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**PANDEMIC EMERGENCY FINANCING FACILITY -
GLOBAL PANDEMIC RESPONSE THROUGH A FINANCIAL INTERMEDIARY FUND**

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Development Finance, Human Development, and Treasury Vice-Presidencies

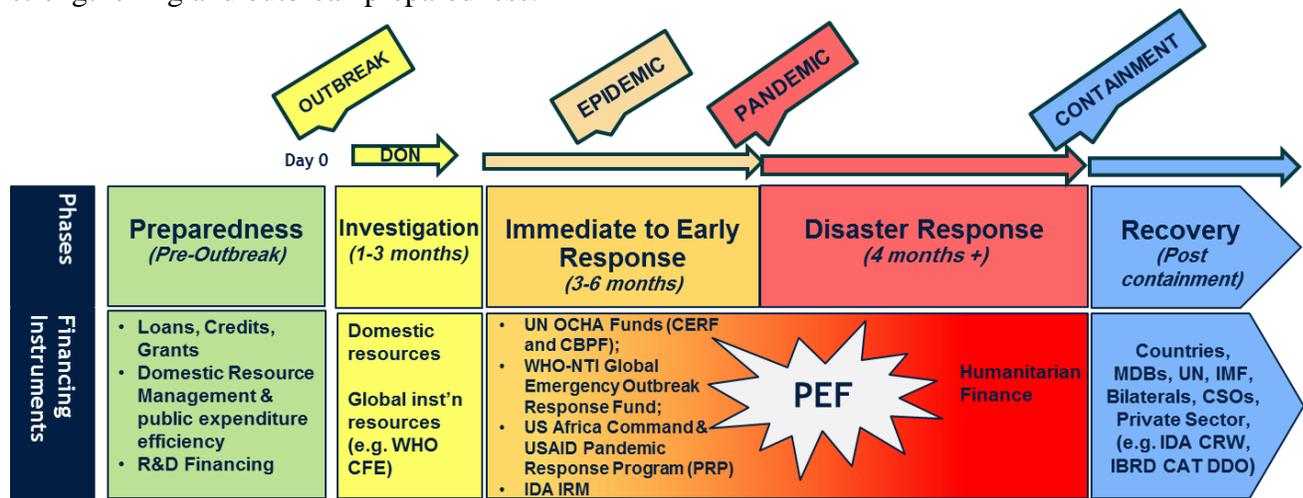
Abbreviations and Acronyms

AIDS	Acquired Immune Deficiency Syndrome
CCRIF	Caribbean Catastrophe Risk Insurance Facility
CDC	Centers for Disease Control and Prevention
CSO	Civil Society Organization
CFE	WHO Contingency Fund for Emergencies
CRW	IDA Crisis Response Window
DDO	Deferred Drawdown Option
DON	Disease Outbreak News
ECOWAS	Economic Community of West African States
FCS	Fragile and Conflict-Affected Situations
FIF	Financial Intermediary Fund
GAVI	The GAVI Alliance (formerly Global Alliance for Vaccines and Immunization)
GDP	Gross Domestic Product
GHSA	Global Health Security Agenda
GPAI	Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response Project
H1N1	Hemagglutinin 1 Neuraminidase 1 virus (referred to as “swine flu”)
HIV	Human immunodeficiency virus
HNP	Health, Nutrition and Population Global Practice
IBRD	International Bank for Reconstruction and Development
IDA	International Development Association
IFC	International Finance Corporation
IFRC	International Federation of Red Cross and Red Crescent Societies
IHR	International Health Regulations
IMC	International Medical Corps
IRM	IDA Immediate Response Mechanism
JEE	Joint External Evaluation tool
MDB	Multilateral Development Bank
MERS	Middle East Respiratory Syndrome (also MERS <i>Coronavirus</i>)
MSF	Médecins Sans Frontières
OCHA	United Nations Office for the Coordination of Humanitarian Affairs
OIE	World Organization for Animal Health
PEF	Pandemic Emergency Financing facility
REDISSE	Regional Disease Surveillance Systems Enhancement
SARS	Severe Acute Respiratory Syndrome (also SARS-associated <i>Coronavirus</i>)
TCIP	Turkish Catastrophe Insurance Pool
UN	United Nations
UNHCR	United Nations High Commissioner for Refugees
USAID	United States Agency for International Development
WBG	World Bank Group
WFP	World Food Programme
WHO	World Health Organization

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Executive Summary: Pandemic Emergency Financing Facility

1. **Development Purpose:** Pandemics pose a serious threat not only to global health security, but also to economic security and to our ability to end extreme poverty and achieve the Sustainable Development Goals. The Pandemic Emergency Financing Facility (PEF) tackles a financing challenge critical to managing severe disease outbreaks with pandemic potential. Learning from the lessons of Ebola, the PEF is designed to help fill the pandemic response funding gap that occurs after the period of immediate to early investigation, assessment and response – and before large-scale disaster and humanitarian relief funding is mobilized. Developed by the World Bank Group (WBG) together with the World Health Organization (WHO) and other partners, the PEF will provide the much needed surge funding for response efforts in IDA countries to help prevent rare, high-severity disease outbreaks from becoming pandemics. The PEF will be an important new complement to existing global and WBG financing mechanisms for investing in health system strengthening and outbreak preparedness.



2. **The PEF will help fill this critical funding gap** as a new financing mechanism that:
- Channels essential, timely surge financing to key responders efficiently, including governments, multilateral agencies, and CSOs, to stop or slow down an outbreak with pandemic potential and to minimize its health and economic consequences; and
 - Helps catalyze the creation of a global market for pandemic insurance instruments by drawing on resources from reinsurance and capital markets.

3. **The PEF will be an innovative insurance-based mechanism comprising insurance and cash windows.** PEF funding under the insurance window will be provided by resources from the reinsurance market combined with the proceeds of catastrophe bonds issued by IBRD, and will provide a maximum coverage of US\$ 500 million for an initial period of three years to IDA-eligible countries, which have relatively weak health systems and are less capable of mobilizing the financial resources to effectively respond to major outbreaks. Insurance premiums (defined to include insurance premiums and bond coupons) will be funded by development partners. To complement the insurance window, the PEF will include a donor-funded cash window of US\$ 50-100 million for IDA-eligible countries.

4. **The PEF's insurance window will rely on clear parametric activation criteria designed with publicly available data.** Unlike traditional indemnity insurance, parametric instruments work from an analytic model to calculate the payout of the insurance policy. Once activation criteria are met, parametric insurance can be settled in days, compared to the time it takes for traditional indemnity insurance payments to be disbursed. Using this approach, the PEF will be able to provide immediate resources to countries and international agencies to respond to situations with pandemic potential.

5. **The PEF design seeks to maximize public health outcomes while achieving affordable premiums.** PEF financing will be used to cover outbreaks of infectious diseases most likely to cause major epidemics, including new influenza, Coronavirus (e.g., SARS, MERS), Filovirus (e.g., Ebola, Marburg) and Crimean Congo, Rift Valley, and Lassa fevers. The targeted initial coverage will be a maximum of US\$ 500 million for three years; annual premiums under the catastrophe bonds and insurance contracts are expected to be in the range of US\$ 55-65 million and will provide the foundation for the PEF.

6. **The PEF's cash window will complement the insurance window,** recognizing that severe outbreaks from unknown or newly emerging pathogens may occur that do not fit or have not yet met the activation criteria. The principles guiding the use of the cash window will follow those used for insurance but with greater flexibility in terms of the amount and frequency of payouts and the range of pathogens.

7. **The PEF will provide a conduit for more harmonized and efficient pandemic response funding for PEF-eligible country governments and responding agencies** including UN agencies, multilateral development banks and civil society organizations. To ensure efficient and fast disbursement, the PEF will have a simple governance structure as well as transparent and rapid allocation and payout arrangements. The PEF will also foster global and country preparedness, by incentivizing creation of specific plans, for direct management of PEF funds by countries. Indeed better preparedness is critical to effective pandemic response, and requires investments in core public health functions, such as disease surveillance, diagnostics, laboratory networks, infection prevention and control, and community engagement.¹

8. **In summary, the PEF is a pilot effort in managing pandemic risk that is expected to yield several global public goods over time.** First, it will provide a faster, timely, and more cost-effective response to severe outbreaks with pandemic potential, which will save lives and protect economies. Second, it will leverage private sector resources to scale up the outbreak response. Third, it will improve transparency and accountability in global and national response efforts. Fourth, the PEF's design embeds crisis preparedness in a longer term, strategic approach by encouraging countries and the international community to develop pandemic response plans as well as to step up critical investments in health system strengthening and outbreak preparedness. Finally, the PEF is expected to play a key market development role by helping create a new market

¹See, for example, "Pandemics: An Ounce of Preparedness", *The Economist*, March 19-25, 2016. The article refers to a recent report published by the National Academy of Medicine, which suggests that just US\$4.5 billion a year (equivalent to about 3% of what rich countries spend on development aid) devoted to preparing for pandemics would make the world a lot safer. <http://www.economist.com/news/leaders/21695036-crises-infectious-diseases-are-becoming-more-common-world-should-be-better-prepared>.

for pandemic risk insurance. The private sector may take this forward on its own in a few years, but in the current landscape, WBG and development partners will be filling an important gap in the global development finance architecture by spearheading the development of a new, innovative instrument to deal with a novel risk. It is likely that over time, as the market matures, the PEF will scale up and pricing will become more competitive – as has been seen with catastrophe risk insurance facilities.

9. Recommendation: As detailed in this Memorandum, the PEF will make financing available to provide surge funding for a timely and effective response to disease outbreaks with pandemic potential, saving lives and protecting developing country economies. It is recommended that the Executive Directors approve the establishment and administration of the PEF. Specifically, Management recommends approval of the following: (a) establishment of the PEF as a Financial Intermediary Fund, (b) Bank support to the PEF as Trustee, coordinator, and Responding Agency; and (c) Bank’s Treasury support to the PEF such that IBRD is authorized to issue bonds or enter into insurance arrangements to provide pandemic risk coverage, provided that the Trustee has cash contributions or legally binding commitments from development partners that are sufficient to cover all relevant coupon, premium, and other costs over the life of such coverage, as set out in paragraphs 72,73,74.

