INTRODUCTION

The global response to the Ebola outbreak that occurred from 2013 to 2016 in West Africa (2014 West Africa Ebola Outbreak) was long-delayed in mobilizing the global health workforce and other material resources to reach the affected countries, was inflexible in adjusting to the dynamically changing situations, and took months to deliver funds from international donors. In particular, the World Health Organization (WHO), the leading agency against global disease outbreaks, was criticized for its poor performance, because it could not fulfill its responsibility for alerting and raising awareness of the global community and leading and coordinating the global response to the crisis. The failure to rapidly mobilize global assistance resulted in unnecessary casualties and economic and social consequences.

This experience triggered many institutions from governments, international organizations, and academia to review what happened and recommend changes in the global response to disease outbreaks, including a comprehensive reform of the WHO’s health emergencies management. The analyses and assessments conducted by as the United Nations, the WHO, and the Harvard–London School of Hygiene & Tropical Medicine Independent Panel agreed on several common recommendations at the international level. The main commonalities included (1) enhanced global monitoring of national health capacities, (2) strengthening the WHO’s operational capacities, (3) creating rapid financing mechanisms for emergencies, (4) increased investment in research and development, and (5) improved global governance of health security.

Among these elements, the rapid financing mechanism for emergencies has a major influence on how the global community responds to disease outbreaks. One critical lesson from the 2014 West Africa Ebola Outbreak was that “funding is one of the largest factors for how deadly an outbreak turns out to be.” Indeed, one reason for the delayed response was the lack of sufficient funding in the early phase of the outbreak. For example, although donors did respond to the WHO’s appeal to underwrite its Ebola response, it took more than two months before the funds were available due to processing requirements. The World
The World Bank also wrote that “early access to adequate flexible funds would have mitigated the adverse health consequences in this and other emergencies, and in turn reduced long-term costs to the countries.”\(^5\) The World Bank also wrote that “[w]hen faced by a disease outbreak that is rapidly escalating, countries need to have access to fast financing for an effective surge respond [sic].”\(^6\)

Since the 2014 West Africa Ebola Outbreak, Japan has continually underlined the significance of strengthening health emergency preparedness and response on a global scale and been committed to global efforts, particularly in finance. Japan materially and financially contributed to containing the global Ebola outbreak, but it faced challenges in making significant contributions to human resources. Given that the resources that a single country can deploy are never enough, it is crucial for Japan to encourage the global community to mobilize as many assets as possible, including human, material, monetary, and information resources. Japan, as a maritime state surrounded by the ocean, has achieved its economic growth through international trade and, therefore, it values a safer, healthier, and more stable world where people live peacefully and materials move freely. In other words, Japan has benefited from globalization. However, globalization also entails risks of global disease outbreaks. To maximize the benefits of globalization and minimize the risks, Japan has been determined to take responsibility for preparing for and responding to global disease outbreaks. In addition to preparedness during peacetime, early firefighting is needed in an emergency before it becomes a major conflagration. That is, containing disease outbreaks on the spot is a convincing way to prevent the risks of global disease outbreaks and save people’s lives in affected countries at the same time. To this end, the response requires a comprehensive approach including human, material, monetary, and information resources. Hence, Japan is dedicated to enriching the financial aspect of health emergencies management while strengthening its capacity in other aspects and calling on other stakeholders to support health emergencies management.

**FINANCING HEALTH EMERGENCIES MANAGEMENT**

The sense of urgency in preparation for the next global-scale disease outbreak and the lessons learned from the 2014 West Africa Ebola Outbreak led to the establishment of WHO’s Contingency Fund for Emergencies (CFE) and World Bank’s Pandemic Emergency Financing Facility (PEF) as two innovative financial schemes for global disease outbreaks to ensure effective and rapid financial mobilization during emergencies. Although both are designed for the same purpose, there are some significant differences: (1) target threat, (2) coverage of beneficiaries, (3) time frame for disbursement, (4) funding volume, and (5) payout criteria (Table 1).

