Equal

Global Public Investment for Pandemic Preparedness and Response

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Acknowledgements

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Executive Summary

The Challenge of pandemic preparedness and response financing

COVID-19 has laid bare severe shortcomings in the international approach to financing for effective pandemic preparedness and response (PPR). It has underscored the inability of governments, industry, and the multilateral system to respond quickly, effectively, and in a coordinated and fair way. Despite some breakthroughs in science and multilateral cooperation, countries have made quite limited commitments internationally and focused instead on a 'go-it-alone' strategy: paying whatever they can to protect the life and livelihoods of their own populations first. Industry self-interest has reinforced this bilateral approach. The costs of this status quo approach are much larger over the long term, and further lead to the emergence of new variants and repeated lockdowns. However, to realise a more cooperative approach to PPR financing, the crux of the problem is to get countries to see sufficient benefits, and have sufficient trust in longer-term strategic cooperation, such that they are willing to participate. No proposal has as yet adequately solved the collective action barriers to achieving this.

1 This report is based on research funded by (or in part by) the Bill & Melinda Gates Foundation. The findings and conclusions contained within are those of the authors and do not necessarily reflect positions or policies of the Bill & Melinda Gates Foundation.

Global Public Investment as a solution

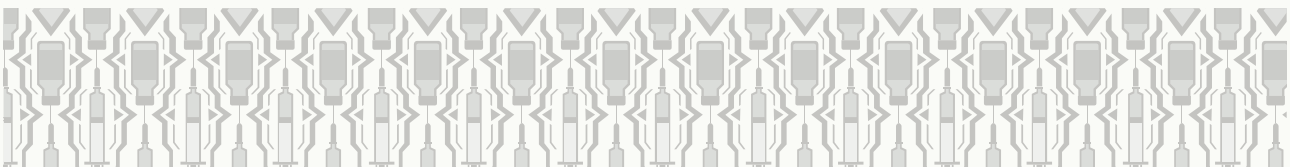
This paper proposes an approach to PPR that is based upon the idea of Global Public Investment (GPI). Global Public Investment is a new paradigm of international public finance, in which governments cooperate to secure international public policy outcomes via fractional contributions from general government revenue. They are asked to do this on a fair share basis and where contributions can involve either transfers or in-country spend. The mechanism for financing these agreed global public policy outcomes would not be a singular fund; rather marked GPI contributions would be channelled through existing funding infrastructure overseen at the regional level. Such an approach has four basic characteristics: universal contributions, ongoing commitments, co-governance, and co-creation. The last of these offers a way of beginning to resolve the collective action problem confronting PPR financing at the international scale.

A GPI approach to PPR would address three enduring challenges of PPR financing: (1) that pandemics are 'rare' events that are hard to price; (2) that financing needs for PPR include a mix of public and private goods that need securing and fairly distributing; and (3) that this 'mix' changes over time, as new threats arise and new ways of responding are found. In place of the 'emergency' infrastructure established under the Access to COVID-19 Tools Accelerator (ACT-A) umbrella, which has encountered funding challenges in part because many countries felt left out of its design, a GPI approach would secure the necessary funding commitments via incremental and ongoing payments.

The GPI approach to PPR explored in this paper thus represents a 'funding regime' rather than a proposal for a single fund, wherein global public policy objectives are determined by negotiations between all parties, and funding is allocated in accordance with public health experts and civil society guidance so as to best meet *overall* global PPR needs. This paper explores how a GPI approach would prioritise funding across four main categories of PPR spend: prevention, health systems resilience, access, and coordination. In this approach, countries at different income levels would resource different parts of the overall arrangement in different ways. But they would all benefit from public safeguards and predictability in the event of a pandemic. This would help even up the overall level of PPR capacity across the geographic and thematic areas that need to be mobilised to prevent and, if not, to respond quickly and effectively to outbreaks of viruses of pandemic potential.

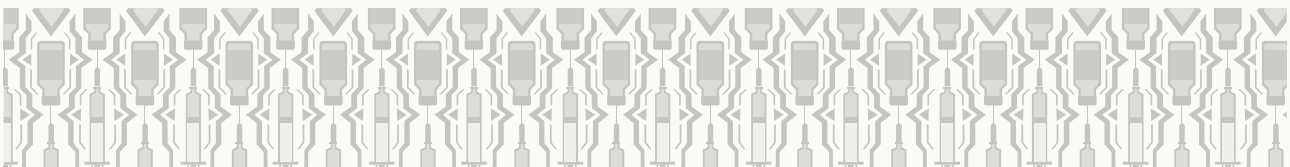
This paper demonstrates how GPI would meet these PPR financing needs in five basic ways: (1) fair share financing for ongoing investments; (2) inclusive governance and decision-making; (3) public investments for equity; (4) reduced volatility through statutory financing; and (5) countering nationalism with incentives for a common framework. Implementing such an approach in a way that is politically feasible will require building upon existing infrastructure where possible, using the principles of GPI as a guide to incentivise countries to participate, and building trust into the system via a process of co-creation. A GPI arrangement would need to ensure robust coordination and therefore should include mechanisms for compliance and enforcement. A GPI governance structure would be guided by:

- Representative decision-making
- Public health-led decision-making
- Principles-led decision-making.



Next steps

More work needs to be done to flesh out the technical and political case for a GPI approach to PPR. Given its commitment to a co-created resolution, the ongoing development of a GPI approach at the technical level needs to be complemented by engagement and input from countries and stakeholders themselves. A roadmap towards implementation for PPR would involve hosting these discussions on GPI alongside consideration of how GPI could be applied in the context of current international processes. The current Pandemic Treaty discussions at the World Health Assembly, and efforts led by the G20 for a global health security fund, both present immediate opportunities to discuss the potential of employing GPI principles. But equally there is a need to engage in regional level fora, including the African Union-European Union Ministerial Meeting in February 2022 and the G20 in Bali in November 2022, while also exploring possibilities for engaging with country champions and for testing interest within the international financial institution (IFI) and multilateral development bank infrastructure.



1. Introduction

COVID-19 has laid bare severe shortcomings in the international approach to financing for effective PPR. As of November 30, 2021, more than 261,000,000 COVID-19 cases have been reported; the actual figure is likely much higher.[2] COVID-19 is far from the first such high-impact pathogen event. Recent decades have seen HIV/AIDS, three coronaviruses (Severe Acute Respiratory Syndrome (SARS) in 2003; Middle East Respiratory Syndrome in 2012; and COVID-19), several highly pathogenic influenza A viruses, including the H1N1 pandemic of 2009 ('bird flu'), the persistence of Ebola in West and Central Africa, particularly since 2013, and the emergence of the Zika virus as a global health emergency in 2016.

Despite these numerous events, and the warnings of at least 11 high-level panels and commissions since 2009, the most basic aspects of pandemic preparedness, including resilient health systems, surveillance, and appropriate research and development (R&D), continue to be under-funded, unevenly supplied, and hard to access.[3] Yet the economic toll of such health crises is substantial and scientists predict more such global health threats in the future. Already, the International Monetary Fund estimates the cost of COVID-19 at US$28 trillion in lost output and more than US$17 trillion dollars mobilised in response.[4] The COVID-19 pandemic must be the catalyst to ensure the world is better prepared for the next epidemic event. Yet, to date, the current urgency in addressing pandemic preparedness has not resulted in any clear commitments to address the structural problems leading to under-preparedness, to sufficient funding guarantees, or to any confidence that when it is found it will not cannibalise existing health spending or official development assistance (ODA).

In this paper we present a GPI approach to the problem of PPR, which could rectify some of these problems. Such an approach would be **globally financed, regionally coordinated, and 'whole of society'** in its scope. It would enable **long-term investments** in areas of critical and ongoing need, and ensure the participation of a broad range of countries. It would be clearly demarcated as **separate and additional to ODA** at the pay-in end, and strategically **targeted towards areas of unmet PPR needs** at pay-out (rather than duplicating existing funding efforts). It would foreground **public interest** over national and market interest using public funds to reshape markets and ensure public value. And it would include the governments of **low- and middle-income countries (LICs and LMICs) and civil society in all aspects of decision-making, starting from the design**.