PEF Terms Summary

Facility Structure:	Financial Intermediary Fund administered by the World Bank, supported by HDN, DFi and TRE VPUs
Financial Innovation:	The PEF will be funded by pandemic catastrophe bonds and (re)insurance contracts through WB Treasury.
Financial Coverage:	US\$ 500 million maximum for initial three years insurance window; US\$ 50-100 million replenishable cash window
Estimated Cost of Annual Premium	US\$ 55-65 million (including insurance contract premia and bond coupon payments)
Country Coverage and Eligibility:	For the initial 3 years, all IDA-eligible countries are able to access PEF funding.
Disease Coverage:	New <i>Orthomyxoviruses</i> (New influenza pandemic virus A, B and C), <i>Coronaviridae</i> (SARS, MERS), <i>Filoviridae</i> (Ebola, Marburg) and other zoonotic diseases (Crimean Congo, Rift Valley, Lassa Fever). These diseases, chosen on WHO's advice, cover top emerging diseases likely to cause major epidemics. "Unknown unknowns" and other pathogens that demonstrate serious pandemic potential such as Zika virus may also be eligible for coverage using the PEF's cash window.
Development Partner Contributions:	Targeted contributions for insurance premiums, including bond coupons: US\$165-195 million for initial three years; for cash window: US\$50-100 million
Responding Agencies:	Could include WBG, MDBs, WHO, UNICEF, WFP, other UN agencies, and CSOs in the initial phase; additional responding agencies in due course
Governance:	<u>Steering body</u> is responsible for core decision making comprising development partner contributors as members; non-voting members (WHO, WBG, IDA country and CSO representatives) to be agreed with the voting members of the steering body once firm financial commitments have been received. <u>Expert roster</u> vets and makes recommendation on Request-for-Funds applications <u>Advisory committee</u> meets annually on pandemic response issues and oversee simulations and drill exercises
WBG Roles:	Treasury Manager: WB Treasury will issue pandemic/catastrophe bonds and enter into insurance contracts for the PEF Trustee of PEF Financial Intermediary Fund and PEF coordinator Responding Agency [Non-voting member of steering body]
Facility Term:	Up to twenty years

I. Introduction

1. One of the sobering lessons of the recent Ebola crisis in West Africa was how ill-prepared the world was for such a deadly disease. The experience with Ebola pointed not only to the lack of capacity in low-income countries to deal with such a severe disease outbreak, but also to serious weaknesses in the ability of the international community to provide a timely, coordinated, and scaled-up response.

2. Pandemics pose a serious threat to both global health and economic security, as well as to our ability to end extreme poverty and achieve the Sustainable Development Goals. The recent Ebola outbreak infected almost 30,000 people, resulted in more than 11,000 deaths, wiped out hard-earned development gains in Guinea, Liberia and Sierra Leone and cost more than US\$2 billion in lost GDP in those three countries. Last year also saw the spread of the highly infectious MERS virus to the Republic of Korea, which contributed to a decline in the country's GDP growth to a six-year low. The current Zika outbreak in the Americas has brought the threat of pandemics back to the top of the global health agenda. Estimates suggest that if the world were to face a fast-moving, airborne disease, such as the Spanish flu outbreak of 1918-19, it would kill more than 33 million people in 250 days and erode 4.8 percent of global GDP – more than US\$3.6 trillion.

3. As the threat of pandemics grows in a globalized world where viruses move and mutate faster than ever before, so does the case for strengthening pandemic risk management. This requires first and foremost investments in pre-outbreak preparedness – i.e., to build resilient health systems in all countries that include strong core public health capacities (disease surveillance, detection, diagnostics, data sharing, etc.), particularly in the poorest countries. Second, it requires strengthening national and international capacity to respond to health emergencies, including the ability to provide timely and effective surge financing to contain severe outbreaks and prevent them from turning into pandemics. Third, it requires bolstering capacity and financing to deal with recovery from outbreaks. Indeed, these investments in pandemic risk management should be considered as vital to any country's health and development agenda.

4. The proposed Pandemic Emergency Financing facility (PEF) is designed to help fill a critical gap in the international aid architecture, as one part of the global solution to strengthen pandemic risk management. The PEF will help fill the financing gap that occurs after the initial outbreak occurs and before large-scale humanitarian relief assistance can be mobilized. Funds made available quickly in this timeframe are essential to preventing a severe outbreak from becoming a pandemic. Developed by WBG in consultation with the World Health Organization (WHO) and other partners, the PEF will provide surge funding for response efforts that support the deployment of health workers; provision of drugs, vaccines, essential medical equipment and supplies, food, etc.; and coordination and communication. It will also help to encourage and strengthen ongoing efforts toward better pandemic preparedness, complementing and reinforcing the need to build strong and resilient health systems and accelerate the achievement of universal health coverage.

5. The PEF will bring several benefits. First, it will enable a quick and timely response to crises – with crisp, contractual rigor that the private sector brings. Second, it will leverage private funds, helping to bring scale to response efforts. Third, and more broadly, by embedding

preparedness in a strategic, long-term approach, the PEF will help strengthen both country and global focus on preparedness.

6. Over the longer term, it is expected that the PEF will play a key role in developing a market for pandemic risk insurance – a novel risk area.

- The analytical research and design work underpinning the PEF’s development has already spurred wider research activity in the field of pandemic risk modelling and begun to spark investor interest in pandemic risk. The PEF’s analytical design builds on widely accepted probabilistic modeling, and on public data and historical experience from WHO and other sources. Standardizing data collection and analysis is essential to making pandemic risk an insurable and marketable asset.
- Over time, the PEF should help encourage a better understanding of pandemic risk, which in turn can catalyze new products, attract new players and capital, build investor confidence in this risk class, and help develop a new market. As reinsurers and capital markets investors gain familiarity with pandemic risks, market interest will likely increase and the overall price of such coverage will fall, as seen in the catastrophe risk insurance space.
- As the market develops, PEF coverage can expand to new risks and help develop regional pandemic insurance markets. For example, the PEF could help the development of regional insurance markets for filoviruses, which do not spread as rapidly as influenza.

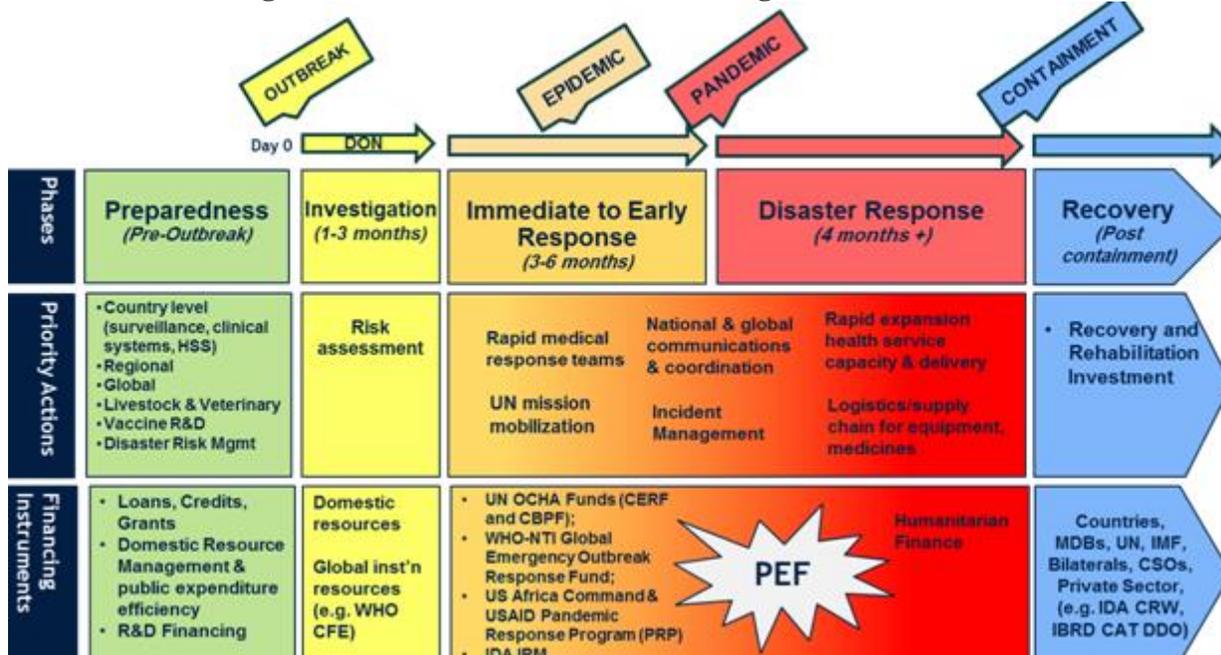
7. The rest of this paper is organized as follows: Section II provides the background and context for the PEF, outlining the importance of preparedness and response. Section III focuses on the design of the PEF. Section IV outlines the governance and operationalization of the PEF. Section V contains issues related to risks and risk mitigation. The paper concludes in Section VI.

II. Background and Context

2.1 Pandemic Risk Management Framework

8. **Pandemic risk management must include financing to support a phased set of country-centered, globally supported activities.** These include: (1) pre-outbreak preparedness; (2) investigation, assessment, and immediate response; (3) response/containment; and (4) recovery (see Figure 1). As response and support for country pandemic risk management plans moves through each of these phases, different funding amounts are needed, channeled through different partners, different planning processes, and different instruments. Traditional country and development financing – loans, credits, and grants – is used to build country preparedness as well as support recovery from pandemic loss. In the context of this overall pandemic risk management framework, financing from IDA and IBRD, as well as financing from other MDBs, bilateral donors and development partners, supports both preparedness and recovery efforts. It should be noted that the issue of pandemic preparedness will also be discussed in the context of the on-going IDA18 replenishment negotiations.

Figure 1: Global Pandemic Risk Management Framework



9. Over the past year, a series of deliberations and reports from experts and stakeholders has produced a comprehensive and consistent set of recommendations on what needs to be done to address systemic failures in country and global preparedness and response.² Collectively, these recommendations urge far-reaching improvements in global, national, regional, and local public health systems, capabilities and infrastructure; in international leadership for preparedness and response; and in research and development related to infectious disease treatment and prevention.

10. These reports highlight actions needed globally, and include specific recommendations to the WBG and development partners related to the financing of preparedness and response to pandemics. The Harvard-LSHTM Panel suggests that multilateral development banks including WBG should create economic incentives for early reporting, and commit emergency funds to assist countries when outbreaks strike. The Commission on a Global Health Risk Framework for the Future at the National Academy of Medicine recommends that the WBG should convene other multilateral donors for preparedness financing. The UN High Level Panel on the Global Response to Health Crises also suggests that the WBG, together with WHO and other international organizations, development partners, foundations and the private sector, should mobilize financial and technical support to strengthen preparedness. Both the Commission and the UN High Level Panel ask the WBG to establish response financing mechanisms such as the PEF.