The CFE, which was established by the World Health Assembly in May 2015, is the WHO’s in-house rapid financing scheme for both disease outbreaks and humanitarian emergencies.\(^5\) The WHO can mobilize this tool to support all affected countries even if they are the best-prepared countries when necessary. It was designed to fill a critical funding gap between the very first moment when an emergency response is needed and a time when other financing mechanisms, such as donor contributions and flash appeals, are activated.\(^7\) Therefore, by nature of its design, the funding from the CFE is released during the initial and very early stage of emergencies. The target capitalization of the CFE is 100 million USD financed through voluntary contributions of the WHO’s Member States. It is replenished either through reimbursement from WHO Country Offices that benefit from it for emergency operations or through new voluntary contributions from Member States. The CFE is an amalgam of grants and reimbursable loans—initial awards, typically around 50,000 USD, provided within 24 hours, upon request, as grants for a single event and more than 50,000 USD for the same event provided later, upon approval of the award manager as reimbursable loans.\(^7\)

The PEF, which was launched by the World Bank in May 2016, provides surge financing for response to the World Bank’s International Development Association (IDA)-eligible countries affected by a large-scale disease outbreak.\(^6\) Funds from the PEF flow through the cash window and the insurance window. Funding of the cash window is provided by a trust fund to which donors contributed. Disbursements from the insurance window are from underwriters of pandemic insurance and principals of pandemic bond (catastrophic bond) whose premiums are financed by donors.\(^8\) The World Bank activates either window once a disease outbreak situation meets their activation criteria, which were rigorously developed at the time of the product designs of the pandemic bond and pandemic insurance.\(^8\) Therefore, the PEF funds require a longer lead time and become available at a later stage, compared to those of the CFE. The insurance window is operational for three years from July 2017 to June 2020. Over these three years, the insurance window is capable of providing 425 million USD coverage at maximum, though each disease family covered by the PEF has a ceiling of payment. The funded amount to the cash window, which became operational in 2018, is 68.2 million USD, although the amount can increase if it acquires more contributions from donors.\(^8\)–\(^10\)
As of February 28, 2019, the WHO’s CFE has been activated for 78 events and has financed WHO emergency operations to the tune of 75,732,178 USD. The World Bank’s PEF was activated twice, when its cash window funded the response plans of the ninth Ebola outbreak in the Democratic Republic of Congo (DRC) in May 2018 by making an allocation of 11.4 million USD to the WHO and UNICEF and an allocation to the tenth Ebola outbreak in the DRC in February 2019 with 20 million USD to the DRC government and international partners at the request of the government of DRC. Since its establishment, no outbreak has reached the level of severity to trigger the PEF’s insurance window.

The beneficiaries who have received funding from both the CFE and the PEF have one thing in common: countries in fragile contexts. According to the Organization for Economic Co-operation and Development, fragility is a complex and multidimensional phenomenon as “a combination of risks and coping capacities in economic, environmental, political, security and societal dimensions.”

Almost all countries with populations living in a fragile context are low- and middle-income countries located in sub-Saharan Africa, the Middle East, and North Africa. In 2018, the Organization for Economic Co-operation and Development listed 58 countries and areas in fragile contexts. Of these, 47 countries (81%) are IDA-eligible countries that are within the coverage of the PEF. As of February 28, 2019, the PEF provided funding from the cash window to the DRC, a country in a fragile context. In addition, as of February 28, 81% (63 out of 78) of the events that the CFE allocated its disbursements to were countries in fragile contexts, and 57% of them were funded to control disease outbreaks (Figure 1). Thus, according to their activity records, more than 80% of the funds from the CFE and 100% of those from the PEF cash window have supported countries in fragile contexts.

### Table 1. Differences between the CFE and the PEF

|                  | CFE                                      | PEF Cash Window                              | PEF Insurance Window                      |
|------------------|------------------------------------------|----------------------------------------------|-------------------------------------------|
| **Target threat**| All hazard beneficiaries                  | Infectious diseases with pandemic potential | Specific infectious diseases               |
| **Coverage of**  | WHO emergency operations                  | WHO emergency operations                      | IDA-eligible countries                     |
| **Time frame**   | Initial and very early stage              | Typically between 1 million USD and 5 million| Determined according to each disease and situation (up to 275 million USD) |
| **Funding volume** | £24 Hours: 500,000 USD                   | >24 Hours: Determined according to each situation |                                      |
| **Payout criteria** | Requests are approved by the deputy director-general, emergency preparedness and response | Predetermined for each disease              |                                           |