This paper is structured as follows: **Section 2** sets out the background and need for common financing of PPR. **Section 3** then addresses some of the structural failings in existing approaches, and the lessons they carry for a GPI-type approach. **Section 4** outlines Four 'pillars' of pandemic preparedness as a way of demonstrating GPI's role in meeting a range of (often diverse) PPR needs. **Section 5** presents a range of options for implementing a GPI approach to PPR and a modular approach to how these options could be negotiated among relevant actors. A core consideration here is the need to provide countries, not only with the right governance structure and mechanisms to allocate responsibilities, but also with the right incentives. Finally, **Section 6** provides conclusions and recommendations, and examines some practical next steps for taking a GPI approach to PPR forwards.

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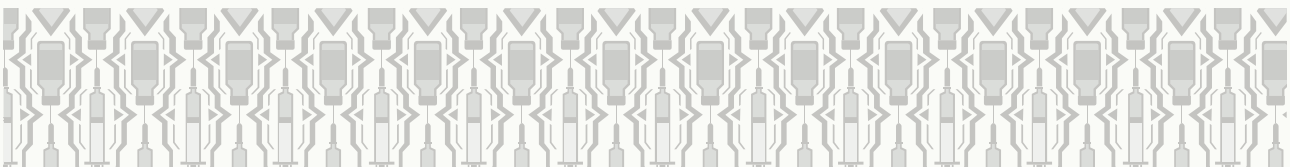
2 Hannah Ritchie et al. 2020. *Coronavirus Pandemic (COVID-19)*. Our World in Data. https://ourworldindata.org/coronavirus-data

3 Gordon Brown's address to the World Health Assembly (See: https://www.who.int/news-room/commentaries/detail/historic-world-health-assembly-session-offers-new-chance-to-prepare-for-future-pandemics) notes that, "whilst, thanks to brilliant science and a strong manufacturing performance, we will have produced 12 billion vaccines by the end of 2021 – enough to vaccinate every adult in the world – 95% of adults still remain unprotected in low-income countries. This is perhaps the greatest public policy failure of our times." The missing ingredient, he notes, is a sustainable financing system. See: https://www.ifpma.org/resource-centre/as-covid-19-vaccine-output-estimated-to-reach-over-12-billion-by-year-end-and-24-billion-by-mid-2022-innovative-vaccine-manufacturers-renew-commitment-to-support-g20-efforts-to-address-remaining-barr/;See also: https://ourworldindata.org/covid-vaccinations

4 International Monetary Fund. 2021. *World Economic Outlook Update: A Crisis Like No Other, An Uncertain Recovery*. https://www.imf.org/en/Publications/WEO/Issues/2020/06/24/WEOUpdateJune2020 and Central Intelligence Agency. 2014). *The World Factbook 2013-14, 51st Edition, April, 2014.*



Box 1. Methodology

One of the core principles of GPI is **co-creation**: giving parties a meaningful voice in the design of an idea or policy regime. To enable this, the core content and argument of this paper was iterated, beginning with an open-ended problem statement, through three panel meetings held between September and November 2021 (for details, see Appendix I; for Panel Members, see Appendix II).

The Co-creation Panels progressed through three stages:

Panel I: discussion of the problem statement

Panel II: identification of the core needs for a more effective pandemic preparedness

Panel III: deliberation on the political challenges and opportunities for implementing such an approach.

Before each panel, the team of consultants drafted a working document to capture and elaborate upon core contributions from the previous round (in the first panel, the document shared was an outline 'problem statement'). The Co-creation Panels had a substantive impact on the focus and structure of the final report alike. For example, it was agreed in Panel III that at this stage the approach should not be that of detailing a concrete technical mechanism. Rather, the focus should be on identifying best practice and the core principles that should guide this best practice.

In addition to the Co-creation Panels, the Report also benefited from 17 in-depth expert interviews and desk-based research. A full list of interviewees is provided in Appendix III.

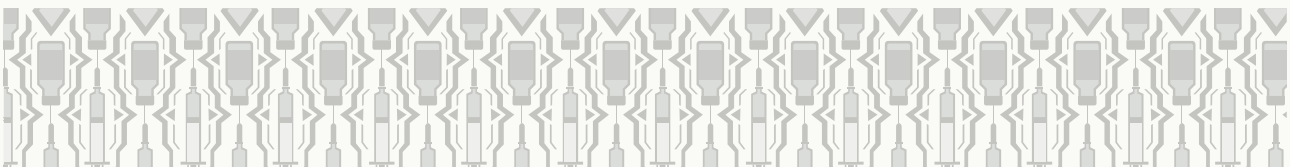
2. Background and need for common financing of pandemic preparedness and response

2.1 Defining the problem

COVID-19 has highlighted the cracks in the ability of national and global systems to prepare and respond to outbreaks and pandemics. This paper looks at this problem from a financing perspective and outlines a proposal for an alternative financing model for PPR. To date it has proven hard to find the right overall financing regime for PPR.[5] An on-off approach to funding, driven by short-term responses to the previous crisis has dominated. The result has been to neglect basic health systems strengthening in favour of a 'global health security' logic that prioritises vertical programming. The fundamental ingredients of PPR, such as developing the capacity of public health systems (including community health care) tend to be overlooked in a vertical global health security framework.

There are three inherent challenges to funding for PPR. **First**, pandemics are relatively rare crises and their impacts are regionally uneven. The establishment of the Coalition for Epidemic Preparedness Innovations (CEPI) in 2016 was an attempt to address this problem. But COVID-19 has shown that an end-to-end approach, with more prominent lower- and middle-income country buy-in, is needed to sufficiently address issues of equitable access and coordination.

5 WHO. 2015. *Report of the Ebola Interim Assessment Panel, 2015.* Geneva: WHO. https://www.who.int/csr/resources/publications/ebola/report-by-panel.pdf



Secondly, pandemic preparedness is, in theory at least, a global public good (GPG): it is both non-excludable (any contribution that a single country makes towards pandemic preparedness is also a contribution to all other countries' level of pandemic preparedness) and non-rivalrous (one country's 'consumption' of the benefits of pandemic preparedness does not prevent another country from also consuming those benefits). In practice, however, pandemic preparedness is itself made up of many attributes, policies, products and decisions that can in various ways be made both rivalrous and excludable. For example, COVID-19 vaccines are not GPGs in the way that they are presently produced and distributed, even though they are a critical part of overall PPR.

Thirdly, PPR is not a static outcome: this is one reason why to speak of it as a GPG has its limitations. Goods are assumed to be fully-formed products with definable (and enduring attributes) even though these may be used up as they are consumed. Pandemic preparedness is more akin to a service that needs to be constantly and sustainably maintained. For example, it requires ongoing R&D capable of developing new medicines, tests, vaccines and other medical technologies against current and emerging infectious diseases. Several years ago, for example, genomic surveillance was the preserve of some northern academic research groups; today it clearly needs to be a part of standardised national preparedness capabilities in all countries.[6]

For each of these reasons, in the past it has been hard to find not only *sufficient* and sustainable funding for pandemic preparedness, but also the right *sort* of funding. The G20 High Level Independent Panel (HLIP), for example, has recommended all countries beef up their PPR spend as a proportion of growing domestic health spending.[7] But should countries with little fiscal space prioritise PPR over maternal and child health? Such issues lie at the core of the problem with PPR financing, yet are often overlooked in considerations of whether or not to establish a new fund or financing mechanism.