² UN High Level Panel on the Global Response to Health Crises, February 2016; International Commission on a Global Health Risk Framework for the Future, January 2016; Harvard-LSHTM Independent Panel on the Global Response to Ebola, November 2105; WHO (Stocking) Report of the Ebola Interim Assessment Panel, July 2015.

2.2 The Critical Role of Preparedness

11. Investing in preparedness yields significant returns.³ Recent expert analyses have concluded that the expected impact of pandemic flu is US\$570 billion *per year*, while just US\$4.5 billion a year spent on preparedness – equivalent to about 3% of what rich countries spend on development aid – could make the world much safer. The WBG has estimated that system improvements in public health and animal health to meet the minimum standards of WHO and the World Organization for Animal Health (OIE) would cost US\$ 3.4 billion a year. In comparison, the economic benefit of better preparedness is estimated to be ten-fold, or US\$ 36.7 billion annually. Investing in preparedness contributes to shared economic prosperity, both by avoiding losses when disasters occur, and by stimulating innovation and economic development when investment risks are reduced.

12. Smart and timely investments can make a difference. The ability of the health system to mount an effective response to Ebola virus outbreaks in Nigeria, Democratic Republic of Congo and Uganda highlight the importance of preparedness even in the context of overall weak systems capacity. The experience of Vietnam, which implemented a comprehensive One-Health program encompassing agriculture, health and education sectors, illustrates what can be achieved when preparedness efforts are scaled up.

13. Before the recent Ebola outbreak in West Africa, several global initiatives had established a set of guidelines, tools, and technical assistance to help countries improve their preparedness and response capacity. The International Health Regulations (IHR) guide countries in detecting, assessing, and responding to all events that could potentially constitute public health emergencies of international concern and reporting them to WHO. Another WHO guidance expanded preparedness to include other sectors (e.g., veterinary, education, interior) in a One-Health approach. More recently, a number of countries have promoted a broader Global Health Security Agenda (GHSA), which provides technical targets that encompass key activities related to the prevention of outbreaks, promotion of key practices and actions to improve response capacity of countries.

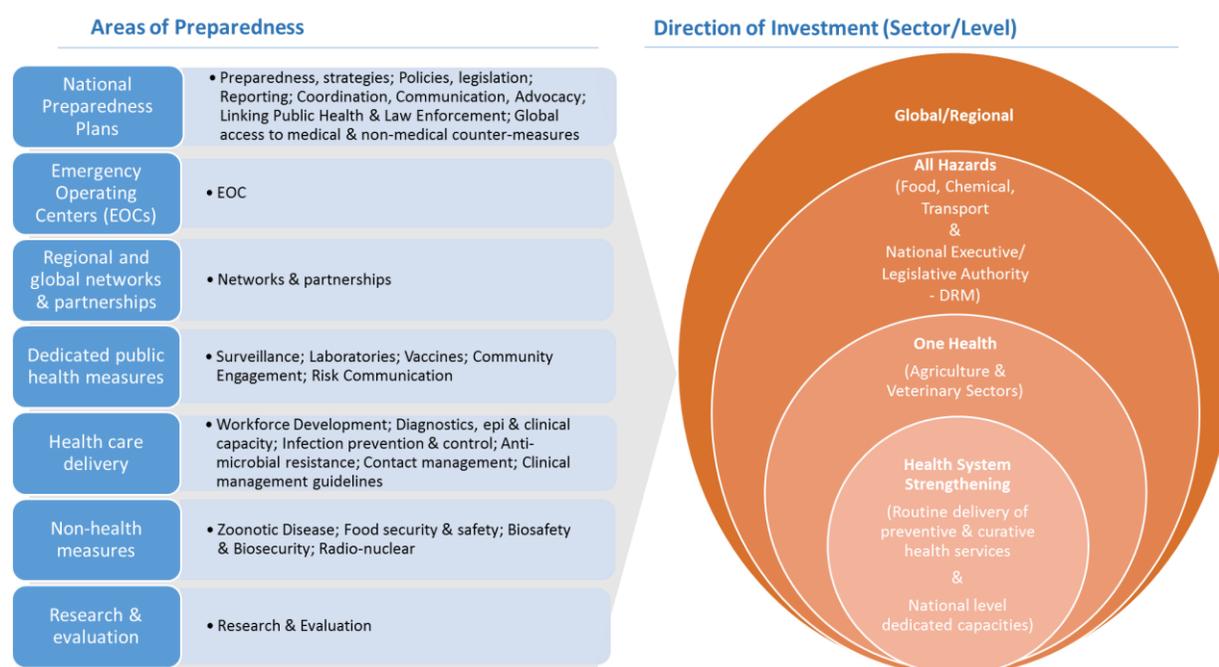
14. However, assessments have found that 80 percent of the world’s countries have not met their international legal obligations to implement the IHRs. Of the 194 eligible states, 127 (65 percent) responded to a WHO questionnaire on their state of progress in 2013. Only 13 of the responding member states claimed to have fully put in place IHR capacities, and only 74 reported having developed national plans to meet their core capacity requirements. An assessment in 2013 reported that 43 of 46 African states had done core capacity assessments, but none had fully implemented their national IHR plans. Most countries had not updated their legal framework to incorporate IHR (2005) provisions.⁴

³ Victoria Y. Fan, Dean T. Jamison, and Lawrence H. Summers, The Inclusive Cost of Pandemic Risk, NBER Working Paper 22137, March 2016; International Commission on a Global Health Risk Framework for the Future, January 2016

⁴ WHO (2013): “Implementation of the International Health Regulations (2005): Report by the Director General.” Sixty-Sixth World Health Assembly Provisional Agenda item 15.1

15. Despite available development assistance, country preparedness has been lagging because requirements for preparedness are complex. Preparedness requires an adequately trained and equipped public health workforce, a strong surveillance and response framework, a functional national public health laboratory, a solid legal and regulatory foundation, and robust multi-sectoral coordination. Many components reside in different parts of government (Figure 2). Many countries have struggled even to draft a national plan of action with specific activities, timelines, and budgets. Political willingness and commitment to act on preparedness and to sustain investments over time is a key factor.

Figure 2: Framework for Financing Preparedness



16. Together with WHO, USAID and other development partners, WBG is taking a fresh look at the financing of preparedness, and is developing a framework that identifies different levels of government that need to take on the financing responsibility. This framework will map available domestic and international public and private sector funds according to specific elements of preparedness, and help decision-makers complement and reinforce financing to specific uses and situations.

17. As part of its ongoing work on health system strengthening, WBG is also stepping up its support to help developing countries improve outbreak preparedness and response. In the last decade, WBG has invested US\$ 4 billion in IDA and US\$ 8 billion in IBRD countries in health system strengthening. In addition, the Global Financing Facility for Every Woman Every Child is making available resources in frontline capacity such as community health workers to provide the foundation for prevention, early detection, and containment.

18. WBG is investing in regional preparedness efforts such as the ongoing US\$ 129 million East Africa Public Health Laboratory Networking Project, which is operational in Burundi, Kenya,

Rwanda, Tanzania and Uganda. A new US\$310 million Regional Disease Surveillance Systems Enhancement (REDISSE) Project in West Africa seeks to address systemic weaknesses within the animal and human health systems that hinder effective disease surveillance and response, and strengthen epidemiological intelligence and laboratory capacity of selected ECOWAS member countries.

19. The WBG has also scaled up support for pandemic crisis response and recovery. Between 2014 and 2015, the WBG committed US\$1.62 billion to support Ebola crisis response and recovery efforts in Guinea, Liberia and Sierra Leone, including strengthening their health systems and improving outbreak preparedness. This has included a US\$450 million commitment from the IFC, aimed at enabling continuity of trade, investment and employment in the three countries. More recently, WBG made available US\$ 150 million to countries in Latin America and the Caribbean affected by the Zika virus outbreak to support a range of activities to ensure a robust, well-targeted, well-coordinated and multi-sectoral response.

20. A number of development partners have also made available significant sums of money to help countries strengthen their preparedness and response capabilities. For example, as part of the GHSA, the US has committed US\$1 billion to build core capacities in a number of developing countries, including Guinea, Liberia, and Sierra Leone. To tackle future outbreaks of epidemics, the G7 in 2015 announced support for 60 countries to implement the International Health Regulations. Germany has led the launch of the Healthy Systems Road Map with a EUR 200 million commitment for health system strengthening. Japan is advancing investments in preparedness through its leadership to help developing countries accelerate achievement of universal health coverage. The EU and its Member States, which pledged over EUR 1.2 billion to fight the Ebola epidemic, committed a further EUR 414 million to provide emergency measures and longer-term support, as well as for the development of vaccines and treatments. The United Kingdom has launched the GBP 195 million Fleming Fund to tackle the global problem of drug-resistant infection. The Bill & Melinda Gates Foundation has committed funds for disease surveillance networks in Africa and Asia to prevent childhood mortality and help prepare for the next epidemic.

