



**USAID**  
FROM THE AMERICAN PEOPLE



# CAPITAL INVESTMENT IN HEALTH SYSTEMS: WHAT IS THE LATEST THINKING?

September 2018

This publication was produced for review by the United States Agency for International Development.

It was prepared by Jean Butera, Hawa Barry, and Melanie Wilbur for the Health Finance and Governance Project.

## The Health Finance and Governance Project

The Health Finance and Governance (HFG) Project works to address some of the greatest challenges facing health systems today. Drawing on the latest research, the project implements strategies to help countries increase their domestic resources for health, manage those precious resources more effectively, and make wise purchasing decisions. The project also assists countries in developing robust governance systems to ensure that financial investments for health achieve their intended results.

With activities in more than 40 countries, HFG collaborates with health stakeholders to protect families from catastrophic health care costs, expand access to priority services – such as maternal and child health care – and ensure equitable population coverage through:

- Improving financing by mobilizing domestic resources, reducing financial barriers, expanding health insurance, and implementing provider payment systems;
- Enhancing governance for better health system management and greater accountability and transparency;
- Improving management and operations systems to advance the delivery and effectiveness of health care, for example, through mobile money and public financial management; and
- Advancing techniques to measure progress in health systems performance, especially around universal health coverage.

The HFG project (2012-2018) is funded by the U.S. Agency for International Development (USAID) and is led by Abt Associates in collaboration with Avenir Health, Broad Branch Associates, Development Alternatives Inc., the Johns Hopkins Bloomberg School of Public Health, Results for Development Institute, RTI International, and Training Resources Group, Inc. To learn more, visit [www.hfgproject.org](http://www.hfgproject.org)

### September 2018

**Cooperative Agreement No:** AID-OAA-A-12-00080

**Submitted to:** Scott Stewart, AOR  
Office of Health Systems  
Bureau for Global Health

**Recommended Citation:** Butera, Jean, Barry, Hawa; Wilbur, Melanie. September 2018. *Capital investment in health systems: what is the latest thinking?* Rockville, MD: Health Finance & Governance Project, Abt Associates Inc..



Abt Associates Inc. | 6130 Executive Blvd, | Rockville, , Maryland 20814  
T: 301.347.5000 | F: 301.652.3916 | [www.abtassociates.com](http://www.abtassociates.com)

Avenir Health | Broad Branch Associates | Development Alternatives Inc. (DAI) |  
| Johns Hopkins Bloomberg School of Public Health (JHSPH) | Results for Development Institute (R4D)  
| RTI International | Training Resources Group, Inc. (TRG)



# CAPITAL INVESTMENT IN HEALTH SYSTEMS: WHAT IS THE LATEST THINKING?

## **DISCLAIMER**

The author's views expressed in this publication do not necessarily reflect the views of the United States Agency for International Development (USAID) or the United States Government.



# CONTENTS

<b>Executive Summary .....</b>	<b>ii</b>
<b>1. Introduction .....</b>	<b>1</b>
<b>2. What is the trend of capital investment in health in LMICs? .....</b>	<b>3</b>
<b>3. Emerging Lessons from Capital Health Investment implementation in developing countries .....</b>	<b>6</b>
<b>Conclusion .....</b>	<b>10</b>
<b>Recommendations.....</b>	<b>11</b>
<b>Annex 1: Types of existing and Innovative approaches to financing capital investment in developed countries: .....</b>	<b>12</b>
<b>Annex 2: HFG experience in guidance of capacity building for capital investment in the health sector .....</b>	<b>14</b>
<b>BIBLIOGRAPHY .....</b>	<b>17</b>



# EXECUTIVE SUMMARY

Capital investment in health refers to large expenditures in construction of hospitals and other facilities, investment in diagnostic and treatment technologies, and information technology platforms. These investments are characterized by their longevity and they are critical to efforts to improve healthcare quality and efficiency. Contrary to developed countries where there is well documented experience on capital investment in the health sector, including use of public private partnerships for the investment; there is little evidence on capital investment in health from low and middle income countries. This work was undertaken to add to the HFG's knowledge and learning strategy by clarifying what good practice guidance exists in capital benchmark in LMICs health sectors, as well as the HFG project's experience in the area. This brief will be of value to all those interested in the planning and financing the capital investment in the health sector. This includes politicians, planners, managers, health professionals, architects, designers, and researchers in both the public and private sectors.