2.2 A Global insurance policy for PPR

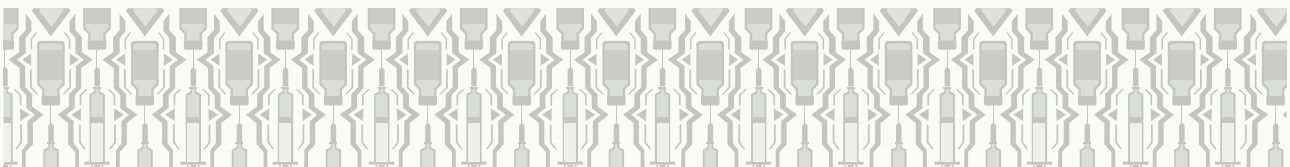
The economic impacts of infectious disease can be staggering, in addition to the toll in lives and livelihoods. This burden of pandemic disease events presents a compelling case that the best way to think of PPR financing is in terms of a global insurance policy as a way of avoiding or at least of mitigating those costs.

However, efforts to develop insurance 'mechanisms' for pandemic response have to date met with little success, in part because they have been conceived of as private insurance. The World Bank's Pandemic Emergency Financing Facility (PEF), for example, was a response to Ebola that was organised primarily through an ODA and private insurance frame: donor countries provided the guarantees and payment schedules to private insurance companies to 'insure' individual countries. A series of 'triggers' identified when pre-agreed pay-out arrangements came into effect. One of the greatest challenges that these approaches have encountered is that by the time alarm bells are sounded, an outbreak has already exceeded the capacity of existing containment capacity to keep it in check. The PEF failed to address Ebola and Zika (outbreaks which did not become pandemics) and paid out very little on COVID-19 before the window was closed.

Insurance approaches serve to 'price' out (by breaking into smaller 'wrappers') what are in fact 'all-of-society' issues, and they may even further fragment responses by doing so. How much to spend on one budget line (PPR) rather than another (e.g. maternal and child health) will always be a political determination. The approach presented in this paper understands insurance differently (see Table 1).

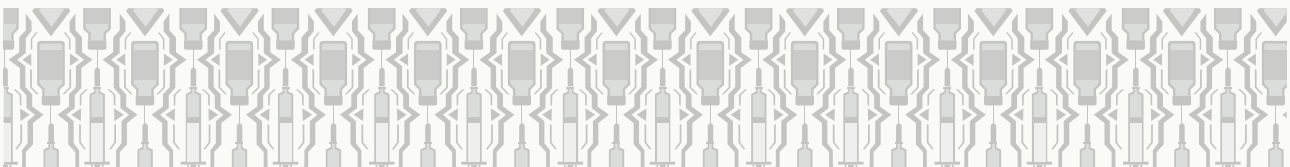
6 Hodcroft, Emma B. et al. 2021. *"Want to track pandemic variants faster? Fix the bioinformatics bottleneck." Nature* Vol. 591 (7848): 30–33 (March, 2021). DOI: 10.1038/d41586-021-00525-x.

7 Amanda Glassman. 2021. "Beyond Aid: Sources of Finance for Global Health Security". Center for Global Development (16 August, 2021). https://www.cgdev.org/blog/beyond-aid-sources-finance-global-health-security



Comparator	Private-based approach (e.g. PEF)	Public-based approach
Model of multilateralism	Donor/recipient (eligibility criteria: International Development Association)	Universal
Model of investment	Private investment (mostly surge)	Public investment
Conditions of funding	Narrow (strict eligibility criteria) for response to a crisis	Broad (public return, positive externalities) for PPR including being ready very early on to respond to and prevent the spread of an outbreak
Governance	Proprietary risk calculations managed by insurance companies	Open-source calculations and democratic governance mainly by capable public bodies
Strategic approach	Responsive (cover costs): Even when it did supply funds, PEF could not be used beforehand to prepare health systems to receive funds	Preventive (mitigate costs); via financial, technical and in-kind routes (e.g. infrastructure, Universal Health Coverage (UHC), disease surveillance, R&D and diversified manufacturing)
Global Health Function	Passive	Active (should 'reinforce' International Health Regulations (IHRs), pandemic response infrastructure etc)
Rationale/purpose	Financialise risk	Nationalise and globalise risk (which may include sharing with private investors)
Stakeholders	Investors, insurance companies, affected countries, donors	Sovereigns, investors, civil society, multilaterals – pulling together rather than disaggregating responsibilities; accountability and enforcement mechanisms (e.g. ultimately even parliaments)
Value proposition	Market-based insurance (to fund the PEF) faces higher cost than sovereign donors	Sovereign contributors leveraging a wider contributor base and retaining lower costs of capital
Context	PEF was built 'in the desert' as one critic puts it.	An example: a GPI approach would extend existing government investments in CEPI and other entities working on R&D and focus on coordinated GPG provision in the pandemic preparedness space.

Table 1. Two approaches to insurance: the PEF and GPI compared



A *public*-based approach to insurance (rather than a series of marketable insurance 'products') would work by providing individual nations and the international community alike with the security of a coherent functioning preparedness and response architecture whose funding and decision-making processes had been agreed in advance by a wider group of actors. The recently developed 'Global Public Investment' presents one of the more promising approaches to doing this.

2.3 Global Public Investment: in brief

Global Public Investment is a proposed new paradigm of international public finance in which governments cooperate to secure international public policy outcomes via fractional contributions from general government revenue. They are asked to do this on a fair share basis (see Section 4), but depending on the income level of the country, contributions would be directed in a greater or lesser extent towards either transfers or in-country spend. The mechanism for financing these agreed global public policy outcomes would not be a singular fund; rather marked funds would be channelled through existing funding infrastructure. Decisions over the allocation of funds (ultimately how much and on what) would be determined by all countries and stakeholders, where decision-making power was independent of the scale of contribution (as has been the case in Bretton Woods institutions).

GPI is therefore not a new 'fund' or 'financing mechanism' so much as a way of managing international public transfers and fair allocation of global public policy outcomes. It thus represents a counterpart to ODA-type international public finance which, in practice, operates more along the lines of a cooperative scheme of fiscal federalism.[8] Participating states retain a strong degree of fiscal autonomy (the principle of subsidiarity) but collectively provide sufficient (investment in) goods, services and transfers required to achieve agreed upon public policy outcomes. Where GPI differs most clearly from ODA is in: (1) the universal nature of participation (there are not 'donors' and 'recipients' in GPI but 'participating countries'); (2) the ongoing nature of the funding (GPI does not stop when a certain threshold is reached in the recipient country); (3) the fact that all countries have a say in how the funds are used; (4) the fact that it involves common (binding) commitments. Research shows that anything short of meaningful coordination will result in free-riding.[9] Conversely in a cooperative case, all countries stand to benefit relative to a non-cooperative scenario.

Finally, and distinctively, GPI is governed by the principle of 'co-creation'. This means, in practice, that all relevant parties to a GPI commitment, which will include non-governmental stakeholders, are invited to share in the design of the GPI arrangement and establishment of the principles that will govern all participants. There are numerous ways in which this could be achieved, including via regional representative processes and delegated authorities. The details would in every case need to be overseen by a pre-launch consultation process. This applies whether the ambition is for a post-2030 GPI 'system' (potentially as a standing complement to a more refined (emergency/humanitarian) future aid 'system') or for a more modest incorporation of GPI principles into existing approaches to core global public need (such as PPR). To summarise, GPI has four key characteristics.

8 Boadway, Robin. 2003. *National Taxation, Fiscal Federalism and Global Taxation*. United Nations University – World Institute for Development Economics Research (WIDER) Discussion Paper No. 2003/87. DOI: 10.1093/0199278555.003.0011

9 Sandler, Todd. 1992. *Collective Action: Theory and Application*. Ann Arbor: University of Michigan Press.

1. Universal contributions

2. Ongoing commitments

3. Co-governance

4. Co-creation

Firm and clear implementation of these four principles would help to address some of the oft-stated concerns regarding free-riding and fiscal sovereignty that hamper collective action on international public finance. In doing so, GPI would provide a way to reduce collective action problems when it comes to international revenue-raising, and extend some of the unique characteristics that public money enjoys domestically to the international realm: its capacity to invest in vital infrastructure, expand demand, protect the commons, and strengthen productive parts of the economy. It also would ensure that any GPI approach to PPR (as explored in Section 2.4) is both transparent and accountable so that citizens can follow how the money is raised and where it is going.