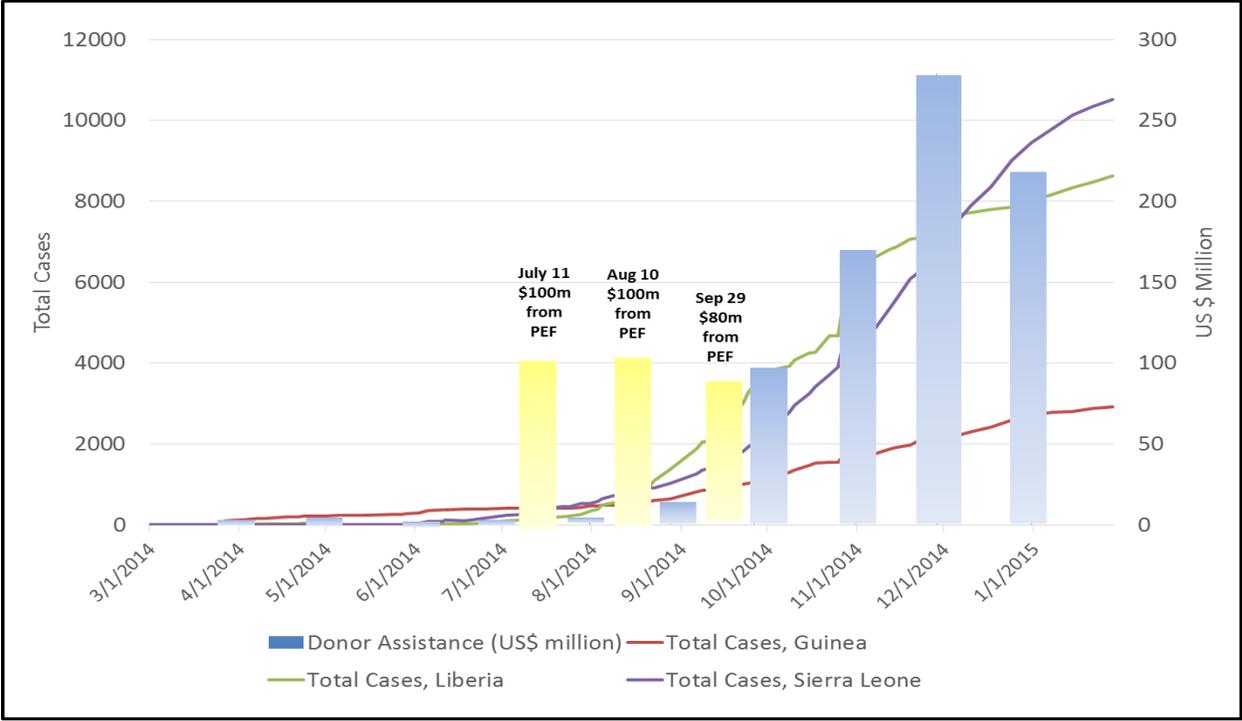
2.3 The Importance of Response

21. While much more needs to be done to strengthen preparedness, even a well prepared national system may be overwhelmed by a severe disease outbreak. Cash needs increase dramatically for severe events the longer it takes to mount a substantial and comprehensive response. WHO's Contingency Fund for Emergencies (CFE), UN's Central Emergency Response Fund (CERF), UNICEF and WFP, and humanitarian agencies like MSF and IFRC, come in with early response support for high-frequency outbreak – but these amounts are not sufficient if the outbreak escalates. After the severity and urgency of the crisis become apparent, humanitarian finance begins to flow in larger amounts. However, between these early response efforts in the US\$ thousands and low millions, and larger, humanitarian response in the US\$ billions, there is a critical funding gap for amounts in the US\$ millions when it becomes clear that an outbreak has pandemic potential and is spreading rapidly, but before catastrophic loss may be evident.

22. Further, there are many known pathogens with pandemic potential that have no effective prevention or treatment. For unknown or new pathogens, neither treatment nor good diagnostics exist. When severe outbreaks do occur, the current approach to financing country and global response is slow, fragmented and crisis-driven. Dependent on “pass the hat,” donor-by-donor financing, it typically comes in too late for a fast-moving, deadly outbreak. The time that it took domestic and international authorities to mount an organized and efficient response during the recent Ebola outbreak demonstrated these deficiencies.

23. If the PEF had been in place as the Ebola outbreak began to spread in West Africa in 2014, the outcome could have been very different. Figure 3 shows how the availability of surge funding in the early summer of 2014, rather than in the fall, could have helped to save thousands of lives and avoided loss in the *tens of billions* of dollars in terms of both GDP and development assistance contributions for the Ebola crisis response and subsequent recovery to date. Significant amounts of donor assistance for the affected countries were made available only at the end of September 2014 and later, at which point the number of Ebola cases was already skyrocketing and the crisis was full-blown. The PEF as designed would have facilitated the mobilization of US\$100 million as early as July 2014, with US\$180 million in subsequent weeks thereafter – sums of sufficient size that they could have made a significant shift in the response and in the resulting trajectory of the outbreak.

Figure 3: Ebola Outbreak – Donor Assistance and Potential PEF Payouts



24. Recognizing this need for responsive financing at critical points, a wide range of global leaders and health experts, including the aforementioned expert assessments of lessons learned from Ebola, G7 leaders, leaders at the World Economic Forum, and others have called for development of a quick disbursing financing mechanism to provide surge funding for response efforts to help prevent a severe outbreak from becoming a pandemic. The 2015 G7 Summit

Communique stated that, “*The Ebola outbreak has shown that the timely mobilization and disbursement of appropriate response capacities – both funding and human resources – is crucial....We support the initiative taken by the World Bank to develop a Pandemic Emergency Facility.*”⁵

25. The proposed PEF, which has been developed by the WBG in consultation with WHO and other partners, addresses this critical financing gap. In the context of an outbreak that demonstrates sustained growth, geographic spread and severity in terms of loss of life or morbidity, financing from the PEF would be activated after early investigation and response to an outbreak, when it shows clear signs of reaching pandemic potential, and before significant humanitarian flows arrive. Mobilizing public and private financing and relying on pre-set and objectively measurable activation criteria, the PEF will provide timely surge funding to governments, multilateral agencies and Civil Society Organizations (CSOs) to help prevent low-frequency, high-severity outbreaks with pandemic potential from becoming pandemic – and prevent the human and financial costs from escalating.

26. WBG has worked closely with WHO to design the PEF and ensure that it complements existing pandemic response finance instruments, including WHO’s CFE. Launched in May 2015, WHO’s CFE is designed to provide the organization with immediate liquidity to address an early-stage event. The CFE aims to replenish WHO’s own finances for the first three months, and under exceptional circumstances, six months of an event. In this way, the CFE is an internal cash flow mechanism that helps ensure that WHO has the resources at hand to fulfil its mandate and responsibilities, and to meet the expectations of the global community in the earliest phase of an outbreak or emergency with health and humanitarian consequences.

27. The PEF will complement the WHO’s CFE. The CFE, which is aims to replenish WHO’s own financing, is meant to provide support when an emergency event is verified, and before funds from other financial mechanisms, including the PEF, begin to flow. The PEF, which triggers after an outbreak reaches a significant size, is designed so as to not overlap with or duplicate the role of the CFE. The CFE is designed to respond to all hazards, i.e., disease outbreaks as well as all other emergencies with health and humanitarian consequences including natural disasters. In contrast, the PEF is designed to respond to outbreaks from a defined set of viruses. A further distinction between the CFE and the PEF is that payouts from the CFE are determined through expert judgement in the case of very early releases up to US\$ 100 thousand and thereafter by the outcome of a systematic risk assessment process that takes into account context and other qualitative as well as quantitative factors. The PEF insurance mechanism trigger function is dependent on quantitative data gathered on the outbreak which will determine whether the trigger conditions have been reached. In the event of a serious epidemic that the PEF would address, any

⁵ “. . . We welcome the ongoing development of mechanisms including by the WHO, the World Bank and the International Monetary Fund and call on all partners to strongly coordinate their work. We support the initiative taken by the World Bank to develop a Pandemic Emergency Facility. We encourage the G20 to advance this agenda. Simultaneously, we will coordinate to fight future epidemics and will set up or strengthen mechanisms for rapid deployment of multidisciplinary teams of experts coordinated through a common platform. We will implement those mechanisms in close cooperation with the WHO and national authorities of affected countries.” G7 Leaders Declaration, Elmau, June 8, 2015.

interim period between CFE's three month limit and the PEF triggering would be filled through appeals to donors and other financial facilities including UN mechanisms.

28. The PEF complements WBG's existing emergency response mechanisms, including the IDA Crisis Response Window and Immediate Response Mechanism (IRM). The IRM aims to facilitate a rapid response in the aftermath of a natural or man-made crisis or emergency that is likely to cause major adverse economic and/or social impacts. Disbursements can be made within two weeks of a request from the borrower. The PEF can supplement IRM financing to existing IDA projects, once restructured. Another channel through which IDA countries can currently receive resources to address emergencies is through the Crisis Response Window (CRW). New or restructured IDA projects that receive co-financing from the PEF can receive supplementary funding down the road from the CRW, if required. The IFC will also respond in a complementary way with investments aimed at enabling continuity of trade, investment and employment in pandemic-affected areas. The IFC will seek to provide comfort to the private sector to continue support to local companies and small and medium-sized enterprises.

29. The PEF is expected to complement other existing and new initiatives, including the African Risk Capacity (ARC). ARC, which is a sovereign disaster risk insurer established by the African Union, is exploring the possibility of developing an insurance contract against outbreaks on behalf of countries, and is expected to provide funding for African governments that implement peer-reviewed and approved contingency plans against outbreaks. These contracts would be an ideal complement to the global coverage provided by PEF.

III. Design of the Pandemic Emergency Financing Facility

3.1 Alternative approaches and reasons for selecting the proposed design

30. Various alternatives were considered before selecting the proposed design for the PEF. One option considered was to rely fully on grant contributions from development partners. Initial discussions with development partners indicated a limited appetite for such a solution, to meet both the immediate as well as future requirements for funding the facility. Options involving the use of public funds to mobilize and leverage private sector resources were thus explored. Among the alternatives considered, a design that could leverage public funding to mobilize funds from insurance and catastrophe bond markets was found to be the most attractive as a workable and sustainable solution. An especially striking appeal of this option is that it makes it possible to use a relatively modest amount of public resources to mobilize a significant volume of private risk capital and deliver these resources in a timely manner to where they are most needed.

31. Experience from catastrophe risk instruments developed by the WBG has informed the choice of the PEF's design. Catastrophe risk instruments have helped to create new markets and a growing culture of risk management in novel risk areas.

- One example is the Caribbean Catastrophe Risk Insurance Facility (CCRIF), designed to provide participating countries with access to affordable and effective coverage against natural disasters. CCRIF was established as a legal entity in 2007 as the world's first multi-country risk pool, and it was also the first insurance instrument to successfully employ a parametric policy backed by traditional insurance and capital markets (cat bonds issued by

the World Bank), to cover less frequent and more severe events, coupled with small, donor funded cash retention window, which has provided a flexible pool of funds to cover more frequent events that do not meet the specific activation criteria for insurance or events that the insurance coverage could not foresee or model. CCRIF was initially supported by funding from the World Bank, the Caribbean Development Bank and a number of governments, including Japan, the United Kingdom, France, Ireland and Bermuda. In 2014, CCRIF was expanded to include participation by Central American countries, with the support of grants from Canada, the United States and Mexico. CCRIF has helped grow the market and prices have fallen over time. Furthermore, while cost of premiums were initially covered by donors, client countries now pay their own premiums after evaluating their critical exposures.

