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REVIEW ARTICLE

Evolution of the World Bank Response to Infectious Disease Outbreaks: From a Reactive to a Proactive Approach

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Abstract

Six major infectious disease outbreaks have occurred in rapid succession in the twenty first century causing an estimated $80 billion in economic losses and many lives lost. The World Bank Group (WBG) was not prepared to respond quickly and effectively to contain the spread of these outbreaks. It reacted too late to the earlier outbreaks but slowly improved its response time and its coordination with major stakeholders. The response time of its financing contribution decreased across the six infectious disease outbreaks ranging from two years (Avian Influenza) to two months (Zika). The organizational structure of the WBG partly accounts for slow decision making with functions of the Board of Directors intertwining managerial decisions with its governance role in contrast with more agile decision making by management in comparable large private companies. The delays in part caused by the WBG sui generis organizational structure have been corrected with the Board's pre-approval of pandemic emergency funds especially following the lessons learned from the still late response to the Ebola crisis.

The strategic shift from a reactive to a proactive strategy to finance a potential outbreak has now put in place tools and resources prior to the occurrence of an outbreak applying the triple goals of preventing, detecting and responding. A key proactive decision has been the creation of the US$375 Pandemic Emergency Financing Facility (PEF) approved by the Board in May 2016 to enable management to respond quickly in the event of an infectious disease outbreak before it becomes a regional epidemic or a worldwide pandemic. Additional proactive measures initiated, under execution or already concluded include a Crisis Response Window as part of the International Development Association 2018 (IDA 18) agreements that could allocate US$3 billion for natural disasters, economic crises, and health emergencies; IDA 18 financial support to at least 25 countries in developing pandemic multi-sector preparedness plans; simulation exercises; simulation exercises; a regional network of public health laboratories in East Africa; the West Africa Regional Disease Surveillance Systems Enhancement Program; financial and technical support to the Africa Center for Disease Control (CDC), and an operational framework for investing in One Health.

Keywords

World Bank, Infectious disease outbreaks, Proactive strategy, Pandemics

Introduction

A pandemic is an epidemic of infectious disease that spreads through human populations across continents. Not all epidemics are pandemics [1]. Ebola was an epidemic whereas Avian Flu is a worldwide pandemic. Six infectious disease outbreaks have occurred in rapid succession in the twenty first century. These six major outbreaks caused an estimated $80 billion in economic losses [2]. The WBG was not prepared to respond quickly and effectively to contain the spread of these outbreaks. The first part of this analysis reviews the response of the WBG to these six infectious disease outbreaks. The second part takes stock of the policy decisions and the accompanying tools available today to prevent, detect and respond to future infectious disease outbreaks to remedy the delay and lack of coordination observed in past performance.

The World Bank Group's Reactive Response to the Six 21st Century Outbreaks

Infectious disease outbreaks are inevitable. It has

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Table 1: The 21st Century Infectious Disease Outbreaks.

➢ SARS	2002 - 2004
➢ Avian Influenza	2003 - active
➢ H1N1	2009 - 2010
➢ MERS	2012 - active
➢ Ebola	2014 - 2016
➢ Zika	2015 - active

Table 2: WBG financial response time to the six Outbreaks.

Pandemic/Epidemic	Elapsed Time
SARS	8 months
Avian Influenza	2 years
H1N1	10 months
MERS	No WBG support requested
Ebola	6 months
Zika	2 months

been estimated that there have been over 1200 disease outbreaks in over 150 countries in the last six years. Their progression to a worldwide pandemic or a regional or national epidemic with their associated human, social and economic costs is not inevitable [2]. The annual global cost of a moderate to severe pandemic is estimated at US$570 billion or 0.7 percent of global income [2]. The Ebola epidemic resulted in more than 11,000 lives lost and more than US$2 billion in lost GDP in the three hardest hit countries. The six largest disease outbreaks in this century are listed in Table 1. The social and economic disruption of major outbreaks are manageable and the WBG in coordination with international and national partners has developed strategies and tools to improve pandemic and epidemic preparedness, response and recovery by building a robust and resilient health system, effective disease surveillance and diagnostic capabilities [3].

The Severe Acute Respiratory Syndrome (SARS) is a viral respiratory disease of zoonotic origin caused by the SARS coronavirus (SARS-CoV). Between November 2002 and August 2003, an outbreak of SARS that emerged in southern China caused 8422 cases, resulting in 916 deaths reported in 37 countries, with most of cases occurring in China and a global case fatality rate of 11%. No non-laboratory acquired cases of SARS have been reported worldwide since May 2004 and WHO declared that the chain of human-to-human transmission appeared to have been broken [4].