2.4 Defining features of a GPI approach to PPR

Many of the most critical requirements of pandemic preparedness are best met by **long-term investments** (ideally continuous) in readiness and resilience at community and national levels and R&D for medical technologies. This includes building solid functioning public health systems and preparing global early-detection and response systems (e.g. multi-source surveillance and systems to ensure collaborative R&D, technology transfer and adequate and diversified manufacturing). The financing of these and other PPR-specific global public needs has to be **separate and additional to current levels of ODA**, which is already under pressure and which has a separate job to do.[10]

Recent trends in international public finance already point in the direction of a non-ODA approach to financing GPG-type outcomes (and the underlying social and economic systems and infrastructures needed to secure them). Firstly, the *geography* of international public finance is changing: a growing number of middle-income countries find themselves outside of the ODA system but still requiring international support to build up domestic capacity. At the top end of the middle-income bracket are also several major economies (BRICS: Brazil, Russia, India, China and South Africa) which now account for half of all bilateral loans to poor countries and whose voice needs to be recognised in any global solution.

Meanwhile, traditional 'recipient' countries that remain within ODA are looking to access more non-ODA resources (international financial institutions (IFIs), foreign direct investments etc.) anyway, because their needs cannot be fully met by ODA. Such resources are limited and often tied, creating a further need to find new structures for global resourcing of accessible GPGs. Secondly, the *nature* of aid flows is changing. As recent World Bank research demonstrates, today more money is going to thematic and global priorities than a decade ago. The importance of regional programmes has also grown. This has resulted, however, more in a fragmentation of ODA than a growth. Since 2000 there has been both an increase in country donors (from 25 to 43) and also a growth in multilateral funds (from 46 to 91). Overall, there are now 411 (compared to 145 in 2000) entities/agencies in countries providing official finance.[11]

10 Some will feel that GPI should include all concessional finance flows (ODA and non-ODA). This would be important to explore in more detail.

11 World Bank. 2021. *A Changing Landscape - Trends in Official Financial Flows and the Aid Architecture*. https://thedocs.worldbank.org/en/doc/9eb18da-f0e574a0f106a6c74d7a1439e-0060012021/original/A-Changing-Landscape-Trends-in-Official-Financial-Flows-and-the-Aid-Architecture-November-2021.pdf

GPI is in tune with this broadening of the base of donor countries and the growing focus on thematic priorities. But it proposes greater cooperation on international public finance as against the fragmentation that some of the these developments also represent. There is a need to simplify global financing arrangements in general, to lower the transaction costs associated with them, and to enable a more easily managed system. The way in which climate finance has developed, with a proliferation of mostly small funds designed to satisfy interests, provides lessons that also need to be learned in the pandemic preparedness space. But this raises collective action problems. The crux of the problem here lies in getting countries to see the benefits of cooperation and the costs of going it alone. This year four major panels have proposed pandemic financing lessons; but not one has yet solved the collective action problem. How might a GPI approach be any different?

3. Why we need a different approach

In this section we begin to address this question by situating a GPI approach for PPR in light of a high-level landscaping analysis that identifies which lessons need factoring into the development of a GPI-type approach. We further identify some of the persistent and emergent (post-Covid) gaps that a GPI approach to PPR would be able to fill.

3.1 Identifying common needs

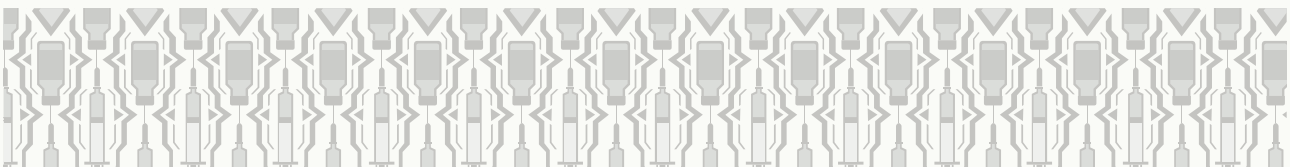
Two lessons for any international financing arrangement that emerge from stakeholder consultations on GPI are that horizontal approaches (which are inclusive and focused on health rights) would be perceived by many Southern actors in particular as more legitimate than vertical programmes; and that regional cooperation is an appropriate and desired path to global coordination.

A horizontal rather than vertical approach

A GPI approach to pandemic preparedness uses the core characteristics upon which GPI is built to leverage collective action for enhanced PPR. For example, just as a government might provide bus services out of government spending – even though such services are more vital for some citizens than others (there is redundancy built in) – so must a proper pandemic preparedness mechanism establish the level and type of preparedness investment that is needed from place to place and supply this. Pandemic preparedness is more complex than bus networks, however, which is one reason why a cooperative scheme in which decisions and needs are identified locally, but resource is raised and transferred across the participating countries, is a better way to diagnose need and to raise the necessary finance for addressing it.

Such an approach means in turn that a vertical 'global health security' discourse may not be ultimately the best political rationale for PPR needs. At the very least it needs to be combined with an equal emphasis on **'global health rights'**. An approach that is oriented to global health rights focuses not on *securitising* global health, but on establishing national and global systems and the associated commitments and capacities required to prevent and respond to outbreaks and pandemics effectively. Such an approach is unavoidably multisectoral and focused on filling in gaps in the current preparedness 'net'. Human rights arguments can be an important tool in achieving this country-level buy-in and would align a GPI approach with common commitments established within the UN system.[12]

12 See, for example, United Nations. 2021. O*ur Common Agenda: Report of the Secretary-General*. New York: United Nations. https://www.un.org/en/content/common-agenda-report/



A regional approach

Country-level buy in would also be more easily obtained by moving away from a zero-sum exchange of national sovereign interests pitted against one another (as we see in current rounds of vaccine nationalism and even in the resulting vaccine 'diplomacy') towards a **regionally-structured system**. Regions have stepped up during COVID-19 to secure a number of breakthroughs in international cooperation, including the leadership role assumed by the Africa Centres for Disease Control and Prevention (CDC) and the African Union. This capacity and momentum stands to be built upon and integrated within a GPI scheme.

A regional approach would help incentivise participation. It is known from experiences in various global initiatives on tobacco control or climate commitments, for example, that individual countries are more likely to commit when neighbouring countries do, or when regional bodies establish benchmarks and set goals. Regions are important for another reason too: much of the future funding will not be from public sources alone, but from the private sector, or from loans and grants from countries like China seeking bilateral influence. If organised appropriately, regional ownership of a PPR system could help safeguard the public interest via common financing commitments to market-shaping investments, and by meeting critical public needs directly. COVID-19 clearly illustrated the need for diversified manufacturing of medical technologies. In this context regional manufacturing in Africa, for example, *does* contribute to the GPG, and so should be considered part of a global investment case.

3.2 Lessons learned from previous outbreaks (SARS and Ebola)

Preparing for the next pandemic also requires learning the lessons of the past in terms of what needs to be financed and how that need is most effectively governed. In 2003, the **SARS** crisis led to modifications in the IHRs to guide countries in PPR, emphasising the financing of resilient health systems. Yet a post-Covid IHR evaluation in 2021 cited both inadequate financing and 'lack of compliance of States' as a contributing factor in the COVID-19 pandemic becoming a protracted global health emergency.[13] Addressing both the funding and compliance limitations of the IHRs must be a major focus of any common PPR financing arrangement.

There are also important lessons from the **Ebola** crisis that demonstrate how weaknesses in national and international PPR reinforce each other. Firstly, at the *community* level, a lack of community trust delayed reporting and thus control of the outbreak. In contrast, during the West Africa outbreak, the importance of community participation in all actions to control the outbreak was well recognised.[14] Secondly, at the *national* level, there was insufficient capacity for surveillance, laboratory testing, contact tracing or infection control and a lack of trust in health facilities. Based on World Health Organization (WHO) figures, Oxfam estimated that at the time of the Ebola outbreak there was a shortage of 9,020 medical doctors and 37,059 nurses and midwives in 4 countries (Liberia, Sierra Leone, Guinea and neighbouring Guinea-Bissau). Thirdly, at the *international* level, was the delayed response of the WHO. Learning from its delayed inadequate action to Ebola, the WHO has since prioritised emergency public health, especially response to pandemics. The emergency department is playing a key role in the global response to COVID-19. However, the WHO remains underfunded and lacks sufficient authority to obtain information on disease outbreaks beyond governments' notification.