- Another example is the Pacific Catastrophic Risk Facility (PCRAFI), a risk insurance pool of five small Pacific islands that was incubated by the WBG. Established in January 2013, this program now provides critical coverage against earthquake and tropical cyclone risk, as well as tsunamis. PCRAFI was initially sponsored by the donor community, but now client countries pay their own premiums.
- A third example is Mexico's MultiCat Catastrophe Bond program, developed with support from the WBG. Mexico issued its first catastrophe bond in 2006 to cover response costs to major earthquakes. Mexico invested substantially in risk mitigation and in its management of public assets and exposure. Since then, spreads on catastrophe bonds have narrowed, and Mexico's increasing familiarity with reinsurance and capital markets has led to large reductions in premiums. This reflects both Mexico's strong risk management culture and the acceptance by the market – as well as its demand for – this type of risk.
- The WBG helped establish the Turkish Catastrophe Insurance Pool (TCIP), a mandatory scheme for homeowners' earthquake insurance. TCIP, which was backed by WBG financing at inception, has an insurance limit of over EUR 3.2 billion for the country and almost 90 percent of the pool is transferred to the private and international markets. Over time, TCIP has successfully created a growing culture of risk management and risk ownership in Turkey, which is mirrored in the growth of its domestic homeowner insurance market.

3.2 PEF: Key Design Features and Financial Structure

32. PEF-eligible countries: The PEF is designed to make resources available to help IDA countries respond to disease outbreaks before they take on pandemic proportions. While all countries are susceptible to disease outbreaks, low-income countries with relatively weaker health systems tend to be more vulnerable and less capable of mobilizing the financial resources to effectively respond to major outbreaks. Accordingly, the PEF will offer coverage to the IDA-eligible (i.e., IDA only and blend countries) countries, which would be eligible to receive funding in the event of a qualified outbreak.

33. Eligible Responding Agencies could include MDBs, including the WBG; UN Agencies such as WHO, WFP, UNICEF, and other UN agencies; and CSOs in the initial phase. Additional responding agencies may be accredited in due course.⁶ PEF funding allocated for PEF-

⁶ The accreditation process is presented in Section IV.

eligible countries may be implemented by: (i) countries under the supervision of MDBs as Responding Agencies (country implementation modality); or (ii) Responding Agencies directly (Responding Agency implementation modality). In either case, responding agencies will assume the fiduciary responsibility for the use of funds received from the PEF.

34. Eligible expenditures: Resources from the PEF may be used to cover a range of pandemic response activities, including, but not limited to: (i) deployment of human resources; (ii) essential medical and non-medical supplies and equipment and lifesaving goods (medicines, personal protective equipment, disinfectants, power generators, food, etc.); (iii) logistics and supply chain; (iv) minor civil works and refurbishments (temporary care centers); (v) services (counseling, transportation, evacuation, needs assessment, maintenance, etc.); (vi) incentive mechanisms (hazard pays); and (vii) coordination, communication, management and information systems. PEF resources are not intended to finance preparedness or reconstruction efforts, such as national and regional disease surveillance and control institutions. These vital activities would need to be financed through existing channels, such as countries' own budgets, bilateral assistance, UN agency or MDB financing including IDA credits or IBRD loans.

35. The PEF will be established in the form of a financial intermediary fund (FIF) within WBG; its financial structure will include an insurance window and a cash window, which will complement each other.

3.2.1 Insurance window

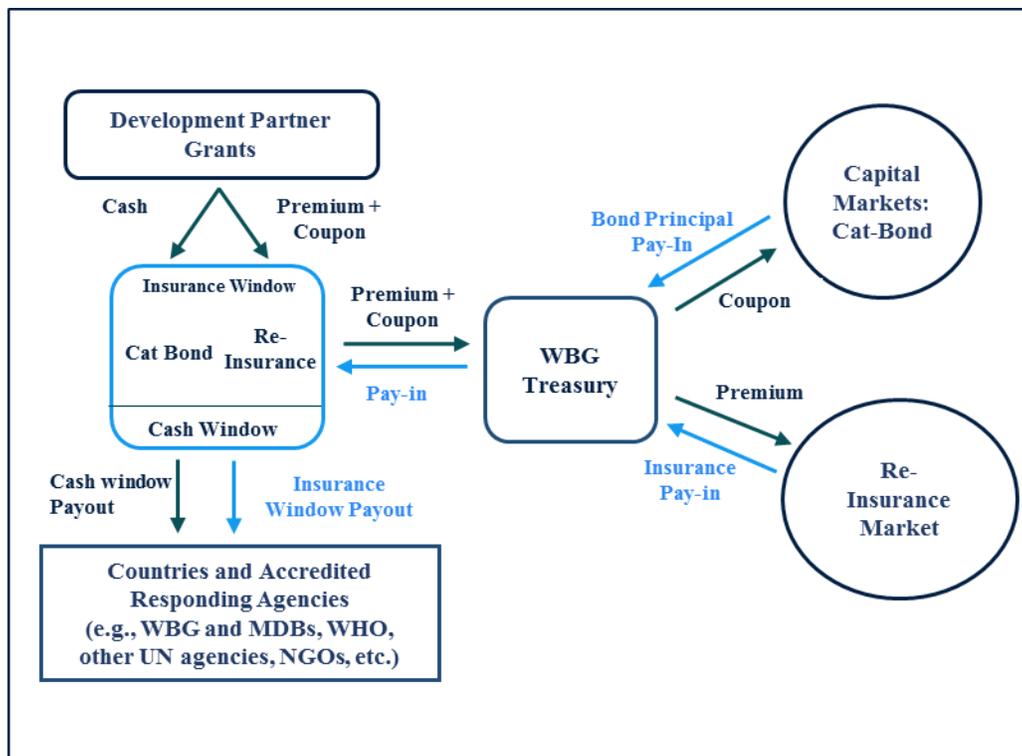
36. The insurance window will provide a targeted initial coverage of US\$500 million over three years to cover infrequent, severe events. The insurance window will be funded through (a) reinsurance markets and (b) capital markets via a Catastrophe Bond. Under the insurance window, the World Bank through its Treasury will issue catastrophe bond(s) or enter into insurance contract(s) in the market. Insurance contracts will be entered into with major insurers and reinsurers, while the catastrophe bond will be placed with so-called Insurance-Linked Securities investors, who invest in catastrophe bonds linked to natural events as well as to longevity, mortality, and extreme mortality events (see Figure 4). Payments received by the World Bank Treasury from the insurance contract or the catastrophe bond will be transferred to the FIF ("pay-in").

37. Buying coverage in both the insurance market and the capital market helps lower the cost and increase the amount of coverage the PEF can obtain. Different investors focus on different layers of risk. For example, some prefer the larger premiums that come from covering more frequent events, while others prefer to provide coverage for highly unlikely "tail" events. The private risk-takers, bond investors or insurance companies, will be paid a premium (hereafter referring to both insurance premia and bond coupons) commensurate with the risk they are taking.

38. Premiums are estimated to be in the range of US\$55-65 million annually. They will need to be covered by development partner funding. This range reflects the trade-off between coverage and costs. Larger and earlier payments from the insurance window result in higher premiums relative to lower and late payments. Several permutations and combinations were

examined in order to arrive at the above least-cost option providing the desired public health outcome.

Figure 4. Overview of the PEF mechanism



39. Covered diseases: Coverage under the insurance window will be provided for high-severity events caused by the following pathogen groups: New *Orthomyxoviridae* (new Influenza virus A, B and C), *Coronaviridae* (SARS, MERS), *Filoviridae* (Ebola, Marburg) and other zoonotic diseases (Crimean Congo, Rift Valley, and Lassa). These diseases cover the top emerging diseases likely to cause major epidemics, and for which few or no medical countermeasures exist (WHO, 2015).⁷ Other diseases with epidemic potential – such as HIV/AIDS, tuberculosis, malaria, and Dengue – are not covered because major financing and disease control networks, such as the Global Fund to Fight AIDS, Tuberculosis and Malaria and the GAVI Alliance, are already in place for these infections. Events related to endemic diseases, such as cholera, will not be covered since they do not assume pandemic proportions. Seasonal flu outbreaks will not be covered, as the risk is too high to be managed cost-effectively through insurance. The cash window will allow flexibility to provide response funding in terms of the frequency of payouts and the range of pathogens.

⁷ The initial list of disease priorities needing urgent R&D attention comprises: Crimean Congo hemorrhagic fever, Ebola virus disease and Marburg, Lassa fever, MERS and SARS coronavirus diseases, Nipah and Rift Valley fever. Three other diseases were designated as 'serious': chikungunya, severe fever with thrombocytopenia syndrome, and Zika. Other diseases with epidemic potential, such as HIV/AIDS, Tuberculosis, Malaria, Avian influenza and Dengue, were not included in the list because there are major disease control and research networks for these infections, and an existing pipeline for improved interventions. See <http://www.who.int/medicines/ebola-treatment/WHO-list-of-top-emerging-diseases/en/>

Activation Criteria

40. The insurance coverage will use a carefully designed “parametric trigger”. Parametric triggers use publicly available and observable data to determine the payment amounts. As these triggers are based on observable data, they provide more transparency, increase the speed of payment and allow for an objective benchmarking of risk. No assessment of actual losses is required; if the activation criteria are met, the insurance will pay regardless of actual costs incurred on the ground. Two main advantages of parametric insurance are that: (i) it can be settled in days, compared to the longer time periods it may take to settle payments under traditional indemnity (re)insurance products; and (ii) it will provide immediate resources to countries and international agencies to respond to a pandemic situation. Both these are integral elements of the PEF’s value proposition.