# I. INTRODUCTION

Since the WHO 2010 World Health Report, there has been a huge growth in health financing and the various strategies and reforms required to LMICs proceed on a path to UHC. This high-profile focus on health financing, has meant a continued rise in the level of knowledge and experience in the different mechanisms for raising revenue, pooling finances, and purchasing services. However, one area that is not getting so much academic and international attention is the capital investment required to expand, renovate, and replace important parts of the health system. With the Ebola outbreak in West Africa, we have seen how inaction and chronic underinvestment can compromise human health, and lead to serious economic and social setbacks<sup>[1]</sup>. Health infrastructure in LMICs remains weak as a result of a history of under-investment in health care facilities, resulting in a backlog of maintenance and refurbishment that needs to be addressed<sup>[2]</sup>. This has had a negative impact on access to health services, making it difficult for health professionals to adequately satisfy the population's needs. Many indicators for health outcomes show slow progress in developing countries. While about 830 women die from pregnancy- or childbirth-related complications around the world every day, almost all these maternal deaths (99 percent) occur in developing countries<sup>[3]</sup>. Africa remains the region with the highest under-five mortality rate in the world, with 1 child in 13 dying before his or her fifth birthday – 15 times higher than the average ratio of 1 in 189 in high-income countries<sup>[4]</sup>. Global initiatives such as the millennium development goals (MDGs) and now the sustainable development goals (SDGs) were developed and are being pursued to assist the developing countries to improve the efficiency and effectiveness of health systems; and to scale up health systems to meet basic service needs of the population and to move towards UHC. Universal entitlement has to be coupled with significant investment to ensure access to medicines and services in a broader sense<sup>[5]</sup>.

## Methodology

We conducted a rapid search on peer reviewed research and available grey literature on capital investment strategies for health systems in LMIC settings. Besides the literature review, the team conducted 11 key informant interviews of HFG staff members including country managers, health economists, and National Health Accounts specialists. Key informant comments that bear on the discussion of findings from the literature are incorporated into the report to add detail and nuance to the review.

## What is capital investment?

Capital investment is defined around the world in different ways. Generally, it refers to funds invested in a firm or enterprise for the purpose of furthering its business objectives. Capital investment also refers to a firm's acquisition of capital assets or fixed assets such as manufacturing plants and machinery that is expected to be productive over many years<sup>[6]</sup>. Capital investment is often referred to as capital spending, capital formation, or capital expenditures. In the context of healthcare, capital investment comprises large expenditures in construction of hospitals and other facilities, investment in diagnostic and treatment technologies, information technology platforms, and education/training of healthcare professionals. These investments are typically used over a long period of time, and they are critical to efforts to improve healthcare quality and efficiency. The system of Health Accounts classifies Capital Expenditures under two major categories namely; 1) Gross capital formation which comprises three subcategories, which are

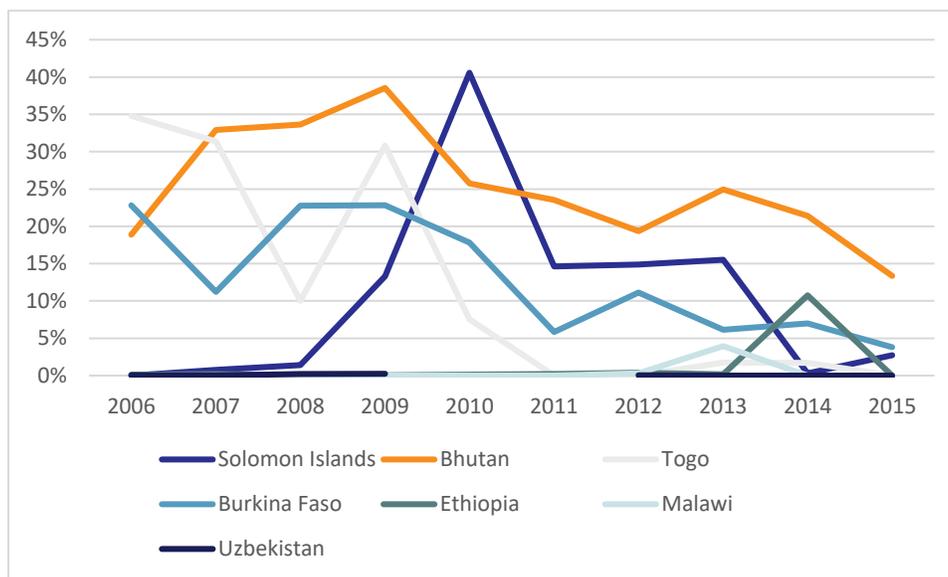


infrastructure, machinery, and equipment, and ICT related equipment and other machinery and equipment not specified elsewhere; 2) Non-produced non-financial assets which comprises of land and others<sup>[7]</sup>. Capital investment in LMICs remains a major priority for the following reasons. First, the basic health infrastructure, such as district hospitals and primary health centers, are lamentably short of required numbers, while the population continue to grow. For example, findings from a recent study in Uganda analyzing critical health infrastructure (including HRH) needed to attain sustained progress towards UHC reveal that the fraction of individuals who access healthcare within a distance of 5kms from health facility is generally low across all types of health facilities, implying that distance to health facilities is an impediment to healthcare access. This potentially undermines both access and quality of healthcare services for the population, which is a threat to UHC progress<sup>[8]</sup>. Remote health centers mean that more time and money is spent on travel-related expenditures, all of which act as obstacles to obtaining care, especially for the poor <sup>[9]</sup>. Moreover, old and dilapidated hospitals and health centers buildings, particularly in the public sector are a characteristic of many resource-constrained developing countries <sup>[10]</sup>. Secondly, due to rapid change occurring in the health care sector, it is important for hospitals to keep up with modern technology and advances in medicine, hence the growing importance of diagnostic and therapeutic equipment or the expansion of information and communication technologies (ICT) in the health field. Thirdly, the health profile of the population in developing countries is changing due to a growing middle class and increased urbanization, with an increased incidence of non-communicable diseases such as chronic hypertension, cardiovascular diseases, diabetes, and cancer that may create further demand for hospital services and capital investment.