13 WHO. 05 May, 2021. *WHO's Work in Health Emergencies. Strengthening preparedness for health emergencies: implementation of the International Health Regulations (2005)*. A74/9 Add.1. https://www.who.int/publications/m/item/a74-9-who-s-work-in-health-emergencies

14 Camara, Soriba et al. 2020. "Community response to the Ebola outbreak: Contribution of community-based organisations and community leaders in four health districts in Guinea". *Global Public Health* 15(12): 1767–1777 (Jul 16). DOI: 10.1080/17441692.2020.1789194

Ebola and COVID-19 both illustrate that building resilient health systems requires ongoing public investments for six key elements: adequate number of trained health workers; medicines and medical supplies; robust health information systems, including surveillance; appropriate infrastructure, including primary health care units linked to referral centres; adequate public financing, and a strong public sector to deliver equitable, quality services.[15]

3.3 Lessons from COVID-19

Many of these problems that occurred in previous crises have also materialised during the COVID-19 pandemic. Our landscaping analysis suggests that COVID-19 illustrated seven flaws in the global and national response:

1) **Inadequate systems to share information and notification.** As with the Ebola crisis, WHO had to rely on governments' voluntarily notifying of an outbreak. This resulted in delays in notification and consequently delayed declaration of pandemic status and delayed actions.

2) **Lack of political will to take the pandemic seriously.** Many countries ignored WHO warnings until too late. Even after WHO declared a Public Health Emergency of International Concern (PHEIC), on 30th January 2020, many governments, including the US and UK, did not take actions or implement the WHO guidelines. This was despite these countries being rated the highest in 2019 in terms of preparedness.[16] Other countries, including Vietnam, South Korea, and Singapore acted fast and according to WHO guidelines. These countries had prior experience of responding to SARS, and functioning public health systems, including at community level.

3) **Inequality in access to medical technology.** Almost a year after the first COVID-19 vaccine doses were administered, glaring inequality in vaccine distribution is revealed. Over 70% of the population in the EU is fully vaccinated compared to 6% of Africans.[17] Three basic problems led to inequality of access to personal protective equipment (PPE), tests, medicines, oxygen and vaccines: what South African President Ramaphosa calls "Vaccine Apartheid".[18] These are: inadequate production in the face of unprecedented demand, unfair allocation due to hoarding of the available supply by rich countries, and high prices. Governments of High-income countries (HICs) left these vital decisions to industry.

4) **Failure of sharing mechanisms.** Early in the pandemic (May 2020) WHO, with 40 Member States, launched the COVID-19 Technology Access Pool (C-TAP) as a vehicle to ensure fast sharing of technology, know-how and intellectual property (IP) rights, and hence faster manufacturing of relevant medical products, including vaccines, by a more diverse set of quality producers.[19] However, rich countries and COVAX have largely ignored C-TAP while pharmaceutical companies dismissed it. Yet COVAX itself has been only weakly taken up by countries (see Box 2).

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15 In recognition of the importance of building resilient health system as part of its vision for a healthy Africa free from the burden of diseases, the African Union Health Strategy 2016–2030 recommends that *"Member States should develop options for sustainable domestic financing of the health sector and increase per capita government health expenditure in line with the Abuja call and WHO commitments."* https://au.int/sites/default/files/documents/30357-doc-final_ahs_strategy_formatted.pdf

16 LePan, Nicholas. 2020. Ranked: *Global Pandemic Preparedness by Country.* https://www.visualcapitalist.com/global-pandemic-preparedness-ranked/

17 Our World in Data. 2021. *Statistics and Research. Coronavirus (COVID-19) Vaccinations.* https://ourworldindata.org/covid-vaccinations

18 The Economist. 2021. The World Ahead 2022 – Cyril Ramaphosa says the world must end vaccine apartheid. https://www.economist.com/the-world-ahead/2021/11/08/cyril-ramaphosa-says-the-world-must-end-vaccine-apartheid

19 WHO. 2022. *COVID-19 Technology Access Pool.* https://www.who.int/initiatives/covid-19-technology-access-pool

5) **Failure to abide by International Commitments.** Early in 2020, WHO set up its Equitable Access Framework to identify 'at risk' populations that should be prioritised for vaccination across the world. These include health workers, people over 60 years old and people with chronic disease. As more doses become available, further groups get the vaccine until the whole world is vaccinated. The Framework is meant to guide dose allocation between and within countries. However, rich countries have to date paid lip service to fair allocation, choosing instead to stockpile more vaccines than are required for their own population. Like many international agreements or guidelines, the Framework did not have mechanisms to enforce the allocation formula.

6) **Disagreement on IP as a barrier to access**: The growing gap in vaccine inequality led South Africa and India to put forward a proposal at the World Trade Organization (WTO) to waive some IP relevant to COVID-19 products until the pandemic ends. Since October 2020, the proposal has been supported by over 100 countries, including the US (albeit its support is limited to vaccines).[20] However, the EU (especially Germany, as well as the UK and Switzerland) are blocking the waiver. The EU submitted an alternative 'proposal', which in fact does not add anything new to remove the barriers posed by the Trade-Related Aspects of Intellectual Property Rights (TRIPS) agreement.[21]

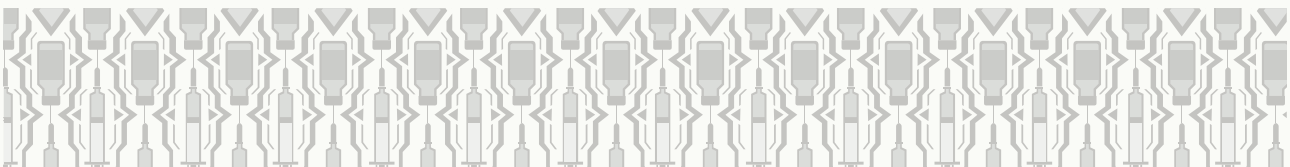
7) **Lack of political prioritisation of public investment in health care over decades.** The global call for investment in building resilient health systems was raised after the Ebola crisis in West Africa in 2014, focusing on Africa and other developing countries.[22] Yet COVID-19 revealed the gaps in health systems globally, including in HICs. In the UK, post-financial crisis austerity measures have deprived the NHS of the increasing resources needed to match rising population needs.[23]

20 WTO. 25 May 2021. IP/C/W/669/Rev.1: Waiver from certain provisions of the TRIPS agreement for the prevention, containment and treatment of COVID-19. https://docs.wto.org/dol2fe/Pages/SS/directdoc.aspx?filename=q:/IP/C/W669R1.pdf&Open=True

21 European Commission. 04 June 2021. Press Release: *EU proposes a strong multilateral trade response to the COVID-19 pandemic.* https://ec.europa.eu/commission/presscorner/detail/en/IP_21_2801

22 Dr Kruk, Margaret E. 2015. "What is a resilient health system? Lessons from Ebola." *The Lancet* Vol 385 (9980): 1910–1912 (09 May 2015). DOI: https://doi.org/10.1016/S0140-6736(15)60755-3

23 British Medical Association. 08 October 2020. Austerity – COVID's little helper. https://www.bma.org.uk/news-and-opinion/austerity-covid-s-little-helper



Box 2. The critical challenges facing COVAX

Not recognising the problem of inadequate vaccine production globally, and the reliance mainly on one company: It was clear as early as April 2020, that political leaders must address production, allocation and price.[24] Yet COVAX did not seek to interface with C-TAP, which could increase production. Despite the promise to deliver billions of doses to poor countries, by June 2021, COVAX had distributed only 95 million doses to 134 countries.[25] The situation stayed acute in Africa where, by October 2021, COVAX had delivered 112 million doses compared to 139.5 million doses secured by countries directly through bilateral deals, mainly with Chinese companies. COVAX's dependence on the Astra Zeneca vaccine (especially as produced by the Indian Serum Institute) made it vulnerable to potential production problems or to the rising of internal demands in India, as happened during the delta variant crisis. Serum announced that it would not resume exporting vaccine doses before October.[26] Now COVAX is kept running by the US donation of Pfizer and Moderna's vaccines.