41. To activate the insurance window pay-ins to the PEF, an event must meet specific criteria of “severity”. These criteria are based on outbreak size (i.e., number of cases or number of deaths), outbreak growth (i.e., the outbreak must be growing over a defined time period) and outbreak spread (i.e., two or more countries affected by the outbreak). The thresholds are based on the epidemiological characteristics of the diseases and associated outbreaks, and incorporate constraints stemming from affordability and risk appetite of investors and reinsurers.⁸

- For influenza, there must be 2,000 confirmed cases (counted from all countries worldwide) within a rolling four-month period. For these cases, there must be epidemiological evidence of human to human transmission of a new influenza virus whose hemagglutinin gene is of animal origin and which is antigenically distinct from recently circulating human seasonal influenza viruses. The growth criterion is met if an outbreak increases from 2,000 confirmed cases to over 5,000 confirmed cases within one month. At that point, the influenza pandemic would be confirmed and 100% payout of the maximum US\$300 million coverage would be paid out.
- For Coronavirus and Filovirus, local outbreaks (within one country) are not considered to be pandemic and thus are not covered by the insurance mechanism; they are expected to be covered by the WHO CFE, countries themselves, or other sources of funding. Regional outbreaks affecting two to seven countries would activate insurance payments at three stages as the number of confirmed deaths increases. Global outbreaks affecting eight or more countries also activate payments at three stages but provide access to higher funding levels at the first two stages. Payout for *coronavirus*, *filovirus* and others will occur based on a rolling number of probable and confirmed cases observed within a 3 month period in IDA and IBRD countries. *Filovirus* and other diseases (Lassa Fever, Rift Valley, and Crimean Congo) will need to surpass 250 confirmed cases, or a combination of confirmed and probable cases where at least a third of cases are confirmed, in order to meet the outbreak size criteria. For *coronavirus*, the outbreak would need to surpass at least 150 confirmed cases or a combination of confirmed and probable cases where at least a fifth of cases are confirmed. For *filovirus*, *coronavirus*, and other non-influenza diseases, exponential growth greater than zero will also have to be achieved.
- For purposes of the activation criteria, classification of single or multi-country outbreaks and aggregate number of deaths is applied to both IDA and IBRD countries; however, only IDA

⁸ Payouts from the cash window will be used to support one-country disease outbreaks which meet the other criteria of severity and growth. Please also see para 46.

countries are eligible to receive payment from the PEF. That is, an outbreak in two countries, one an IBRD (middle-income) country that is not a PEF participant, and the other an IDA (low-income) country, could trigger the activation criteria (i.e., pay-ins), but PEF funding would be available only to the IDA-eligible country (i.e., payouts).

42. Both insurance and catastrophe bonds would be constructed around the same transparent and indisputable activation criteria, based on a stochastic model developed by AIR Worldwide. A leading modeling firm in the insurance-linked securities market, AIR Worldwide was engaged through a competitive bidding process to build the underlying risk model for the PEF. The core of the model is AIR's statistical database tracking historical disease outbreaks back to the beginning of the 20th century. The model applies a series of assumptions to this extensive database, including the state of development of the local health systems, economic conditions, time to response, and social factors.

43. Pay-ins from catastrophe bonds or insurance are expected to be quick. The post-event loss calculation, or activation criteria process, will start with a notification (Event Notice) from the PEF or the WB Treasury to the calculation agent (AIR Worldwide). The event notice may be issued as soon as Disease Outbreak News (DON) or a Situation Report is published by WHO. AIR is expected to take up to three business days from the reception of the Event Notice to the declaration of the activation criteria and will continue to report on the event covered for each subsequent weekly or bi-weekly period until the event covered is, for all intents and purposes of the coverage, over. As soon as the event is declared a qualifying trigger event, the WB Treasury will submit either a claim to insurers under the insurance contracts, expected to be paid within a week, or send a notification of a reduction of principal amount to the bondholders.

44. Real time data are essential element of the design of the PEF insurance mechanism. Real time data for a given epidemic/pandemic will come directly from WHO, which has pledged its support to maintain the provision of the data necessary for generating the output of any loss trigger.

45. Pay-in from the insurance window under the PEF varies by disease, severity and geographic spread. The maximum payment under the PEF per event is capped at US\$ 300 million for influenza, US\$ 200 million for Filovirus (Ebola), US\$ 250 million for Coronavirus (SARS, MERS), and US\$ 100 million for other diseases. With the exception of influenza, for which the entire payment will be made when the criteria thresholds are reached, payment for other diseases will be disbursed in tranches according to the number of deaths. For outbreaks in more than one but less than eight countries, PEF will pay 30 percent, 60 percent and 100 percent of the maximum amount if the total number of deaths are 250, 750 or 2500 respectively. For outbreaks in eight or more countries, the PEF will pay 35 percent, 70 percent and 100 percent of the maximum amount if the total number of deaths are 250, 750 or 2500 respectively (Table 1).

Table 1. Pay-in from Capital and Insurance Markets⁹

New Pandemic Influenza Maximum Coverage: \$300m	Pay-in based on: Aggregate Number of Confirmed Cases		
	At 5000 100% (US\$300m)		

*To qualify, an outbreak must increase from 2,000 confirmed cases to over 5,000 confirmed cases within one month.

Coronavirus Maximum Coverage: \$250m	Pay-in based on: Aggregate Number of Confirmed Deaths within IBRD/IDA Countries		
	At 250	At 750	At 2500
Regional (i.e., outbreaks affecting more than one but less than eight countries)	30% (US\$ 75 m)	60% (US\$75 m)	100% (US\$100 m)
Global (i.e., outbreaks affecting more than eight countries)	35% (US\$ 87.5 m)	70% (US\$87.5m)	100% (US\$75m)

Filoviridae Maximum Coverage: US \$200m	Pay-in based on: Aggregate Number of Confirmed Deaths within IBRD/IDA Countries		
	At 250	At 750	At 2500
Regional (i.e., outbreaks affecting more than one but less than eight countries)	30% (US\$60m)	60% (US\$60m)	100% (US\$ 80m)
Global (i.e., outbreaks affecting more than eight countries)	35% (US\$70m)	70% (US\$70m)	100% (US\$60m)

ADOM (Rift Valley, Lassa Fever, Crimean Congo) Maximum Coverage: \$100 m	Pay-in based on: Aggregate Number of Confirmed Deaths within IBRD/IDA Countries		
	At 250	At 750	At 2500
Regional (i.e., outbreaks affecting more than one but less than eight countries)	30% (\$US 30m)	60% (\$US 30m)	100% (\$US 40m)
Global	35% (\$US 35m)	70% (\$US 35m)	100% (US\$30m)

⁹ Although the activation criteria for pay-ins to the insurance window are based on cases which occur in both IBRD and IDA countries, payouts will be channeled to IDA-eligible countries only.

3.2.2 Cash Window

46. To provide greater flexibility and allow for a response to a severe event that fails to meet the PEF's activation criteria for an insurance pay-in, the PEF will include a cash window. The cash window has four purposes: (i) to provide supplemental financing for pathogens covered by insurance, but that clearly merit larger or earlier payouts than provided by the activation criteria and allocation arrangements; (ii) to provide financing to severe single-country outbreaks; (iii) to provide coverage for new or unknown pathogens not covered by insurance; and (iv) to serve as a conduit for efficient and effective surge financing during crisis for development partners to channel resources to affected countries. The cash window would be administered following the basic principles underpinning the activation criteria. Disbursements from the cash window will have similar procedures as those for insurance or capital market proceeds, but with a greater degree of flexibility.

47. An initial cash window of US\$ 50-100 million, with amounts to be replenished annually, would ensure an effective public health response and would be an appropriate complement to insurance coverage of US\$ 500 million. This amount also represents the maximum payment for pathogens such as the Crimean Congo, Rift Valley, and Lassa fevers, which the WHO considers meaningful to finance a response in the event of a severe outbreak.

3.3 Funding by Development Partners

48. Funding from development partners is sought in support of both the insurance and the cash windows of the PEF. It should be noted that these contributions may be provided in a number of forms, including direct cash payments and promissory notes, and also through arrangements to pay in installments. To cover the needs for funding under the cash window, payments could be conditioned on specified replenishment need. Costs associated with the administration of the FIF will also be recovered from development partner contributions.

IV. Governance and Operationalization of the PEF

4.1 Governance and Administration of the PEF

49. The PEF will be governed by a steering body, which will serve as the decision-making body responsible for setting the strategic direction, policy-making, allocation of payouts, and monitoring and evaluation. Representatives from all donor countries contributing to the PEF are proposed to be members of the steering body. Key partners, such as IDA borrower country representatives, WBG and WHO may be asked to join the steering body as non-voting members.

50. Individuals from an expert roster will be available for the steering body to provide technical advice related to outbreaks for which funds have been requested. The expert roster will be a group of individuals selected from leading academic and research institutions globally, with specific expertise in epidemiology for infectious diseases.

51. An advisory committee representing the global community engaged in pandemic response will meet periodically. This committee will be drawn from academia, research agencies,

public health agencies, UN agencies, CSOs, and other relevant entities. It will meet to share information and consider global issues relating to pandemic preparedness, response and financing, and it will have a sponsoring role for simulations and annual drill exercises.

52. WBG will designate a coordinator who will be charged to manage the PEF. The coordinator will, *inter alia*,: (i) interact with the various WBG units involved in the implementation of PEF; (ii) serve as the interface between the PEF, its steering body and advisory committee, development partners, PEF-eligible countries, responding agencies, and technical experts, as necessary; (iii) be responsible for stakeholder engagement and communication; and (iv) undertake such other tasks as may be assigned by the steering body.

53. Working with partners, WBG will prepare an operations manual that details standards, policies and procedures governing payouts from the PEF to countries and responding agencies, including all necessary forms such as the Request-for-Funds application form.

54. In addition to its role as coordinator, issuer of the catastrophe bond and beneficiary of the insurance contracts, the World Bank will also serve as the Trustee of the FIF established to support the PEF. The Trustee will administer the FIF for purposes of receiving funds from contributors, bondholders and insurance companies via the World Bank's Treasury and holds those funds. The roles and responsibilities of the Trustee include establishing and managing the FIF at the WBG; signing agreements with contributors, Responding Agencies and others as necessary; managing contributions, payment and funds transfers; investing funds held in the PEF; reporting to the steering body on financial status and activity; preparing financial reports and single audit reports; and coordinating with the PEF coordinator. Costs related to the functions of coordinator, Trustee, issuer of the catastrophe bonds and beneficiary of the insurance contracts will be recovered on a full cost basis from the FIF.

55. Funds transferred by the Trustee to Responding Agencies are expected to be used and administered in accordance with their applicable policies and procedures, including procurement, financial management, disbursement and safeguards (environmental and social) policies, framework to prevent and combat fraud and corruption, and screening procedures to prevent the use of PEF resources to finance terrorist activity. The Trustee will have no responsibility or accountability for the use of funds transferred to responding agencies. In particular, the Trustee has no responsibility, fiduciary or otherwise, for the use of funds by responding agencies or for the underlying operations financed by PEF resources. Responding agencies will bear fiduciary responsibility for the end use of funds they receive from the Trustee.