## 2. WHAT IS THE TREND OF CAPITAL INVESTMENT IN HEALTH IN LOW AND MIDDLE INCOME COUNTRIES (LMICS)?

There are two major important sources of data for capital investment in health in developing countries, including the National Health Accounts (NHA) and the Public Health Expenditure reviews (PER). WHO and other development partners, including HFG, have been supporting regular member countries to produce their national health accounts. Data available shows a large disparity among LMICs regarding the proportion of Capital Health Expenditure as a share of Government Health Expenditure, ranging from as low as 0.0003 percent in Uzbekistan (2015) to 40.6 percent in Solomon Islands (2010). The large variation reflects the different situations, in terms of spending priorities and resource constraints, across different countries. In the case of Solomon Islands, the elevated allocations to capital spending reflect not only the vigorous economic growth, but also and most importantly, the high priority placed on health. Successive governments have considered health a political priority and a right of its citizens. This has been reflected in the high proportion of the budget allocation to health 11 to 15 percent of the recurrent budget or about 3 to 5 percent of GDP, during the past few decades. Approximately 30–40 percent of the total expenditure on health is allocated for capital expenditure, with three quarters of these funds allocated to infrastructure<sup>[11]</sup>.

**Figure 1: Capital Health Expenditures as % of Total Health Expenditure (THE) from 2006 to 2015**



Data available also show important annual fluctuations of capital expenditure amounts/percentage for all LMICs countries and a pattern of declining trend in capital investment in LMICs. Since capital spending is country specific, it could have been ideal to conduct country case studies in order to understand what drives capital investment decisions and the key challenges encountered to financing capital expenditures.

Unfortunately, due to time constraints, this was not conducted during this rapid review. However, it is well known that during recession periods, investment spending on health infrastructure and equipment is often the first target of reductions or postponements, except where it has been funded by development partners. And indeed, investment funding is primarily provided by donor agencies. For example, the National Health expenditure of the Republic of Uganda for the financial years 2016/2017 and 2017/2018 state that Health Development Partners (HDPs) were the largest (74.8 percent) contributor in capital expenditure followed by the Government of Uganda (25.1 percent) and lastly the Private sector at 0.1% of all expenditure on Capital expenditure on health in 2014/15<sup>[12]</sup>. There are many other types of existing and innovative approaches to financing health care in developed countries as summarized in the table in Annex I that LMICs could use or adapt where feasible and applicable.

## How much should be spent in capital investment?

There is no benchmark of “reasonable” amount of capital spending, the latter is informed by the actual existing needs and available resources. For example, capital investment in the health sector only accounts for 2–6 percent of total health care expenditure in the countries of the WHO European Region<sup>[13]</sup>. However, in LMICs, there is a huge gap in physical access of health services, and improvement in health infrastructure requires significant capital investment to catch up for the gap.

### Textbox 1:

*In general, in most of the countries I have supported the health accounts in, given Capital spending is less than 10% and as such it has rarely been raised as a key policy question requiring a deep dive understanding of.*

**Tesfaye Dereje, HFG**

Improving the health infrastructure of developing countries will require a sustained significant additional investment, however health care spending as a share of GDP remains much lower in LMICs. In Africa, where governments pledged in April 2001 to allocate at least 15 percent of their annual budgets to the health sector, only five countries—Botswana, Rwanda, Zambia, Madagascar, and Togo— have reached or surpassed the Abuja target. The average amount allocated to the health sector by African Region countries stands at 9.8 percent. Many African countries have shown limited capacity in raising public revenue mainly because the informal nature of their economies makes tax collection difficult, including

### Textbox 2: Examples of massive and intensive health infrastructure investment programs

#### Philippines (2010–2014)

In order to keep pace with population growth, the administration embarked on a large-scale capital investment program in 2010 called the Health Facilities Enhancement Program (HFEP). Data from the Department of Health’s Bureau of Health Facilities Development show that from 2010 to 2014, HFEP funded a total of 1,199 hospitals and infirmaries, and a total of 2,968 rural health units (RHUs) and city health offices (CHOs). In the same period, HFEP funded the purchase of medical equipment for a total of 1,092 hospitals and infirmaries and a total of 3,154 RHUs and CHOs.<sup>[15]</sup>

#### Ethiopia (1997–2015)

Ethiopia has implemented successive Health Sector Development Plans (HSDPs) since 1997 in four phases. During this period, the country successfully implemented its strategy of expanding and rehabilitating primary health care facilities. To this effect, 16,440 health posts, 3,547 health centers, and 311 hospitals were constructed<sup>[16]</sup>.

payroll tax collection for social health insurance. However, while the need to raise more financial resources for health is a reality for all African countries, the question of efficient and transparent use of resources is of fundamental importance. Many countries could already achieve more with the existing resources through efficiency gains<sup>[14]</sup>.