Ignoring hoarding by rich countries: COVAX relied on heavily indebted poor countries and upper middle-income countries participating in the scheme to enable large, pooled demand and secure funding to negotiate lower prices. But COVAX failed to predict the reality that rich countries would buy as many doses as possible for their people. COVAX had to focus on purchasing for the poorest 92 countries. Yet it allowed Canada and the UK to obtain vaccines – even though these countries had already secured enough doses to vaccinate their populations several times over – at a time when LICs had vaccinated less than 1% of their population.

Lack of participation in decision-making and transparency: Unlike the Global Fund, which was co-created by governments, civil society, and others from the North and South, COVAX was initiated by northern-based stakeholders with hardly any serious participation of southern governments in decision-making. It took civil society at least three months of constant advocacy before COVAX allowed civil society representatives to join its workstreams. Like the rest of ACT-A, there is lack of transparency in how decisions are made, and civil society does not seem to have full participation in decision-making yet. For example, CEPI conducted two studies on manufacturing capacity in LMICs but refused to share the outcomes, depriving other decision-makers of critical information.

> ***Investments are roadmaps to defeating Covid globally",***
>
> ***The Hill, April 11, 2021***

24 Kamal-Yanni, Mohga. 2020. "Access to medicines at the time of pandemics." *Access 2 HealthCare.* https://www.access2healthcare.net/post/access-to-medicines-at-the-time-of-pandemics

25 Reuters. 2021. *COVAX says it's negotiating with new vaccine suppliers*. https://www.reuters.com/business/healthcare-pharmaceuticals/covax-says-its-negotiating-with-new-vaccine-suppliers-2021-07-06/

26 Reuters. 2021. EXCLUSIVE: India unlikely to resume sizable COVID-19 vaccine exports until October. https://www.reuters.com/world/india/exclusive-india-unlikely-resume-sizable-covid-19-vaccine-exports-until-october-2021-05-18/

4. A different approach: the four pillars of PPR

4.1 Defining the scope of a GPI approach

Based on the landscaping analysis in the previous section, here we propose an integrated GPI approach to pandemic preparedness focused on meeting PPR needs across four essential investment pillars: prevention, resilience, access, and coordination.[27] It is evident from the analysis in Section 3 that different countries need different forms of support to maximise their preparedness across these pillars, be it R&D, manufacturing and allocation, advanced purchasing of technologies, securing a functioning health system that can deliver on prevention and response while providing normal health services, global surveillance systems, or better implementation of the IHRs. Rather than simply a 'fund', GPI is a 'funding regime' – the foundations (see Figure 1) within which global public policy objectives are set and funding is allocated to best meet *overall* global PPR needs. By such means the PPR 'house' in Figure 1 is supported and robust in all weather conditions.

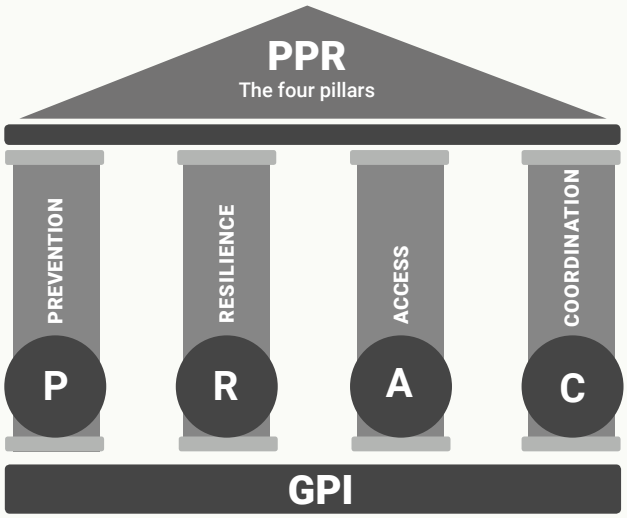


Figure 1. For pandemic preparedness to be effectively maintained (for the roof to be held up) all pillars need to be well-funded. If rich countries concentrate all their spending on high-tech coordination elements, such as R&D in pillar C, but not on basic community health capacity in pillar P, then the world will remain pandemically underprepared (with only one strong pillar, the roof would collapse).

4.2 Understanding pandemic preparedness financing needs

PPR is not a single thing with a straightforward funding requirement. It is better thought of as a multi-scalar, multi-governance global policy challenge containing elements of GPG, in-country and multilateral spending needs. Together these define PPR as a shared global need from which common rights and responsibilities flow. Here we do not discuss the cost of actual interventions. The Joint External Evaluation (JEE) process, intended to aid implementation of the IHRs, offers a country-by-country snapshot of what the essential funding need looks like, and could be used in a more finely grained analysis costing out the sort of approach advocated here.[28] The following focuses instead on creating an incentive framework for countries to understand their particular role and contribution in relation to four primary types of need (the four pillars) and the interactions needed across these to ensure effective PPR.

27 There are similarities here with the recommendations of both the IPPPR and the G20 HLIP. Note these four pillars differ, however, to COVAX's four pillars (diagnostics, therapeutics, vaccines and health systems).

28 The JEE process is explained in WHO, International Health Regulations (IHR): *Joint External Evaluation: roster of experts process and overview* (January, 2017). https://apo.who.int/publications/i/item/international-health-regulations-(-ihr)-joint-external-evaluation-(-jee)-roster-of-experts-process-and-overview

Prevention. The first element that must be in place to prevent pandemics is a combination of regular animal, environmental and human (one health) surveillance, early detection at a community level and outbreak avoidance. Estimates suggest that pandemic preparedness made up just 0.9 % of total global health aid in 2019.[29] The disparity in surveillance and detection capacity between regions and countries is large and needs addressing. It is critical here that capacity (laboratory analysis and epidemiologists for example) not be concentrated in just a limited number of countries, but across the world. Bioinformatic bottlenecks, for example, the need for widespread genomic sequencing capacity need to be enhanced.[30] Detection and surveillance depend on trained health workers, especially community workers who, over the years, have the trust of their communities, partly because they provide the health care that people need. Strengthening such programmes is likely to be one of the most effective investments that the international community can make in developing domestic outbreak-investigation capacity.[31]

- *Demands of an adequate financing arrangement:* How do you ensure technological know-how, capacity and personnel are in place and part of an all-of-society approach to health?

Resilience. A common funding arrangement could help to build more resilient national health systems in the context of resource scarcity. This is a political priority and a cornerstone of the PPR approach outlined in this paper. Ensuring community participation and building community trust require long-term investment in community health workers to provide quality health services. While elements of this relating to health systems capacity may be obvious, other important aspects are less so. For example, Ebola and COVID-19 illustrated that peoples' lack of trust in what governments tell them affected their behaviour, such as their approach to hygiene, the use of masks and social distancing. Developing appropriate social media tools for outbreak to pandemic communication can be a way to 'invest' in greater trust; along with tool kits for government health ministries that can help link their policies to actual communities.

- *Demands of an adequate financing arrangement:* How do you ensure sufficient health system capacity across geographies and maintain this during emergencies?

Access. Key here is ensuring access to medical supplies and technologies and their rapid and fair deployment as soon as they are produced during the initial phases of an outbreak. This pillar thus encompasses both R&D and manufacturing for PPE, diagnostics, therapeutics, vaccines, and other medical technologies relevant to the disease. It would include purely economic arrangements, such as financing commitments for vaccines and other medical technologies. It would also include investing in collaborative (North and South) biomedical R&D, diversified manufacturing capacity, and ensuring continuous production of other products during non-pandemic time to retain production viability. There is a need to invest upfront in supply chain and storage preparation, including cooling facilities; invest in standing manufacturing capacity and leasing for non-pandemic use to retain viability, technology transfer, management of IP. The African Union is developing a strategy to ensure 60% of vaccine needs are manufactured in Africa by 2030. Such 'missions' require funding.