The WBG reallocated credit proceeds from eight operations in China in the amount of USD 11.5 million for a “SARS and other Infectious Diseases Response Program” that became effective on July 10, 2003 or eight months after the identification of the first cases and ten months before the pandemic ended.

The Avian Flu (AI) (“bird flu”) known as H5N1emerged out of Hong Kong in the late 1990s and spread globally out of the People’s Republic of China in late 2003 into the rest of Asia, then Europe and Africa killing tens of millions of birds and spurring the culling of hundreds of millions of others to stem its spread. Over 50 of the 63 countries affected by the virus have managed to control it but H5N1 remains entrenched in several countries. The 31 May 2017 Food and Agriculture Organization (FAO) situation update reported that 26 countries are affected by ongoing outbreaks. The World Bank’s Avian and Human Influenza Facility portfolio (AHI) supported avian influenza control and pandemic preparedness through 83 operations across 62 countries over 2006-2013. WBG commitments focusing on avian influenza were $391 million over 2006-2013 (IEG 2014). The WBG approved a Global Program on Avian Influenza Control and Human Pandemic Preparedness and Response (GPAI) in January 2006 - two years after the global spread in 2004 - that allowed up to $500 million to finance national avian influenza control and human pandemic preparedness projects [5].

Human cases from the avian influenza have been far fewer than was initially feared. Although some limited human-to-human spread continues to be identified, no sustained human-to-human transmission has been observed [6]. Consequently, perception of the risks posed by avian influenza by donors, international agencies, development institutions, and borrower countries and agencies declined. The perceived waning of the Avian influenza pandemic and reduced financing are currently contributing to the lack of containing the spread of the virus.

The 2009 flu pandemic or H1N1 virus appeared to be a new strain of H1N1and widespread H1N1 infection was first recognized in the state of Veracruz, Mexico. The World Health Organization (WHO) declared the epidemic a “public health emergency of international concern”, or PHEIC in April 2009. The pandemic began to taper off in November 2009, and by May 2010, the number of cases was in steep decline. The Director-General of the WHO announced in August 2010 that the H1N1 pandemic had moved into the post-pandemic period.

The WBG provided financial support to Mexico and Argentina. It supported Mexico with $205 million in fast-disbursing funds and $180 million for epidemiologic, regulatory, institutional and operational activities. However, the loan lapsed before becoming effective. The objectives of the emergency loan to Argentina approved in February 2010 for US$141 million were to control the H1N1 epidemic and simultaneous strengthen systems and building up long-term pandemic preparedness [7].

The Middle East Respiratory Syndrome Coronavirus (MERS) is a viral respiratory disease caused by a novel coronavirus (MERS-CoV) first identified in Saudi Arabia in 2012. Although most of human cases of MERS have been attributed to human-to-human infections, MERS-CoV is thought to be carried by camels and spread by droplet infection of the airways. Cases have been reported by 27 countries. However, two countries ac-

count for 90% of all reported laboratory confirmed cases: The Kingdom of Saudi Arabia (80%) and the Republic of Korea (10%). After six years the MERS outbreak has not tapered off and the virus is still circulating. An outbreak of MERS among camels in Kenya was reported in January 2016 [8].

The WBG has not provided financial support to countries reporting cases of MERS-CoV in part because the two most affected countries, Saudi Arabia and the Republic of Korea, are high income countries and did not request WBG assistance.

The first cases of the Ebola Virus Disease (EVD) were notified by the Guinea Ministry of Health on March 21, 2014. The outbreak likely began in December 6, 2013, when a 2-year-old boy contracted Ebola virus in the Guéckédou prefecture of Guinea [9]. On August 8, 2014 the WHO Director-General declared the West Africa outbreak a Public Health Emergency of International Concern (PHEIC). WHO declared the end of the most recent outbreak of EVD in Liberia on June 9, 2016. This followed 42 days since the last case tested negative.

WBG financial support was a critical contribution to the global effort to eradicate the Ebola virus in Liberia, Sierra Leone and Guinea. The WBG response to the Ebola crisis in West Africa was delayed at the outset. The time elapsed between the first notified cases in March 2014 and the WHO declaration of a PHEIC in August 2014 was five months. The World Bank reallocated $18 million from existing health projects in the three affected countries a month later in September 2014. This first allocation was followed by grants and credits disbursed quickly and at an accelerated pace. By December 1, 2015, the World Bank Group had mobilized US$1.62 billion in financing for Ebola response and recovery efforts. This included US$260 million for Guinea; US$385 million for Liberia and US$318 million for Sierra Leone.