### 3. EMERGING LESSONS FROM CAPITAL HEALTH INVESTMENT IMPLEMENTATION IN DEVELOPING COUNTRIES

#### Lesson 1: Budgeting and planning skills/techniques for large scale investment are not strong in ministries of health unlike in other ministries

Capital investment requires major planning efforts, involving long-term financial commitments and high opportunity. It is not so much the initial investment that counts, but the costs of the building over its life-cycle. There is often a mismatch between capital investment and recurrent financial capacity, resulting in new facilities unable to function because of recurrent resources, poorly maintained facilities and equipment, and vehicle fleets immobilized due to lack of spares, fuel, etc.

For capital investment in health to be more effective, decision makers and other stakeholders engaged in the process should be empowered in capital development planning skills and techniques. In Haiti, HFG supported the development of the Business Plan for the Hospital Sacred Heart of Milot (*Hôpital du Sacré-Coeur de Milot*, HSCM), which experienced severe financial difficulties threatening the continued operation of the hospital. The purpose of the business plan is to define practical and feasible strategies to decrease HSCM's dependence on external funds by figuring out sources of domestic revenue mobilization and to improve the efficiency and quality of the care offered.

In Uganda, the Health Infrastructure Working Group developed Guidelines for Designation, Establishment, and Upgrading of Health Units after observing a continued mismatch between health infrastructure development and other resources such as personnel, equipment, medicines, and supplies across the country. The guidelines stipulate that Districts and other stakeholders intending to establish or upgrade health facilities are urged to strictly adhere to the guidelines and that no requests for creation or upgrading of facilities shall be considered or approved unless they meet the set criteria and have followed the procedures prescribed in the guidelines<sup>[17]</sup>.

In terms of best practice, Ghana maintains a website showing all capital development **in progress** or in **pipeline**: <http://www.moh.gov.gh/category/capital-projects/>. This contributes to transparency and accountability. One of the key objectives of the capital infrastructure program, in line with the overall goals of the Health Sector Reform Program (HSRP), is to develop an improved style and standard of building with cost efficiency as the overriding factor. The new standard designs also aim at evolving construction detailing and design of the solutions that reduce maintenance and other operational costs.

**Textbox 3:** “I’d say that public financial management processes/skills for capital investment are weak – budgeting and planning for large scale investment are not strong in ministries of health this is unlike in roads/transport/works/housing ministries. Not sure why this is the case to be honest – presumably they were at some point in the past. Consequently, money doesn’t get released. Also, I think that the capital budgets tend to unrealistic anyway and don’t reflect budget reality or absorption capacity”.

**Elaine Baruwa, HFG**

## Lesson 2: Investment in the health workforce employment and development needs to be sustained

There is a huge amount of literature and international effort to improve the health workforce crisis around the world, such as the Global Health Workforce Alliance/Network, the Global strategy on HRH: Workforce 2030, and the recommendations of the High Level Commission on Health Employment and Economic Growth. Among the key problems contributing to the shortages of health workers in LMICs is the limited health training capacity, which persists despite the remarkable growth in medical and nursing education (including private schools) in many countries over the past two decades. A recent study identified 168 medical schools and estimated that on a yearly basis, only 10,000 to 11,000 medical students graduated from the region<sup>[18]</sup>. This number is too low to meet the needs of 856 million people living in Sub Saharan Africa. In comparison, the United Kingdom, which has a population of 66 million trains on average 6,000 doctors a year.

Other contributing factors to the severe shortage of health workers in LMICs include the insufficient number of faculty staff, basic science and clinical faculty members who are in short supply everywhere, and severely restricting quality educational scale-up<sup>[18]</sup>. There is also a generalized decay of school infrastructure with substantial deficiencies observed in laboratories, libraries, classrooms, lecture halls, and hostels. Important investments will be required to sustainably improve the health workforce education and training in LMICs, and to maximize opportunities to attain the SDGs goal and make progress towards UHC. The world must now invest in supporting the technical gaps of those countries in most need<sup>[19]</sup>.

There are commendable efforts ongoing to scale up expansion of pre-service education and training capacity for doctors, nurses, and other health cadres, notably in Ethiopia.

