakat Foundation

* Estimates based on publicly available sources (United States Internal Revenue Service Form 990PF, annual reports, foundations' websites and datasets at International Aid Transparency Initiative and 360giving).

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