4.2 Accreditation Process

56. The PEF steering body will determine whether the applicant entity is an appropriate partner. An outside expert, such as an international accounting firm, will be engaged to review accreditation candidates. The Trustee will check that the outside expert is a reputable entity whose terms of reference, contracts and interests ensure independent review of the applicants. The outside expert will review whether candidates have appropriate institutional capacity and fiduciary controls in place to be an effective implementing partner.

57. The process to identify major Responding Agencies has been initiated. These include the traditional MDBs (African Development Bank, Asian Development Bank, Inter-American Development Bank, European Bank for Reconstruction and Development, and European Investment Bank), who often co-finance projects with the Bank. The compatibility of their safeguards and fiduciary rules with those of the Bank has been demonstrated. Many UN agencies have standing fiduciary agreements with the Bank, particularly in the context of emergencies. MDBs and UN agencies that have recently co-financed operations with the Bank or that have standing fiduciary agreements with the Bank could be eligible to receive or supervise the use of PEF resources without further due diligence. Other institutions interested in being Responding Agencies, including CSOs, would need to be accredited through a process under the PEF steering body.

58. Responding Agencies may charge costs related to the implementation of PEF resources which should be identified in the funding request and should follow each responding agency's applicable cost recovery policies and procedures. The roles and responsibilities of the responding agencies are expected to include, as relevant: (i) coordinating and exchanging information with relevant country level coordination mechanisms; (ii) supporting countries in preparing funding requests for which they are designated responding agencies; (iii) implementing or providing implementation support to countries under the approved terms of allocations; (iv) ensuring that PEF resources are administered in accordance with the responding agencies' applicable policies and procedures; (v) providing financial and progress reporting to the steering body through the Trustee and the PEF coordinator(s); (vi) providing inputs to the annual reports of the PEF through the PEF coordinator(s); and (vii) cooperating with reviews or evaluations of the PEF commissioned by the steering body under terms acceptable to the responding agencies. As with any FIF, other MDBs could supervise response operations led by the country. Each Responding Agency would adapt its role to the country circumstances following its own policies and procedures.

4.3 Payout Process

59. The payout process is guided by the principles of speed, adequacy and flexibility; it is designed to be as predictable as possible in terms of timing and allocable amounts. In situations where there is no ambiguity regarding the type, severity, growth and spread of the outbreak, and in which the pay-in is activated by unequivocally measured parametric criteria under the insurance window, the payouts will be made with minimum deliberation and will follow ex-ante established procedures. In all other cases, payouts will be made following due consideration by the steering body based on expert advice and evidence, and will be tailored to the outbreak situation. Time limits will be set to ensure that the deliberation process does not delay payouts.

60. In order to initiate the process for a payout, the eligible country will submit a Request-for-Funds application. The application will contain details of the outbreak, including the name of the virus family, name of the specific virus member, outbreak start date, outbreak size (cases), outbreak growth (record of weekly cases), deaths if any, amount requested, designated responding agencies, and risk profile prepared or endorsed by WHO. The application will be transmitted to the coordinator.

61. The coordinator will disburse the funds under the insurance window promptly following receipt of a Request-for-Funds application: (i) that meets all activation criteria; (ii) that includes the related risk assessment endorsed by WHO; and (iii) when funds from the insurance pay-ins have been received in the FIF. All affected countries will be eligible to submit an application for funds in a proportion pro-rated according to number of cases (at the time activation criteria are met) in the country and country population.

62. If a Request-for-Funds application is received for outbreaks for which the activation criteria is not met, the coordinator will consult with the expert roster. The experts will examine the submitted evidence, WHO risk assessment, externally available evidence and such other sources as necessary, and communicate their advice on the severity of the unfolding outbreak to the coordinator. The coordinator will present the application together with the advice of the experts to the steering body, which will take a decision on the payout from the cash window within 24 hours. Agreed procedures for payouts will be set out in the Operations Manual.

Box 1: Hypothetical PEF Response to the Ebola Outbreak in West Africa, 2014

23 March 2014: Guinea notifies WHO of a rapidly evolving outbreak of Ebola Virus Disease (EVD), and reports a total of 49 cases including 29 deaths.

7 July 2014: Guinea reports a total of 412 cases and 305 deaths from Ebola; Sierra Leone reports 252 cases and 101 deaths; and Liberia reports 115 cases and 75 deaths. The activation threshold of the PEF is reached: number of deaths is over 250 and growth rate in cases is over 90%. WBG/PEF Coordinator sends an Event Notice to the Calculation Agent to verify if the thresholds for criteria activation have been reached.

10 July 2014: AIR declares that the threshold has been reached. IBRD advances payment of US\$60m to the PEF. IBRD also sends a notification of a reduction of principal amount to the bondholders.

11 July 2014: The coordinator consults with the steering body and obtains authorization to draw an additional US\$40 million from the cash window. Based on payout details in the Operations Manual, the coordinator divides US\$100m among Guinea, Sierra Leone and Liberia.

7 August 2014: WHO declares Public Health Emergency of International Concern for Ebola.

10 August 2014: The number of confirmed deaths in the three affected countries reaches 750, which triggers the second payment of US\$60 million from insurance. Following similar procedures as above, the coordinator requests the steering body for an additional US\$40m from the cash window and disburses US\$100m to Guinea, Sierra Leone and Liberia.

29 September 2014: The number of confirmed deaths reaches 2,500, which triggers the third payment of US\$80 million. The coordinator disburses US\$80m to the three affected countries and responding agencies.

Overall, the PEF paid out a total of US\$280 million, distributed across the three affected countries and responding agencies as follows: Guinea (US\$43m), Sierra Leone (US\$37m), Liberia (US\$31m), WHO (US\$56m), WFP (US\$56m) and UNICEF (US\$56m). These resources financed ongoing emergency response (essential supplies, staff training, protective equipment, essential drugs, etc.), human resources scale up (hazard pay, deployment of international doctors, etc.), and provision of food and basic supplies.

63. The distribution of funds from the PEF across Responding Agencies is designed to optimize effectiveness of response. This includes assessment of national capacities as well as comparative advantages of accredited responding agencies.¹⁰ Box 1 presents a simulated scenario of how the PEF might have worked had it been functional in 2014 when West Africa experienced the Ebola virus outbreak.

4.4 Monitoring and Evaluation of the PEF

64. The PEF steering body will approve a Monitoring and Evaluation Framework for the PEF. The coordinator and advisory committee may recommend, and the steering body may decide on, adjustments to improve PEF performance in both non-emergency and emergency situations.

V. Risks and Risk Mitigation

5.1 Strategic Risk

65. The risk that PEF funds will not be sufficient to address all the needs of a given outbreak is real. Any reputational issues arising from this will be addressed through positioning the PEF clearly from the start as one part of the solution to strengthen pandemic response. Indeed, the PEF has been designed to be complementary to other existing and new mechanisms.

66. WBG will play multiple roles in the PEF. To address any perceived conflict of interest, a key requirement will be clear separation of roles and responsibilities, and ensuring that separate management chains are in place for roles it plays with respect to bond and insurance transactions (WB Treasury), as Trustee (DFi), coordinator (HNP) and as steering body member (HNP). On the steering body, the possibility of conflict will be mitigated by the fact that the WBG would have a non-voting seat, along with other significant non-voting members such as WHO. The coordinator function will be well defined in the PEF framework document and operations manual, and coordinator actions and recommendations will be subject to review or confirmation by the steering body (or otherwise follow a clear set of criteria, procedures and guidelines set out in the PEF operations manual).

5.2 Operational Risk

67. Moral Hazard: There is a perception that the coverage provided by the PEF to countries could be seen as reducing incentives for countries to invest in pandemic preparedness. On the contrary, discussions around the PEF have already raised significant awareness on the importance of preparedness among both development partners and country governments. Furthermore, the PEF's design embeds preparedness in a strategic, long-term approach by including design features that will channel a higher proportion of funds to country governments that can demonstrate their planning and capacity to use the funds effectively and efficiently.

¹⁰ The development of metrics, such as the recently-developed JEE tool, to comprehensively evaluate country preparedness and response capacity, will facilitate a more objective assessment of the country's ability to effectively implement its own response vis-a-vis its need to be supported by international responding agencies.

68. Design Risks: The PEF relies on a transparent, data-driven, model to assess the potential of an outbreak, but cannot predict the future. The PEF model measures the potential risk that a particular outbreak represents against a set of key criteria and based on available data. The model, and as a consequence the PEF, may underestimate that risk, resulting in a situation the design intended to cover but where insurance is not triggered. One response to this risk will be the availability of funds from the cash window to provide more flexibility. Over time, the PEF's ability to assess risk accurately will improve as data design and availability improve. This aspect of the PEF will be communicated clearly from the start. The PEF must be viewed as a complement, not an alternative, to traditional risk analysis that relies on quantitative as well as qualitative information and currently guides public health decisions.

69. Using rules-based processes for pay-in and payout will help the PEF fulfill its objective of a timely response. The processes set in place to activate PEF funding seek to balance the objectives of speed with flexibility. Pay-in from the private sector under the catastrophe bonds and insurance contracts is based on transparent, parametric contractual activation criteria. In situations where there is no ambiguity regarding the type, severity, growth and spread of the outbreak, and in which the pay-in is activated by unequivocally measured parametric criteria and received in the FIF, the payouts will be made with minimum deliberation and will follow ex-ante established procedures. In all other cases, payouts will be made from the cash window following due consideration by the steering body based on expert advice and evidence, and will be tailored to the outbreak situation. Time limits will be set to ensure that the deliberation process does not delay payouts.

5.3 Financial Risk

70. Financial risks arising from participation in the PEF can be adequately mitigated; No WBG funds are invested in the initiative. That said, the team has examined and developed mitigation measures to address: (i) counterparty credit risk in respect of insurance coverage payouts, (ii) donor credit risk in respect of insurance premium or interest payments; and (iii) possible disputes that delay payments or lead to legal actions.