### **Textbox 4: Expansion of In-service training capacity in Ethiopia**

Ethiopia has one of the most severe physician shortages in the world with 2.5 physicians per 100,000 persons. In response to the physician shortage, Ethiopia developed training programs to rapidly increase the number of non-physician healthcare workers, known as Extension community Health Workers, thus increasing coverage and lowering cost of health care. In 2005, the Ethiopian Government initiated a “flood and retain” initiative to rapidly increase the number of physicians in the country and counter the brain drain. As a result, more than 20 new medical schools were created and the Ministry of Education instructed all existing public medical universities in Ethiopia to expand their enrollment. Since the initiative’s implementation, enrollment at Addis Ababa University (AAU) School of Medicine has more than tripled, however the number of faculty, funding, and resources has not increased proportionally.

*Source: Mengistu et al.; Student and faculty perceptions on the rapid scale-up of medical students in Ethiopia, BMC Medical Education (2017) 17:11*

Additionally, HFG supported country governments to optimize the quality and efficiency of the health labor market through policy development and implementation in health workforce production, regulation of the private sector, and initiatives to address maldistribution and inefficiencies. Over the course of the project, HFG engaged with countries on common challenges regarding human resources for health (HRH) – vacancies, ghost workers, incomplete HRH data, and health workers ill-prepared to meet population health needs, among others. As described in the Textbox 5 below, HFG supported the development of entry-to-practice competencies for nurses and midwives, with a separate domain dedicated to the treatment of HIV, AIDS, TB, and DR-TB.

### **Textbox 5: HFG support to improve capacity of health workers in Swaziland**

With the world's highest prevalence of TB/HIV co-infection (80 percent of TB patients have HIV), Swaziland has a critical need for a well-trained and sustainable workforce of medical professionals. As the country works to build and retain its health workforce, the Ministry of Health has recognized the need to oversee the quality of health services being provided. To enhance the Swaziland Nursing Council (SNC)'s regulatory capacity, HFG supported the development of entry-to-practice competencies for nurses and midwives, with a separate domain dedicated to the treatment of HIV, AIDS, TB, and DR-TB. The competencies are helping Swaziland bolster health worker capacity to provide TB care and treatment, and help fill its gap in TB care.

## **Lesson 3: Investment in health-related Information Communication Technology (ICT) is broadening the reach of health care systems in LMICs.**

Telecommunications technology is undergoing rapid development in LMICs. These technologies usually take the form of electronic health (e-health) and mobile health (m-health), telemedicine, e-learning, social media, massive open online courses, webcasts, podcasts, high-fidelity simulation decision-support tools, electronic medical records, electronic systems for disease surveillance, civil registration and vital statistics, and laboratory and pharmacy information systems<sup>[1]</sup>. These technologies are broadening the reach of health care systems, in a context of severe health worker shortages in remote and inaccessible areas. In East Asia for example, telemedicine—which connects physicians and patients via technologies such as video chat or health hotlines, has gained momentum in countries like India, Malaysia, the Philippines, and Thailand<sup>[2]</sup>. Mobile phones are often used by community and mobile health workers to consult with call center staff<sup>[22]</sup>. Other types of m-health frequently used include health call centers/health care telephone help lines, emergency toll-free telephone services, emergencies, mobile telemedicine, health surveys, surveillance, awareness raising, and decision support systems.

In Nigeria, HFG supported the scale up of smartphones to diagnose and treat TB. The National TB and Leprosy Control Program (NTBLCP) wanted to tap into mobile technology to provide more supportive supervision and improve health services, especially in areas with high defaulter rates, drug stock-outs, and TB/HIV services integration. USAID's Health Systems 20/20 project collaborated with NTBLCP's training center to develop a standard, integrated TB supervision checklist to assess and monitor diagnostic laboratories and Directly Observed Treatment Short course (DOTS) services and then piloted it in 16 facilities using personal digital assistants or PDAs. Based on the success of the pilot in four states, the program was scaled up to 200 facilities. Under the Health Finance and Governance (HFG) Project, the program has since scaled up to an additional 300 facilities and upgraded from PDAs to smartphones. By using smartphones on their facility visits to collect TB data, supervisors have eliminated the need for printed forms, minimized human error in data entry, reduced the lag time for getting data to policymakers and managers, and helped pinpoint ways to improve the quality of care. There has also been considerable clinical impact as seen in results from Lagos and Abia States <sup>[27]</sup>.

As shown above, the potential of mobile technologies to alleviate health worker shortages in remote areas is immense. Countries should maximize their benefits through investing in e-health, including m-health. For this to happen, health policy-makers and administrators need to be equipped with the knowledge required to shift emphasis from small pilot programs to large scale deployments<sup>[23]</sup>. Much the adoption of digital technologies in the health sector has revolutionized the processes and access to health services; they have become important cost drivers of health care systems over recent decades. This is crucial in the light of the findings of a recent study that reported that very few key informants in the digital health community could identify many examples of digitally-enabled health service innovations that successfully went to scale<sup>[24]</sup>.