An uncoordinated early response was followed by one of the most successful global partnerships between foreign and local governments and multinational aid organizations to stem an international health crisis [10].

On February 1, 2016, WHO declared the Zika virus epidemic a PHEIC. The disease emerged decades earlier in Uganda, spread East with outbreaks in Yak before eventually emerging on a larger scale in Brazil in July 2015. The mosquito born disease also transmits sexually and possibly through blood transfusion and has spread to more than 60 countries in the Americas, including the United States. The Zika virus epidemic has not yet been brought under control and widespread human exposure to Zika is being reported in at least 25 countries across Africa and Asia.

The WBG financing has supported a range of activities to mitigate the Zika outbreak. However, financing can only mitigate the outbreak and cannot bring it under control without country level surveillance, rapid expansion of health services capacity and delivery as well as supply chain management. The WBG made available $150 million in February 2016 to support countries in Latin America and the Caribbean (LAC). The amount was based on country demands for financing and follows extensive engagement with governments across the region. Table 2 shows the delay in response time between WHO notification of the outbreak and the financial response by the WBG ranging from two years to two months.

Current Official Status of the Six Infectious Disease Outbreaks. According to WHO, three infectious disease outbreaks have moved to a post-pandemic period (SARS, H1N1 and Ebola) and three are still active (Avian influenza, MERS and Zika).

The World Bank Group's Move to a Proactive Strategy

WBG strategies have evolved substantively to support pandemic preparedness at the country and global levels. The Ebola epidemic provided a strong incentive to the WBG to shift from a reactive strategy to a proactive strategy. "The World Bank under global pressure took a leading role in the response to the 2014-16 Ebola outbreak in West Africa, (and) has provided leadership within the Global Health Security Agenda" [11]. The WBG now disposes of a set of global instruments agreed to by multiple partners that are able to prevent, early detect and generate a rapid intervention response.

Proactive strategies

Pandemic Emergency Financing Facility (PEF): The lack of financial resources to contain the outbreak of the Ebola epidemic spurred the WBG to launch the Pandemic Emergency Financing Facility (PEF) in May 2016. The PEF is an innovative global financing mechanism designed to protect the world against deadly pandemics and developed in collaboration with WHO and other public and private sector partners. The PEF mobilizes resources through cash and insurance windows and provides much-needed surge funding, in the form of grants, to low-income countries to respond to rare, high-severity disease outbreaks to prevent them from becoming pandemics.

The insurance window covers specific diseases and disease families with pandemic potential (Coronavirus: SARS, MERS; Filovirus: Ebola, Marburg; Lassa Fever; Rift Valley Fever; Crimean Congo Hemorrhagic Fever). Funding under the insurance window will be provided by resources raised from the reinsurance market combined with the proceeds of catastrophe bonds issued by IBRD and will provide a maximum coverage of US$275 million to IDA-eligible countries, initially for three years. Insurance premiums will be funded by development partners [2].

The PEF donor-funded cash window of US$50-100

million complements the insurance window that can provide a response in the event of emerging or more unpredictable types of outbreaks for which extensive data are not yet available as is the case of the most recent Zika virus. It makes available supplemental financing for pathogens covered by insurance (i.e. payout before insurance activation or to supplement insurance payouts) as well as coverage for severe outbreaks not covered by insurance i.e. new or different pathogens or single-country outbreaks.

In the event of an outbreak, the PEF will release funds quickly to countries and qualified international responding agencies. All 77 IDA eligible countries will be eligible to receive coverage from the PEF. Decisions regarding allocations from the cash window are made by a Steering Body [2].

The PEF is essentially a financing mechanism to enable a rapid response in the event of a disease outbreak before it becomes a pandemic. It would make money quickly available to acquire: (i) Essential drugs, antibiotics or antivirals, whole blood/serum, and vaccines; (ii) Essential and critical lifesaving medical equipment and personal protective equipment; (iii) Cold chain equipment, safe drug storage and transfer; (iv) Non-medical equipment such as incinerators, power generators, office equipment; (v) Essential lifesaving goods including food, cooking oil, and gas; and (vi) Minor Civil Works to set up temporary care centers and emergency operating centers [12].