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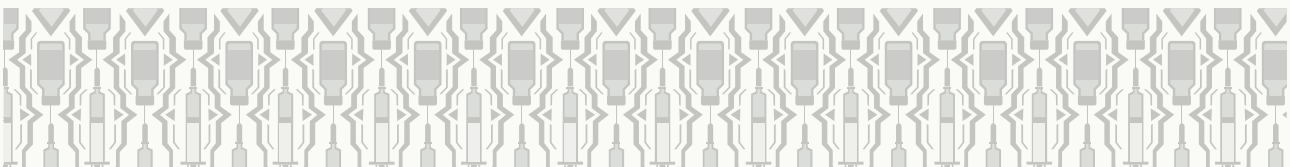
29 Bollyky, Thomas J. and. Patrick, Stewart M. 2020. *Improving Pandemic Preparedness: Lessons From COVID-1.* Council on Foreign Relations, Independent Task Force Report No. 78 (October, 2020). https://www.cfr.org/report/pandemic-preparedness-lessons-covid-19

30 Hodcroft, Emma B. et al. 2021. "Want to track pandemic variants faster? Fix the bioinformatics bottleneck." *Nature* Vol. 591 (7848): 30–33 (March, 2021). DOI: 10.1038/d41586-021-00525-x.

31 Craven, Matt et al. 2021. "Not the last pandemic: Investing now to reimagine public-health systems" *McKinsey & Company* (May, 2021). https://www.mckinsey.com/industries/public-and-social-sector/our-insights/not-the-last-pandemic-investing-now-to-reimagine-public-health-systems. As has elsewhere been noted: "one of the major flaws in the current global framework for tackling infectious diseases [is] the weakness or even absence of public health systems in many developing countries." See Brahmbhatt, Milan & Jonas, Olga. 2015. "International Cooperative Responses to Pandemic Threats: A Critical Analysis" *Brown Journal of World Affairs* XXI(II): 165 (Jan 2015).



- *Demands of an adequate financing arrangement:* How do you address imbalances in the current economic geography of vaccine and other medical technology production and supply?

Coordination. Global and national coordination is key for preparing for a fair and effective response. At a global level, scaling up current 'Assessed Contributions' from Member States for all its functions, including its Division of Health Security and Emergencies and its regional and country offices, is critical. WHO has pointed out that acute under-funding (80% of the WHO budget is voluntary and earmarked) has hindered coordinated preparedness programming. [32] Common financing of PPR coordination should be channelled to fulfilling the existing IHRs and establishing a body that can monitor country compliance. While some of this would involve investments in new coordination capacity, much would actually involve building on existing infrastructure and capacity. HIV is a very different 'slow' pandemic compared to COVID, for example, but the response to both has encountered similar problems of social trust.[33] Similarly, Nigeria used polio vaccinators in its response to the Ebola crisis, and COVID-19 programmes in some countries were based on the community structures dealing with the HIV response.[34]

- *Demands of an adequate financing arrangement:* How do you ensure pandemic response will be joined-up and fairly and efficiently targeted to areas and groups of greatest need?

Each of these four areas offer some headline examples of acute financing needs for effective PPR. Since the start of COVID-19, Organisation for Economic Co-operation and Development donor countries have moved independently to raise additional finance for some aspects of this, including global disease surveillance capacities, R&D to provide products mainly for their domestic use, zoonotic diseases and 'one health' agendas, vaccine manufacturing and manufacturing tests, vaccines, medicines, PPE and health systems strengthening.[35] What they have not done is to coordinate these efforts, to ensure they are fairly distributed, or to manage them in a way that is robust and sustainable over time.[36]

4.3 Meeting PPR needs via a GPI approach addressing the four pillars

In a GPI approach to PPR, countries at different income levels would be required to resource different parts of the overall arrangement in different ways.[37] They would all benefit from public safeguards and predictability in the event of a pandemic (as a result of public interest clauses in any GPI funding that backed an Advanced Market Commitment for example). If we think of each pillar in Figure 1 as a container needing to be filled, GPI would be the system for ensuring each container filled up to the right level and in the right order. This includes both in-country and transfer financing and other resources (an appropriately priced technology transfer, for example). This would help even up the overall level of PPR capacity across the geographies and thematic areas covered by the pillars (mostly in-country, and health systems based in pillar P, on the left, mostly transfer-financing and regional/global coordination and capacity focused in pillar C, on the right).

32 Glassman, Amanda and Smitham, Eleni. 2021. "Financing for Global Health Security and Pandemic Preparedness: Taking Stock and What's Next." *Center for Global Development* (08 March 2021). https://www.cgdev.org/blog/financing-global-health-security-and-pandemic-preparedness-taking-stock-whats-next

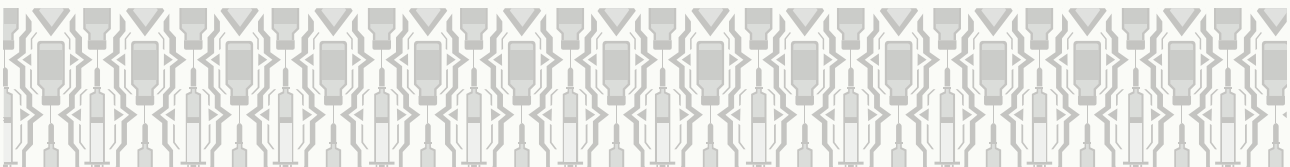
33 Gould, Peter. 1993. *The Slow Plague: A Geography of the AIDS Pandemic.* New Jersey: John Wiley & Sons

34 Frist, Bill and Goosby, Eric. 2021. "Our Past Pandemic Investments are Roadmaps to Defeating Covid Globally" *The Hill* (April, 2021)

35 Hemm, Alina and Johnson, Zoe. 2021. "Breaking the 'cycle of panic and neglect': what donor countries are doing to prepare the world for the next pandemic" *Seek Development, Donor Tracker Insights* (July, 2021). https://donortracker.org/insights/breaking-cycle-panic-and-neglect-what-donor-countries-are-doing-prepare-world-next

36 Ibid, 1.

37 A GPI approach here would likely resemble the sort of cost distributions presented in McKinsey's *Not The Last Pandemic: Investing now to reimagine public-health systems* report, which finds that "[a]pproximately 27 per cent of [total] spend would take place at the global and regional levels, and about 73 per cent would take place at the country level (8 per cent in HICs and 65 per cent in middle- and low- income countries)." See: Craven, Matt, *et al. 2021. "Not the last pandemic: Investing now to reimagine public-health systems", McKinsey & Company* (May, 2021). https://www.mckinsey.com/industries/public-and-social-sector/our-insights/not-the-last-pandemic-investing-now-to-reimagine-public-health-systems



Fair share financing for ongoing investments. GPI begins as a budget line in national accounts. A recent report from McKinsey's points to the need for a shift from 'break glass in case of emergency' to 'always on' systems as critical to building better pandemic preparedness. The latter are more effective but also cost more than emergency response – a sustained investment over time (around US$3-6 billion annually over at least 10 years according to McKinsey's). As COVID-19 reveals, however, emergency response can cost substantially more when crises do hit. The McKinsey's report is based on global calculations, making these figures seem out of reach. A GPI approach would divide these totals via a fair share arrangement linked to subsidiarity (in-country costs, for example, being covered by domestic payments where possible; transfer financing meeting the shortfall where not).

Inclusive governance and decision-making. Recent decades have seen a proliferation of global health bodies and funds. Relatively few of these have managed to square the circle of creating governance structures that are both inclusive and effective.[38] The most advanced body to date is perhaps the Global Fund, which was co-created by governments from the North and South as well as civil society, with 3 seats on the board of 20. However, financial commitments from middle income countries are still low because incentives for their participation are limited by a lower-income country focus. With global public investment, *all* countries are participants and civil society and other non-state actors are also included in decision-making, which is not focused on one single, centralised fund so much as on public policy outcomes that can be funded through a variety of channels (both to and across the pillars in Figure 1).