Sources:
- World Health Organization. Contingency Fund for Emergencies—Report of the WHO Health Emergencies Programme; 2017 [accessed 2019 Feb 28]. https://www.who.int/emergencies/funding/contingency-fund/CFE_Impact_2017.pdf?ua=1
- World Bank. Pandemic Emergency Financing Facility—Operational Brief for Eligible Countries; 2019 [accessed 2019 Feb 28]. http://pubdocs.worldbank.org/en/11996151647620597/PEF-Operational-Brief-Dec-2017.pdf

**THE CFE AND THE PEF IN PRACTICE**

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The beneficiaries who have received funding from both the CFE and the PEF have one thing in common: countries in fragile contexts. According to the Organization for Economic Co-operation and Development, fragility is a complex and multidimensional phenomenon as “a combination of risks and coping capacities in economic, environmental, political, security and societal dimensions.” In general, countries in fragile contexts are characterized by weak governance. Therefore, fragility can be an incubator and vector of transnational threats, such as “conflict, terrorism, homicides, the threat of pandemics, forced displacement, disasters, famine and more,” and the spillover effects from those fragile contexts spread quickly around the globalized and interconnected world. Governments in fragile contexts are likely to lack the means to prevent, detect, and respond to disease outbreaks and are unable to invest in resources for health emergency management—health workforce, health care infrastructure, epidemiological surveillance systems, and so on.

Almost all countries with populations living in a fragile context are low- and middle-income countries located in sub-Saharan Africa, the Middle East, and North Africa. In 2018, the Organization for Economic Co-operation and Development listed 58 countries and areas in fragile contexts. Of these, 47 countries (81%) are IDA-eligible countries that are within the coverage of the PEF. As of February 28, 2019, the PEF provided funding from the cash window to the DRC, a country in a fragile context. In addition, as of February 28, 81% (63 out of 78) of the events that the CFE allocated its disbursements to were countries in fragile contexts, and 57% of them were funded to control disease outbreaks (Figure 1). Thus, according to their activity records, more than 80% of the funds from the CFE and 100% of those from the PEF cash window have supported countries in fragile contexts.
CHALLENGES FOR THE CFE AND THE PEF

Taking into account that by 2030 poverty is projected to concentrate more on fragile contexts, the trend of aid toward fragile contexts will continue to increase as one of the highest priorities. In addition, it is likely that fragile contexts will remain at the epicenter of global disease outbreaks for years to come. Today, “fragility is the new development frontier,” and it is possible that more countries may fall into chronically fragile contexts in the future.\textsuperscript{15,16} As a result, the WHO prioritizes fragile and vulnerable settings as one of the ten threats to global health in 2019.\textsuperscript{17} Exemplifying conflict-affected areas like the DRC, the WHO also designates Ebola and other high-threat pathogens as one of the ten threats to global health in 2019 and states that “the context in which an epidemic of a high-threat pathogen like Ebola erupts is critical.”\textsuperscript{17} Thus, both the CFE and the PEF will continue to put a high priority on addressing the fatal synergy of disease outbreaks and countries in fragile contexts.

A generic strategy for fragile contexts is not enough. The phrase “fragile contexts” covers a broad spectrum of countries with various conditions. Therefore, a tool to assist a country in fragile contexts needs to flexibly address specific local conditions to effectively alleviate human suffering on the ground and robustly avert spillover effects. In this regard, the CFE and the PEF, as significant mechanisms to address disease outbreaks in fragile contexts, should be regularly reviewed for whether they flexibly, effectively, and robustly meet their missions and improved to fulfill their requirements. Two major challenges need to be addressed: (1) the financial

FIGURE 1. CFE disbursement by state fragility
Sources:World

- Health Organization. Contingency Fund for Emergencies (CFE) contributions and allocations. Geneva: WHO Health Emergencies Programme; 2019 Feb 26 [accessed 2019 Feb 28]. https://www.who.int/emergencies/funding/contingency-fund/allocations/en/
- Organization for Economic Co-operation and Development. States of Fragility 2018; 2018 [accessed 2019 Feb 28]. https://read.oecd-ilibrary.org/development/states-of-fragility-2018_9789264302075-en

In “Others,” the CFE allocated its fund to events which happened in the African region, in the Pacific region, and globally.
Financial Sustainability of the CFE and the PEF

To date, the CFE and the PEF have had only a few major grantors: three countries (Germany, the UK, and Japan) to the CFE, two countries (Germany and Australia) to the PEF cash window, and two countries (Germany and Japan) to the PEF insurance window (Figure 2). In addition to these three countries, 16 other countries have provided voluntary contributions to the CFE. Nevertheless, these contributions are relatively small, and the contributions from these three major grantors account for 76% of the CFE. Furthermore, the fundamental financial model (reimbursement loans) of the CFE has not been successful because “replenishment through reimbursement has not occurred because appeals are not fully financed or donors do not agree to direct their funds to reimburse the CFE but only for ‘additional’ activities.”