PEF is not a global governing institution with authority for fast decision making nor is it an overarching global pandemic coordinating body. A global governing institution for a severe pandemic should be guided by the International Health Regulations and coordinate the many responders through effective governance arrangements that engage stakeholders, implement a shared strategic direction and steward the financial resources made available by PEF.

The International Development Association (IDA): The report from the Executive Directors to finance IDA18 enhances IDA's capacity to respond to crises and recommends supporting institutional capacity to respond to pandemics as follows [13]:

- Support at least 25 IDA countries in developing strategic pandemic preparedness plans; and
- Support 25 countries in developing frameworks for governance and institutional arrangements for multi-sectoral health emergency preparedness, response and recovery. The work has commenced with an initial focus on 11 countries, including Kenya, Senegal, Ghana, Sierra Leone, Myanmar, Vietnam, Cambodia, Afghanistan, Haiti, Sudan, and Tanzania.

Arguments have been advanced that "IDA18 could commit to supporting at least half (if not all) of the 77 poorest countries in developing pandemic plans".

The WBG Board also agreed to a Crisis Response Window (CRW) allocation of US$3.0 billion to support IDA countries' response and preparedness against severe natural disasters, economic crises, and health emergencies. It was also agreed that if warranted by exceptional circumstances this amount could be exceeded, subject to approval by IDA's Executive Directors. The CRW allocation is not disaggregated by type of response or preparedness.

Simulation exercises: The WBG has prepared a series of pandemic simulation exercises. Aimed at global and country policymakers, these exercises are intended to raise awareness of the threat posed by pandemics, test the systems that are currently in place, and drive increased domestic investment for pandemic preparedness.

Containing Antimicrobial Resistance (AMR): There is evidence of adverse human health consequences due to resistant microorganisms resulting from nonhuman usage of antimicrobials, including in animal agriculture. Improper waste management from manufacturing and application may also enable environmental dissemination of residues and resistant strains [14]. The WBG is supporting country efforts to tackle AMR by systematically including it in health investments. Together with partners, the focus is on developing more AMR-specific interventions like stronger antimicrobial stewardship that reduces overuse, increases infection prevention and control, and the appropriate use of antibiotics in animal husbandry. At the global level, the WBG is creating an investment framework for the existing AMR Global Action Plan to be used by policymakers to ensure that that AMR investments go where they are needed most.

Regional laboratories: The East Africa Public Health Laboratory Networking Project (EAPHLN) is an example of a regional laboratory network that supports surveillance capabilities. The WBG-funded project has established a network of efficient, high quality, accessible public-health laboratories in East Africa to help strengthen diagnostic and surveillance capacity and disease outbreak preparedness.

Regional surveillance systems: The World Bank is also investing $450 million in West Africa in the Regional Disease Surveillance Systems Enhancement (REDISSE) Program. The program finances regional-level policy dialogue and activities that will promote information exchange, timely collective action, and efficient use of country and shared resources, such as reference labs, training institutions, and commodity stockpiles, for disease surveillance and response. It provides countries with financing that are under their direct control to rapidly address identified priorities. This mechanism should help countries respond to potential pandemics at the first signs of the outbreak. Of the US$450 million proposed financing for the REDISSE Program, US$261 million has been committed under the first two projects

in support of preparedness activities in Guinea, Sierra Leone, Senegal, Guinea Bissau, Liberia, Nigeria and Togo (Benin and Cote d'Ivoire are confirmed to join in the third project).

Support to the Africa Center for Disease Control (CDC): A Memorandum of Cooperation (MOC) was signed in April 2015 launching collaboration between the African Union Commission and the U.S. Centers for Disease Control and Prevention in creating the African Centers for Disease Control and Prevention (African CDC). REDISSE is preparing agreements with the CDC Foundation, the University of Ouagadougou and the University of Ghana to provide training in field epidemiology and laboratory practice to candidates from REDISSE countries in support of their respective countries. The WBG is providing technical support to the Africa CDC operating as a network, with headquarters in Addis Ababa and close linkage with five Regional Collaborating Centers in Egypt, Nigeria, Gabon, Zambia, and Kenya. Four of these five centers were officially launched in 2017. The World Bank has been most involved in the Nigeria Regional Collaborating Center as this is part of the Economic Community of West African States (ECOWAS), which also coordinates implementation of the REDISSE program and serves as the Program Secretariat.