#### **Textbox 6: Bangladesh ICT**

The Ministry of Health has established an e-health administrative unit, which is integrating ICTs into planning and management and establishing a telephone medical advice line. Several start-up companies have developed ICT applications and different knowledge intermediaries provide information on health issues on a website or in SMS messages. These intermediaries include large NGOs, research institutes, social businesses, and private entrepreneurs based within and outside Bangladesh. These initiatives are mostly funded by grants from donor agencies or foundations. The study found several innovative partnerships and networks. One m-health company had linked to local (untrained) village doctors/drug sellers to offer a package of basic services. Another had partnered with a very large service delivery NGO and a national retail chain to create a website on maternal and child health and send SMS messages to pregnant women. Another national retail chain had established a health website and advice line, linked to an online shop. Several mobile phone operators had launched health advice lines <sup>[23]</sup>.

## CONCLUSION

There is need to sustain the capital investment in health in low- and middle-income countries, given the persistent gap in physical access of the population to health facilities, the population growth, and the changing pattern of diseases. In sub-Saharan Africa, the population is expected to double to 1.7 billion by mid-century and reach 3 billion by 2100<sup>[25]</sup>. Therefore, there is need to expand the health sector capacity/investment to meet current and future population requirements. There is also a need to continually upgrade and purchase new equipment and technologies, to provide high quality and efficient health care to the population. Given the severe shortage of health workers in LMICs, governments need to not only invest in the recruitment of more health workers but also invest in the upgrading and expansion of training health facilities, including the training of faculty tutors. There is now ample evidence that investing in health workforce will create jobs and drive economic growth.

# RECOMMENDATIONS

In order to sustain capital investment in health, the following recommendations are proposed:

1. Capital investment in health in low-middle income countries should be increased and sustained over a long period of time (not a one off investment for many years) to bridge the huge gap in physical access/geographical accessibility to health services. The current Health infrastructure is inadequate, while the population size is growing year in/year out. More hospitals, health centers, and clinics should be built based on the actual needs of the population.
2. A long term capital investment master plan (5–10 year) containing projected needs for infrastructure, equipment, and technology aligned with the population growth needs should be developed.
3. Countries should also develop “Technical Tool or Guidance Manual” on how to plan, implement, and sustain Capital Investment in Health in the country.
4. An Authority or Service within the Ministry, equipped with adequate expertise in the domain and working in collaboration with the public work or infrastructure Ministry, should be established to approve new capital investments, to ensure compliance with the national guidelines and standards.
5. The financial management skills, including budgeting and planning skills for large scale investment are limited in ministries of health unlike in other ministries such as roads/transport/works/housing ministries. Dedicated staff and the whole service/Authority should be adequately trained to plan and manage capital projects.
6. LMICs countries should increase their health workforce numbers to meet the minimum density threshold of 2.3 health workers per 1,000 population to provide minimum basic services to population, including maternal and child health services. Health workforce is an investment, not a cost, as recommended by the UN Commission resolution on Employment and Economic Growth (2016).
7. Governments should increase the capacity of health training schools in the country for all cadres, including doctors, pharmacists, nurses, lab technicians, and allied health professionals, including schools for community health workers. Attention should be paid to equipping schools with appropriate and adequate equipment: laboratories, libraries, classrooms, lecture halls, and hostels. And more lecturers/tutors should be trained.
8. To maximize the potential provided by the digital technologies growth, each country should develop a comprehensive e-Health strategy to provide a national framework/guidance addressing content, data privacy, and security policy issues for electronic and mobile telecommunications in health.
9. For all this to happen, there is need to increase the fiscal space for the health sector in order to have enough funding for the capital investment. Public spending on health as a proportion of general government expenditure is still low, far below the 15 percent benchmark decided by heads of states in Abuja in 2001.



## ANNEX I: TYPES OF EXISTING AND INNOVATIVE APPROACHES TO FINANCING CAPITAL INVESTMENT IN DEVELOPED COUNTRIES:

Model	Example	Description	Risk Ownership
<b>Conventional government financed</b>	All public health Facilities: Tertiary, Secondary, and Primary health care facilities	Funded through government tax revenues or government-issued debt	Government
<b>Philanthropy</b>	MRI and CT machines. New clinics and wings of hospitals	Gifts from donors and fundraising efforts through healthcare foundations' campaigns	Healthcare institution
<b>Own fund</b>	Capital improvements in existing infrastructure	Self-financing of capital project from healthcare institutions' own reserves/ operating margin	Healthcare institution
<b>Debt capital (bonds, etc.)</b>	Major IT purchases and facility construction	Debt issued directly by healthcare institutions, technically unsecured by government	Healthcare institution
<b>Financial Engineering.</b>	Stronger management of capital and the value chain (e.g., reagent rental in laboratory); Laboratory and Imaging investments; Real Estate	Models whereby equipment providers bundle cost of capital expenditure in a "per use model" limiting up-front capital expenditures. Can also be extended to sale-leaseback arrangements, arrangements where capital is provided in exchange for long term contracts, etc.	Shared

<b>Social finance</b>	Healthcare innovations in developing nations	A partnership agreement between government, private investors, and agencies providing social services with social outcomes targets as basis for financial returns	shared
-----------------------	--	---	--------

Adapted from “Capital spending in healthcare: A missed opportunity for improvement? © 2013 Canadian Foundation for Healthcare Improvement”.