When it comes to the PEF, either the cash window or the insurance window, two donors are supporting the mechanisms. The trend that fragile contexts are likely to generate threats continues, and a disease outbreak with pandemic potential is not a matter of if but when. The world needs to be well prepared, and it is a shared responsibility of the global community. Both the CFE and the PEF should attract more donors, as many as possible, through rigorous appeals with evidence on the cost-effectiveness of such measures, so that both mechanisms are financially sustainable at all times.

Availability of the PEF Disbursements

On May 22, 2018, the PEF cash window made its first commitment on the ninth Ebola response in the DRC with a 12 million USD grant. It was a momentous step in “stopping the cycle of panic and neglect.” After this outbreak, the government of the DRC declared a new Ebola outbreak in North Kivu Province on August 1, 2018. Since then, the situation on the ground has deteriorated and the WHO convened the IHR Emergency Committee on the Ebola virus disease outbreak in the DRC on October 17, 2018. According to the committee, “The assessment of the risk of spread is low at global level but it is very high at both national and regional levels.” However, as the number of cases has been steadily increasing due to the deteriorating security situation, reflecting the fragile context, the PEF cash window made its second commitment, with a 20 USD million grant, to support the DRC government based on its third Strategic Response Plan. As of March 3, 2019, 897 people have contracted the disease and 563 people have died, though the outbreak has been contained within one country.

In contrast, the insurance window, which is valid for three years, has not been activated since the World Bank operationalized it in July 2017. Indeed, the current situation does not meet the criteria of the PEF insurance window, which requires a regional crisis (two to seven countries) or a global crisis (eight or more countries) in case of filovirus outbreaks. However, the borders of countries in fragile contexts tend to be porous, and the WHO’s assessment for this Ebola outbreak in the DRC indicated that it had a risk to spread regionally. To ease local people’s suffering and mitigate the regional and global risk, it is better to intervene in the situation on the ground before the outbreak has spread outside the border. To effectively meet the reality of countries in fragile contexts, the disbursement threshold of the PEF insurance window should be reexamined to become more flexible.

NEXT STEPS: CFE 2.0 AND PEF 2.0

The WHO and the World Bank should review their financial schemes and consider the need for adjustments to address the challenges noted above.

CFE 2.0

The CFE 2.0 should have an updated fundraising model to effectively replenish itself and ensure its financial sustainability. The current fundraising model of the CFE 1.0 is ad hoc donations from WHO Member States. This fundraising model relies on case-by-case policy calculations of donors and therefore cannot assure that the CFE is financially stable and sustainable.

In April 2017, the WHO suggested new fundraising models, such as an annual pledging cycle and a new cash flow within the CFE to replenish the CFE. Donors, however, “did not express an appetite for the establishment of an annual pledging cycle” and regarded the current ad hoc donations as preferable. Nevertheless, it is time to devise a new fundraising model. In order to increase the number of donors and the amount of contributions, the WHO should incentivize Member States to contribute to the CFE with a new fundraising model, such as establishing a steering body of the CFE for major grantors and building a regular monitoring mechanism of the fund’s performance to increase transparency and accountability to grantors.

PEF 2.0

The PEF 2.0 should increase its financial sustainability and flexibility of disbursement threshold. Disease outbreaks are
FIGURE 2. Comparison in contributions and disbursements between the CFE and the PEF

*The size of each circle illustrates the amount of its money in comparison with the other circles in its group (= contributions/disbursements).*
global risks that significantly affect international finance and development and undermine the global economy beyond borders. In this regard, the World Bank should make every effort to encourage as many countries as possible to become contributors to the PEF cash window and insurance window so that the PEF 2.0 is financially sustainable.