Infectious disease outbreaks in 2017 emphasize the criticality of robust regional surveillance systems. The Africa CDC reported timely responses to outbreaks of Lassa fever and meningitis in Nigeria, Ebola in the DRC, cholera in Ethiopia and plague in Madagascar [15].

Investing in one health: Over 60% of infectious diseases in humans are of animal origin. Changes in land use, climate, food production, trade, and travel are among the drivers of disease emergence and spread. The World Bank's Health and Agriculture global practices jointly developed the One Health approach to address the human-animal-environment interface making it central to project design. One Health strategies are highly cost effective, not only for reducing pandemic and antimicrobial resistance risks, but also endemic diseases. The WBG estimates that annual investment of approximately US$1.9-3.4 billion to raise human and animal health system capacity in World Bank client countries is expected to return upwards of $30 billion per year in avoided losses. A One Health Operational Framework has been developed that strengthens human, animal and environmental public health systems at their interface and provides guidance to help optimize One Health operations [16].

Recommendations

There is general agreement in the public health community that: (a) The chances of a severe pandemic in today's globalized world are high and would be severe in terms of lives lost and in economic losses; (b) The world needs to be better prepared to respond to potential pandemics; and (c) The past fragmented and slow response to infectious disease outbreaks exacerbated the human cost in number of lives lost and escalated the economic losses. The world is not ready for the next flu pandemic [17]. The Mandate of the International Working Group on Financing Preparedness [18] set forth twelve recommendations albeit some are more aspirational than operationally enforceable. The Global Health Security Agenda (GHSA) also recommends actions to prevent, detect and respond. The set of five recommendations that follow are narrower in scope focusing on the potential WBG contribution to avoid, minimize or control the next infectious disease outbreak.

Pandemic preparedness and response component in health projects

All newly designed or restructured WBG health operations should include a pandemic preparedness and response component. This requirement is in line with the recent call by the WBG's Climate Change Action Plan 2016-2020, endorsed in April 2016 that commits the World Bank to screen all IBRD operations for climate and disaster risks. To comply with this expanded commitment, Project Concept Notes (PCNs) approved on or after July 1, 2017 must be screened for climate and disaster risks. The six 21st century infectious disease outbreaks documented above clearly fit the "disaster risk" categorization with the large number of lives lost and an estimated annual global cost of a moderate to severe pandemic of US$570 billion, or 0.7% of global income. Activities populating a pandemic preparedness and response component in a health project can be selected from the "Joint external evaluation tool: International Health Regulations 2005 (JEE/IHR)" [19].

Support regional collaborating centers and referral laboratories

Individual countries often do not have the capacity or the scale to equip, maintain and staff the required laboratory infrastructure to diagnose and report outbreaks. Advanced biosecurity laboratories provide a high degree of biosecurity but such laboratories are expensive to build, maintain, and operate, and require significant and ongoing technical expertise and therefore should be regionalized. Regional collaborating centers and referral laboratories would house sophisticated biosecurity laboratory equipment to serve their member countries [5].

WBG to continue its support to the African CDC Coordinating Center based in Addis Ababa, Ethiopia and its five Regional Collaborating Centers in Kenya, Nigeria, Egypt, Zambia and Gabon. The Nigeria regional collaborating center is operational. Field epidemiologists responsible for disease surveillance, investigations, analysis, and reporting trends and anomalies are among the technical staff supporting both the Regional Collaborating Centers and the African CDC Coordinating Center.

Maintain and monitor support to WBG's new initiatives on pandemic preparedness

New initiatives launched by the WBG in 2017 require close follow up and periodic monitoring. Major initiatives include:

- The World Bank-Japan Joint Universal Health Coverage (UHC) Initiative to accelerate Universal Health Coverage (UHC) implementation and improve pandemic preparedness in ten countries that have conducted JEEs or GHSA roadmaps;
- The Australian Department of Foreign Affairs and Trade (DFAT) trust fund focuses on countries in East Asia and aims to strengthen the financial and institutional sustainability of health security financing and regional collaboration;
- The Rockefeller Foundation support for 2-5 countries to maximize resources through aligning donors and increasing domestic financing; and
- Vital Strategies support for up to 15 countries for costing JEEs and identifying sustainable financing [2].

Apply Ebola response impact lessons

Analyses of the Ebola crisis have generated over 40 "lessons learned" reports. CDC focused on four key areas [20] in its analysis of the capacity-building efforts during and after the Ebola epidemic and on the public health progress made. The four areas are commensurate with to the "core four" of the IHR capacity requirements defined in Article 5 as "the capacity to detect, assess, notify and report events".