## ANNEX 2: HFG EXPERIENCE IN GUIDANCE OF CAPACITY BUILDING FOR CAPITAL INVESTMENT IN THE HEALTH SECTOR

Country	HFG's Role	Summary	Capital Investment Types
Kyrgyzstan Ukraine	Developed a database to improve the payment system in TB hospital for Kyrgyzstan and redirect savings to support outpatient TB	Since 2015, HFG has worked in Ukraine to design and pilot analytical information systems and introduce cost accounting to the country's hospitals. HFG developed and introduced a database, which includes dashboards, that allow hospitals and health departments to see comprehensive patient statistics and cross-walk data on cases treated with cost information. Today, with the click of a button, health departments and hospitals can see analytical graphs on what types of patients have been hospitalized, at which facility, and for how long. Participating health departments are using the data received to make decisions on streamlining inpatient facilities for better patient care.	ICT
Haiti	Supported the development of the Business Plan for the Hospital Sacred Heart of Milot	The purpose of this business plan of the Hospital Sacred Heart of Milot ( <i>Hôpital du Sacré-Coeur de Milot</i> , HSCM) is to define practical and feasible strategies to decrease HSCM's dependence on external funds and to improve the efficiency and quality of the care offered. HSCM had the support of the USAID-funded Health Finance and Governance (HFG) project in developing the business plan; more precisely, the HFG project team did an estimate of the costs of the hospital's services and then facilitated the drafting of this plan.	Health infrastructure maintenance
Nigeria	Partnering with Nigeria to Adopt Technology for Rapid, Effective TB Response	In <b>Nigeria</b> , HFG had supported the national response to TB programming by improving the diagnosis and treatment of TB through improved supportive supervision at the local government level. HFG had supported the National Tuberculosis and Leprosy Control Programme (NTBLCP) in installing and implementing an innovative, mobile-based solution in 46 laboratories across the country. The GxAlert software integrates with the automated diagnostic GeneXpert machines to drastically shorten the diagnostic reporting period. This system helps provide reliable, real-time data for strategic decision making.	ICT

Country	HFG's Role	Summary	Capital Investment Types
Kyrgyzstan, Ukraine	Supported the modernization of the TB Hospital Financing	In <b>Kyrgyzstan</b> , where over-hospitalization is the norm for TB care, HFG has helped the government transition to a more efficient output-based payment system for TB hospitals. The new TB hospital payment system helps shift patients to WHO-recommended fully outpatient treatment, wherever possible. The new payment system has served as a catalyst for development of a national "road map" for TB system restructuring—closing extraneous hospitals, and shifting funding and specialized staff to primary health facilities for outpatient TB treatment.	Health infrastructure maintenance-Health facilities functioning
Nigeria	Supported the Scale Up of Smartphones to Diagnose and Treat TB	Nigeria has made significant progress in its fight against TB, but the National TB and Leprosy Control Program (NTBLCP) wanted to tap into mobile technology to provide more supportive supervision and improve health services, especially in areas with high defaulter rates, drug stock-outs, and TB/HIV services integration. USAID's Health Systems 20/20 project collaborated with NTBLCP's training center to develop a standard, integrated TB supervision checklist to assess and monitor diagnostic laboratories and Directly Observed Treatment Short course (DOTS) services and then piloted it in 16 facilities using personal digital assistants or PDAs. Based on the success of the pilot in four states, the program was scaled up to 200 facilities. Under the Health Finance and Governance (HFG) Project, the program has since scaled up to an additional 300 facilities and upgraded from PDAs to smartphones. By using smartphones on their facility visits to collect TB data, supervisors have eliminated the need for printed forms, minimized human error in data entry, reduced the lag time for getting data to policymakers and managers, and helped pinpoint ways to improve the quality of care. There has also been considerable clinical impact as seen in results from Lagos and Abia States.	ICT
Swaziland	Entry-to-Practice Competencies for Nurses to Improve HIV, TB Services	With the world's highest prevalence of TB/HIV co-infection (80 percent of TB patients have HIV), Swaziland has a critical need for a well-trained and sustainable workforce of medical professionals. As the country works to build and retain its health workforce, the Ministry of Health has recognized the need to oversee the quality of health services being provided. To enhance the Swaziland Nursing Council (SNC)'s regulatory capacity, HFG supported the development of entry-to-practice competencies for nurses and midwives, with a separate domain dedicated to the treatment of HIV, AIDS, TB, and DR-TB. The competencies are helping Swaziland bolster health	Health workforce

Country	HFG's Role	Summary	Capital Investment Types
		worker capacity to provide TB care and treatment, and help fill its gap in TB care.	