Furthermore, it is critical to ensure that the disbursement threshold of the PEF insurance window is appropriate to meet the reality of countries in fragile contexts. For example, given that the borders of countries in fragile contexts are generally porous, enabling a disease outbreak to spread easily beyond borders, a proactive intervention to prevent spillover is crucial. Currently, the disbursement threshold of the PEF insurance window is defined in terms of (1) outbreak size (number of countries affected), (2) spread (number of countries affected), and (3) growth (over a period of time). Since its establishment in 2016, no outbreak has reached the level of severity to trigger the PEF insurance window. The World Bank should consider how to optimize its threshold in the design process of the PEF 2.0 while having dialogues with insurance and capital markets in order to confirm the feasibility of the insurance with modified thresholds and other conditions. In any case, taking into account that the core of health emergency management is to take action on a no-regrets basis, the threshold should be in line with the reality of countries in fragile contexts: being vulnerable to any disease with insufficient health systems including both preparedness and response and being prone to transforming any domestic risk into a regional or global risk.

RESOURCES MANAGEMENT FOR HEALTH EMERGENCIES

As described, a rapid financing mechanism in place is critical to fully and effectively maneuver the machinery of health emergency management in response to global disease outbreaks. Nevertheless, this represents only one component of a health emergency management toolkit (Figure 3). To better equip the world with comprehensive countermeasures, stakeholders should consider the entire landscape of resource management for health emergencies.

Resource management for health emergencies consists of two timelines (ex ante and ex post), two levels (international and national), and four functions (human capital, goods and services, money, information and systems), with 16 components in total (Figure 3). Taking into account that global resources in development will concentrate on fragile contexts that remain epicenters of global disease outbreaks, the fundamental concept of resource management for health emergencies is that the global community (described as “international”) supports countries in fragile contexts (described as “national”). In the “ex-ante” period, countries in fragile contexts, as well as other countries, develop their own capacities in health emergency management. In the “ex-post” period, involving a disease outbreak with probable risk of regional or global spread, the resources of the global community should massively flow into countries in fragile contexts to help mitigate the suffering of local people and forestall a potential spillover effect.

Sources:
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In light of the risks of and responsibility for global disease outbreaks shared by the global community, each country outside fragile contexts should consider which components in resources for health emergencies management it can contribute to. Though monetary contributions, such as the CFE and the PEF, have a substantial influence on how the global community responds to global disease outbreaks, it is not the only contribution that countries can make. In addition to monetary contributions, countries can contribute to fragile contexts with human capital, goods and services, or information and systems to achieve a safer world.

We believe that the WHO should take the global lead in sorting out collective action with stakeholders to assure comprehensive functions of resource management for health emergencies, in coordination with Member States and international partners, such as the World Bank. We recognize that in a large-scale disease outbreak, the entire Inter-Agency Standing Committee system is mobilized and the emergency relief coordinator leads and coordinates systemwide responses. Nonetheless, the WHO is the responsible agency for health emergencies and therefore should facilitate stakeholders to collect and consolidate resources in the ex-ante period for enhanced preparedness and resources in the ex-post period in order to assure an adequate response on a routine basis.

NOTES

a. Eligibility for IDA support depends first and foremost on a country’s relative poverty, defined as gross national income per capita below an established threshold and updated annually (1,145 USD in fiscal year 2019). http://ida.worldbank.org/about/borrowing-countries.

b. Afghanistan, Angola, Bangladesh, Burkina Faso, Burundi, Cameroon, Central African Republic, Chad, Comoros, Congo, Cote d’Ivoire, Democratic People’s Republic of Korea, Democratic Republic of the Congo, Djibouti, Egypt, Equatorial Guinea, Eritrea, Ethiopia, Gambia, Guatemala, Guinea, Guinea-Bissau, Haiti, Honduras, Iran, Iraq, Kenya, Lao People’s Democratic Republic, Liberia, Libya, Madagascar, Malawi, Mali, Mauritania, Mozambique, Myanmar, Nepal, Niger, Nigeria, Pakistan, Papua New Guinea, Rwanda, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Swaziland, Syrian Arab Republic, Tajikistan, Tanzania, Timor-Leste, Uganda, Venezuela, West Bank and Gaza Strip, Yemen, Zambia, Zimbabwe (58 countries and areas in alphabetical order).

DISCLAIMER

The opinions expressed in this article are their own and do not necessarily reflect the views of the government of Japan.

DISCLOSURE OF POTENTIAL CONFLICTS OF INTEREST

No potential conflict of interest was reported by the authors.

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