Emergency response: Establishing Incident Management Systems (IMS) for the Ebola response facilitated coordination of multiple partners that contributed to control of the main outbreak.

a. Maintain Laboratory capacity: Over the course of the outbreak, the initial limited capacity in Liberia, Sierra Leone and Guinea to conduct reverse transcription (PCR) testing was established or expanded in national laboratories in each country, and capacity for new technologies was developed. Maintaining this expanded laboratory capacity will require additional operational investment in building and equipment maintenance, training of current and new technical staff, and supplies and materials.

b. Ongoing Surveillance: The Ebola response and health system recovery efforts in these countries have led to improved event-based surveillance for EVD and other epidemic-prone diseases; and

c. Developing Workforce: Training in field epidemiology is among the top priorities related to expanding public health capacity. Frontline Field Epidemiology Training Programs (FETPs) have been established in all three of the countries. Training of managers responsible for public health programs continues to be a challenge.

Collaborate with other Stakeholders

Past efforts in quickly and effectively controlling disease outbreaks have failed for lack of collaboration among major stakeholders and of coordination of response plans and resources.

The WBG is a partner in the Global Health Security Agenda (GHSA) [21] - a five-year multilateral initiative - launched in February 2014 to coordinate multiple stakeholders to advance a world safe and secure from infectious disease threats. It was endorsed by the G7 in June 2014. The GHSA is a partnership of more than 50 nations and its advisory partners include the WHO, the UN Food and Agriculture Organization (FAO). The World Organization for Animal Health (OIE), Interpol, the Economic Community of West African States (ECOWAS), the UN Office for Disaster Risk Reduction (UNISDR), and the European Union.

To meet agreed GHSA targets WHO uses the Joint External Evaluation (JEE) which is a voluntary, collaborative process to assess a country's capacity under the International Health Regulations (2005) to prevent, detect, and rapidly respond to public health threats. To date JEE Missions have been carried out in 50 countries (of which 22 in the Africa region and 13 in the Eastern Mediterranean region) and mission reports are available on the WHO website.

Summary

The WBG contributes to infectious disease risk management through its financing and its convening power. The latter has been most effective when the infection is worldwide as was the case with the Avian Influenza pandemic. The response time of its financing contribution has decreased across the six infectious disease outbreaks documented in this report ranging from two years (Avian Influenza) to two months (Zika). The organizational structure of the WBG partly accounts for the slow decision making where the functions of the Board of Directors include managerial decisions in addition to its governance role which contrasts with the more agile decision making by management in comparable large private companies. This sui generis organizational WBG structure has now been circumvented by Board pre-approval of pandemic emergency funds following the lessons learned from the still slow response to the Ebola crisis.

The strategic shift from a reactive to a proactive strategy to finance a potential outbreak has now put in place the tools and resources prior to the occurrence of an outbreak. A key proactive decision has been the creation of the Pandemic Emergency Financing Facility (PEF) approved by the Board in May 2016 to enable a rapid response in the event of an infectious disease out-

break before it becomes a regional epidemic or a worldwide pandemic. However, PEF is first and foremost a financing mechanism which should be part of global system coordinated by a global institution that is given enough authority and funding to be effective and be enabled to make fast decisions at a global level [22].

Other proactive measures have been initiated, are under execution or have already been concluded.

- A Crisis Response Window as part of the IDA 18 agreements allocates US$3 billion to support IDA countries' response and preparedness against severe natural disasters, economic crises, and health emergencies.
- IDA 18 financial support to at least 25 countries in developing pandemic preparedness plans and frameworks for the governance of multi-sectoral responses.
- Founding partner of the Global Health Security Agenda.
- Simulation exercises raise awareness of the threat posed by pandemics, test the systems that are currently in place, and drive increased domestic investment.
- A regional network of public health laboratories in East Africa is strengthening diagnostic and surveillance capacity and disease outbreak preparedness.
- Nine countries are already part of the West Africa Regional Disease Surveillance Systems Enhancement (REDISSE) Program supporting regional referral laboratories and regional surveillance systems.
- Financial and technical support is being provided to the Africa Center for Disease Control (CDC).
- New Initiatives on pandemic preparedness have developed collaborative relationships with Japan, Australia and the Rockefeller Foundation.
- A One Health Operational Framework has been developed that strengthens human, animal and environmental public health systems at their interface.

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