71. Counterparty credit risk with respect to insurance coverage payouts to the PEF. As discussed above, there are two general types of instruments that may be used in the PEF. There is no counterparty credit risk associated with the catastrophe bond option (donor risk with respect to coupon payments is discussed below). Investors will pay the full principal amount (equivalent to the maximum insurance payout) up front when purchasing the bond, and IBRD Treasury will control the use of the proceeds during the life of the bond. If the activation criteria are triggered, IBRD Treasury will transfer the relevant amount to the PEF. Thus, payouts to the PEF will always be available under the bond option. If IBRD uses other mechanisms to provide coverage, including insurance or other equivalent transactions, there is some residual risk of a counterparty default: If acting strictly as an arranger, IBRD would not be guaranteeing payment on insurance coverage. Therefore, IBRD would not advance or transfer any sums to the PEF until payments were received from the relevant third party coverage providers. Accordingly, any counterparty defaults under insurance or equivalent contracts would mean that payments on the relevant coverage would not be available to the PEF. As Treasury Manager for the PEF, IBRD would attempt to limit any such

risks. IBRD would mitigate counterparty credit risk by selecting only reputable and creditworthy insurance companies or other counterparties and by requiring adequate collateral. The selection of counterparties and the relevant risk mitigation provisions to be used will be agreed between CROMC and Treasury. IBRD may also act as an intermediary in the insurance market, meaning that IBRD would pay the PEF in the event that the activation criteria are triggered, even if IBRD did not receive payment from its insurance company counterparty due to insolvency or other reasons. IBRD has successfully acted as intermediary in several other disaster risk insurance operations. As intermediary, IBRD would apply the same criteria described above to mitigate its counterparty credit risk - e.g., by selecting only reputable and creditworthy insurance companies or other counterparties and by requiring adequate collateral.¹¹

72. Donor credit risk with respect to the insurance premium payment to insurance companies or interest payments to bond investors. Donor contributions received in the FIF will be used to pay insurance premiums and interest on bonds. Accordingly, non-payment by a donor could result in a cash shortfall that would prevent IBRD from paying insurance premiums or coupons to investors. In the basic form of these transactions, IBRD would receive full payment upfront to cover all contractual insurance premiums (based on the desired term of the contract) or CAT bond funding premium (portion of the coupon paid to investors for the CAT risk) for the life of the bond. Alternatively IBRD could enter into an arrangement with donors whereby payments were made over time, provided that the additional risks and costs borne by IBRD were fully mitigated and/or compensated. Key risk mitigation measures are as follows: IBRD will only issue a bond or sign an insurance contract when it has cash contributions or legally binding commitments from development partners that are sufficient to cover all relevant interest, premium, and other payments over the life of the relevant bond or insurance contract. In addition, IBRD will require sufficient cash on hand to cover the first year of bond coupons or insurance premiums. Nevertheless, this practice could entail accepting a certain degree of credit risk – for example, if IBRD issues a three-year bond, IBRD would be obligated to make interest payments over the full lifetime of the bond, potentially relying in part on such future payment commitments.

73. To manage this risk, Management has developed in the past a set of parameters which will provide the Bank with sufficient protection, consistent with its other risk management tools available against this form of credit exposure¹². The parameters developed include the following key aspects: (a) only exposure to highly-rated sovereign donors would be permitted taking into account methodologies the Bank currently uses in management of similar risk; (b) donors within this category would be required to sign legally-binding and enforceable contracts to make payments upon the Bank's request, each of which will be supported, where appropriate, by external counsel legal opinions to the effect that such obligation to pay by the donor is indeed legal, valid, binding and enforceable; (c) the Bank as Trustee would call for the donor's share of funds well in advance of when the sums are actually required to meet payment obligations under

¹¹ IBRD is already authorized to intermediate insurance coverage for disaster risks for pandemics. Please see, "Proposal to Extend Intermediation of Disaster Risk Management Products to Include New Instruments and Perils", R2015-0015 / IDA/R2015-0010, March 17, 2015.

¹² Other examples where donors have provided such commitments include in relation to the International Finance Facility for Immunisation and the Advance Market Commitment for Pneumococcal Vaccines and the Pilot Auction Facility for Methane and Climate Change Mitigation. There has not been a default by any donors as a result of such arrangements under those programs.

the bonds or insurance contracts, as applicable; and (d) a commitment fee on outstanding payments owed to the Bank would be charged, as determined and amended from time to time by Senior Management depending on how other risk management tools available against this form of credit exposure are amended. Management proposes that the above parameters be used for the PEF, as necessary, to manage donor credit risk.

74. As necessary, management could also explore the use of other risk mitigation features. Such risk mitigation features include the use of an early redemption provision on bonds under which the bonds would be redeemed early and the principal amount be returned to investors if development partner payments were not sufficient to cover future interest payments. In such a case, the parameters set out in paragraph 73 will not be applicable.

75. Furthermore, IBRD should not be liable towards the insurers and bond holders in case of disputes related to coverage payouts. The PEF's insurance window will rely on clear parametric activation criteria designed with publicly available data. Unlike indemnity insurance, parametric instruments work from an analytic model to calculate the payout of the insurance policy. Once activation criteria are met, parametric insurance can be settled in days, compared to the time it takes for traditional indemnity insurance payments to be disbursed. The legal documentation will make it clear that the determinations of the WHO are final and binding on all parties, similar to other calculation and determination agent provisions in commercial contracts. While one cannot rule out nuisance suits by litigious parties, the risk of successful suits can be reasonably mitigated by clear legal documentation. Furthermore, as noted above, IBRD will enter into insurance contracts with reputable counterparties who are familiar with parametric triggers, which should also mitigate disputes and litigation risk.

5.4 Partnership and Stakeholder Risk

76. The success of the PEF depends upon a collaborative relationship between the Bank and WHO, which relies on member States for data. For this reason, the WBG has worked closely with WHO to design the PEF in a manner that speaks to the two organizations' respective strengths. While the Bank provides a financial platform to the PEF, the WHO is in charge of collecting information from member States, which are responsible for surveillance. The PEF structure relies on WHO data provided from member States, notably making outbreak information public. The risk is mitigated by the obligations set out in the International Health Regulations and the coverage (three years). If a partnership element were to deteriorate, the coverage could be discontinued or not extended.

77. The PEF's design, structure, analytics and modeling rely on extensive consultations with development partners, most fundamentally a working group comprising WBG, WHO and three private sector firms: AIR Worldwide, Munich Re and Swiss Re. In view of the importance of using all grant resources with particular care and focus on value-added, the World Bank has taken specific precautions to establish appropriate incentives and aligned interest where possible, as described below, and none of the three private sector firms will sit on the steering body of the PEF.

78. AIR Worldwide, an analytics and modeling firm, was engaged by the World Bank through a competitive procurement process. The analytic structure and modeling is the bedrock of a risk transfer transaction: AIR Worldwide is the world's largest modeling firm as measured by issued volume in insurance-linked securities and has the necessary confidence of market participants. Of the three firms that bid in response to the Request for Proposals, AIR Worldwide had the most mature model, the best execution capabilities and the most competitive price. AIR's incentives to create a successful transaction are aligned with those of the World Bank, and its remuneration is independent from the premium of the insurance (flat fee for development plus a success fee tied to the size of the transaction).

79. Swiss Re and Munich Re assisted in developing and structuring the PEF transaction model, a new project for both the WBG and the insurance industry. Of the six insurance companies contacted by WBG about this role, Swiss Re and Munich Re demonstrated unique expertise in developing new transactions in the Catastrophe Bond market, and possessed requisite knowledge and interest in investing resources in a potential new market.

80. For PEF Catastrophe Bond issuance, Swiss Re's and Munich Re's interests are aligned with those of the WBG. As structurers, the firms are paid a flat fee for the development work leading to the finalization of the securities market transaction. In the case of a Cat Bond, WBG is not committed to make any cat bond offering, and it retains the right, and expects, to involve other parties in any Cat Bond offering. In a Cat Bond transaction, fees will be paid on a success basis and relative to the notional amount of the bond. The level of premiums on Cat Bonds will have no impact on the remuneration of Swiss Re or Munich Re.

81. For PEF (re)insurance, Swiss Re and Munich Re will compete with other insurance companies. The tranche structure allows for a portion of pandemic risk to be transferred to the reinsurance companies, potentially enabling the PEF to provide more notional coverage, and reduce pricing. The risk transfer to re-insurance will be done on a price discovery basis by soliciting interest and pricing on a competitive basis, with multiple insurers able to bid on the whole or portions of the risk. Munich Re and Swiss Re will provide coverage only if they provide the same or a better price than other (re)insurance companies.

VI. Conclusion and Recommendation

82. The PEF has been designed to achieve the specific health purpose of providing timely funding to support response efforts for events with clear pandemic potential. To obtain substantial financing at the right time, it will rely on private insurance and capital markets, made possible through payment by development partners of associated risk premiums. It is hoped that this innovative approach will contribute to the development of a global market for pandemic risk transfer. It will generate related benefits around the design, availability and transparency of data that will help all development partners be better prepared for the unpredictable and severe risks posed by pandemic crisis. The initiative carries a number of risks which Management believes have been identified and can be mitigated or managed. Recognizing the critical value and lower cost of prevention as compared to emergency response, the PEF will work in parallel with – and help to incentivize – development partner efforts to build and improve preparedness.

83. Subject to Board approval of the establishment of the FIF, the goal is to launch the PEF at the Ise-Shima Summit (May 26-27, 2016); making the PEF operational requires a number of different work streams, described above and in progress. These include:

- **Establishing the governance and operating arrangements**, including negotiating a framework document setting out the governance and operating arrangements of the PEF, and signing the financial procedures agreements (FPAs) with the first group of responding agencies;
- **Issuing the catastrophe bonds and entering into the insurance contracts that are the core of the PEF:** In order to do so, cash will be required to cover first year premium payments and costs, along with firm commitments for financial support in amounts sufficient to cover premiums for the coverage period. Contribution agreements will need to be signed with development partners to provide a total amount of US\$200-300 million over the initial three-year period to cover premium contributions (approximately US\$165-195 million) and the cash window (US\$50-100 million). Sufficient resources would need to be in hand to cover the premium for the first year (US\$55-65 million); premiums for subsequent years would fall due in 2017 and 2018.
- **With the required amounts and commitments, placing the insurance products on the markets.** After this, the insurance coverage can be made effective within one to two months.

84. It is recommended that the Executive Directors approve the establishment and administration of the PEF. Specifically, Management recommends approval of the following: (a) establishment of the PEF as a Financial Intermediary Fund, (b) Bank support to the PEF as Trustee, coordinator, and Responding Agency; and (c) Bank's Treasury support to the PEF such that IBRD is authorized to issue bonds or enter into insurance arrangements to provide pandemic risk coverage, provided that the Trustee has cash contributions or legally binding commitments from development partners that are sufficient to cover all relevant coupon, premium, and other costs over the life of such coverage, as set out in paragraphs 72, 73, 74.