# BIBLIOGRAPHY

1. Working for health and growth: investing in the health workforce. Report of the High-Level Commission on Health Employment and Economic Growth. © World Health Organization 2016
2. Bernd Rechel, Stephen Wright, Nigel Edwards, Barrie Dowdeswell, Martin McKee, Investing in hospitals of the future, World Health Organization 2009, on behalf of the European Observatory on Health Systems and Policies]
3. World Health Organization, Fact sheet on maternal mortality, February 2018. <http://www.who.int/news-room/fact-sheets/detail/maternal-mortality>)
4. Levels & Trends in Estimates in Child Mortality, Report 2017, Estimates developed by the UN Inter-agency Group for Child Mortality Estimation United Nations, UNICEF 2017
5. David Nicholson, Robert Yates, Will Warburton, Gianluca Fontana, Delivering universal health coverage a guide for policymakers, Report of the WISH Universal Health Coverage Forum 2015
6. Investopedia. What is 'Capital Investment'? Retrieve from <https://www.investopedia.com/terms/c/capital-investment.asp>
7. OECD, Eurostat, WHO (2011), A System of Health Accounts, OECD Publishing.
8. Francis Mwesigye & Tonny Odokonyero, A Review of Health Infrastructure and Workforce Critical for Delivering Universal Health Coverage in Uganda, POLICY BRIEF, Economic policy research Centre, Issue No. 91 June 2017
9. Poverty and Access to Health Care in Developing Countries, Annals of the New York Academy of Sciences, July 2008
10. Julia Hussein. Maternal and Perinatal Health in developing countries.
11. Solomon Islands Health System Review, Health Systems in Transition Vol. 5 No. 1 2015, World Health Organization 2015, on behalf of the Asia Pacific Observatory on Health Systems and Policies)
12. Uganda Health Accounts, National Health Expenditures, Financial Years 2014/2015 and 2015/2016
13. WHO Regional Office for Europe 2008
14. State of health financing in the African Region, World Health Organization. Regional Office for Africa, January 2013,
15. Oscar F. Picazo et al. Do capital investments in health increase local service utilization? Philippine Institute for Development Studies (PIDS) Policy Notes ISSN 1656-5266, No. 2016-11, June 2016
16. The Federal Democratic Republic of Ethiopia Ministry of Health, Health Sector Transformation Plan, 2015/16 - 2019/20, October 2015

17. The Republic of Uganda, Ministry of Health, Guidelines for Designation, Establishment and Upgrading of Health Units. Prepared by: The Health Infrastructure Working Group 2011
18. Mullan et al. Medical schools in sub-Saharan Africa. Health policy| volume 377, issue 9771, p1113-1121, March 26, 201119. James Campbell, Framing the health workforce agenda for the Sustainable Development Goals, Biennium
19. Lily B. Clausen, Taking on the Challenges of Health Care in Africa, June 16, 2015
20. Financing Health Care in East Asia and the Pacific Best Practices and Remaining Challenges, © 2011 The International Bank for Reconstruction and Development / The World Bank; John C. Langenbrunner and Aparnaa Somanathan
21. Bryan et al., Strengthening sub-Saharan Africa's health systems: A practical approach, McKinsey & Company, HealthCare Systems & Services
22. MHealth New horizons for health through mobile technologies, Based on the findings of the second global survey on eHealth, Global Observatory for eHealth series - Volume 3, World Health Organization 2011
23. Bloom et al. ICTs and the challenge of health system transition in low and middle-income countries. Retrieved from :  
<https://globalizationandhealth.biomedcentral.com/track/pdf/10.1186/s12992-017-0276-y>
24. Bernd Rechel, Stephen Wright, Nigel Edwards, Barrie Dowdeswell, Martin McKee, Investing in hospitals of the future, World Health Organization 2009, on behalf of the European Observatory on Health Systems and Policies
25. Marc J. Epstein and Eric G. Bing Delivering Health Care to the Global Poor: Solving the Accessibility Problem
26. Health Finance and Governance (HFG), (2014). Swaziland: Entry-to-Practice Competencies for Nurses to Improve HIV, TB Services. Retrieved on Aug. 20, 2018 from  
<https://www.hfgproject.org/swaziland-entry-to-practice-competencies-for-nurses-help-improve-hiv-and-tb-services/>
27. Health Finance and Governance (HFG), (nd). Nigeria Scale Up of Smartphones to Diagnose and Treat TB. Retrieved on Aug. 20, 2018 from <https://www.hfgproject.org/smartphones-scale-up-in-nigeria-under-hfg/>





**BOLD THINKERS DRIVING  
REAL-WORLD IMPACT**