Public investments for equity. In economic terms, investment is the process of drawing on resources available for present consumption to provide enhanced resources for consumption in the future, even to future generations yet to be born. Public investment entails the creation of the conditions for social rather than private returns: in other words, for outcomes that are non-excludable and to degrees non-rivalrous. Rather than think of this in terms of what 'category' of thing can be funded via GPI, it makes more sense, and is more robust, to speak of which 'outcomes' are and are not GPI compliant and so eligible for GPI funding. The rationale for GPI is the creation of longer-term public value (leading to a PPR architecture that is robust and covers all citizens).[39] All decisions over how to allocate scarce resources to investment, or any economic decision, entail both an intended outcome and the production of externalities, which can have either positive or negative implications. If positive, an externality would result in enhanced collective benefit – a win-win solution – while a negative externality results in a welfare loss at the collective level. A coordinated approach is the only way to manage those collective welfare outcomes.

In GPI, the outcomes that are fundable are those that result in positive externalities for society.[40] This is one way of distinguishing and determining 'GPI compliant' spending. Different ways of formalising this would include establishing 'public interest' safeguards, or step-in clauses in contracts (manufacturers of PPE, for example, might need to commit to making an agreed number available at cost for a defined period of time at the start of a pandemic: turning a private good into more of a public good. To build trust in the system, such approaches would need to adopt lessons from the World Bank's PEF or the ACT-A arrangement, and more proactively (and enforceably) *require* transparency (public disclosure) of contracts in terms of volume, price or delivery schedules to various countries. A practical way of negotiating and representing GPI stakeholders would also be needed. This could be through representative agents, for example, a Joint Procurement Group as an adjunct to the operations of the main GPI governance structure – in the way CEPI avails of a Joint

38 Held, David et al. 2019. "Gridlock, Innovation and Resilience in Global Health Governance." Global Policy 10(2): 161-177 (February, 2019). DOI: https://doi.org/10.1111/1758-5899.12654

39 A GPI approach here would likely resemble the sort of cost distributions presented in Craven, Matt, *et al. 2021. "Not the last pandemic: Investing now to reimagine public-health systems", McKinsey* & Company (May, 2021). https://www.mckinsey.com/industries/public-and-social-sector/our-insights/not-the-last-pandemic-investing-now-to-reimagine-public-health-systems

40 Global Public Investment is for all non-excludable goods and services (whether they have a high subtractability of use (common pool resources; commons) or a low subtractability of use (public goods).

Scientific Advisory Committee and a Joint Coordination Group, but representing the contributing countries and negotiating on their behalf as a single body.

Reducing volatility through statutory financing. Our research suggests that funding the four pillars requires a steady flow of resources into what are mostly chronic, rather than acute issues of health systems capacity, capability and investment in R&D, and diversified manufacturing. Emergency fund-raising and even repeated rounds of replenishments are costly to organise, often create more tensions than they resolve, and routinely underperform, leading to perennial talk of 'funding gaps'.[40] Yet investments in infectious disease tend to be volatile and at times contradictory. One study of funding for infectious disease research (including on vaccines and diagnostics) published between 1997 and 2010 revealed year-on-year contributions swung between US$40 and US$160 million for philanthropic organisations and between US$30-230 million for public funders.[42] The same tendency applies across technology areas: vaccines received just US$278m in 2018, compared with US$423m in 2014 and substantially more since COVID-19. The geographical distribution of R&D financing is equally skewed: the US, which is the largest single emerging infectious diseases funder, is also the largest single recipient of those same funds, for example.[43]

Countering nationalism with incentives for a common framework. The only way to counter these ultimately market-driven trends is to apply certain agreed criteria to such large-scale public investments as will help secure the buy-in necessary for 'global coordination and strategic long-term vision' to be possible.[44] The World Health Organization Consultative Expert Working Group on Research and Development: Financing and Coordination, for example, was established in 2010 with a mandate to review the feasibility of establishing a global observatory to monitor R&D investments.[45] This was approved at the 66th World Health Assembly in 2014. Incorporating such insights into the way in which GPI-type funds are channelled to pandemic preparedness will be important to ensure monies are not just raised but well used. The UN High Level Panel on human rights, trade and health recommended that governments negotiate an agreement to coordinate and finance R&D including a convention that delinks financing for R&D from the price of resulting products. For years civil society has also advocated for a fund for R&D where all countries contribute according to their financial ability: a GPI-type approach where governments pay the cost in advance instead of in higher prices. Suggestions for a Health Impact Fund apply a similar logic (rewarding successful products, rather than first to market products, out of common pool financing agreed in advance). Pharmaceutical companies will need to come on board with such proposals and be willing to work on ways to engage industry-wide cooperation on this.

> ***[W]e'll never be prepared for the next pandemic if we only invest in R&D targeting diseases-grabbing headlines at the time."***
>
> ***Nick Chapman, Chief Executive, Policy Cures Research***

41 Brahmbhatt, Milan and Jonas, Olga. 2015. "International Cooperative Responses to Pandemic Threats: A Critical Analysis" *The Brown Journal of World Affairs* 21(2): 163-178, DOI: http://www.jstor.org/stable/24591063

42 Fitchett, Joseph R. et al. 2014. "Funding Infectious Disease Research: A Systematic Analysis of UK Research Investments by Funders 1997–2010." *PLOS ONE* Vol 9(8), DOI: https://doi.org/10.1371/journal.pone.0105722

43 United Nations Educational, Scientific and Cultural Organization. 2020. *Keep focus on emerging infections.* International Year of Basic Sciences for Sustainable Development (September, 2020)

44 Fitchett, Joseph R. et al. 2014). "Funding Infectious Disease Research: A Systematic Analysis of UK Research Investments by Funders 1997-2010" *PLOS ONE* Vol 9(8), DOI: https://doi.org/10.1371/journal.pone.0105722

45 WHO. 2012. *Report of the Consultative Expert Working Group on Research and Development: Financing and Coordination.* A65/24 (April, 2012). https://apps.who.int/gb/CEWG/pdf_files/A65_24-en.pdf See also Røttingen, John-Arne and Chamas, Claudia. 2012."A New Deal for Global Health R&D? The Recommendations of the Consultative Expert Working Group on Research and Development (CEWG)" PLoS Med Vol 9(5) DOI: e1001219. DOI: https://doi.org/10.1371/journal.pmed.1001219

In summary, what a GPI approach would bring to the financing of PPR across the four main pillars of need is the capacity for ongoing and strategic long-term financing; a greater robustness to this funding (by virtue of burden-sharing and compliance mechanisms); the ability to improve global coordination (by virtue of more meaningful and geographically representative country participation), and a stronger focus on social returns (allowing some of the inequalities in pandemic preparedness coverage to be overcome, thereby also enhancing its global coverage). It would cover both capital expenditure needs (investing in factories) but also the resilience cost premium of paying for redundancies (e.g. always warm manufacturing capacity).[46] The function of such a GPI approach would be to ensure that the global health landscape safeguards the interests of all people around the world (instead of political or commercial interest). As the WHO Council on Health for All puts it, "the classic market logic of efficiency (e.g. just-in-time supply chains, full utilisation of capacity, etc.) must be replaced by a health resilience and preparedness logic that allows for redundancy, stockpiles and surge capacity."[47]

5. Implementing GPI for pandemic preparedness: options and approaches

The most feasible pathway to implementing a GPI regime for PPR will be found by connecting a locally acceptable set of pay-in arrangements (from among a set of different policy choices) to existing infrastructure and institutions (including fiscal hosts) already playing a role or under active consideration (such as the Pandemic Treaty). In practice, connecting would mean incorporating into those arrangements a new international governance standard explicitly based upon the principles of GPI and legislating domestically to secure the funds. Each of these steps is outlined in the following sections, along with consideration of how such a GPI regime could be built at various levels of ambition, providing options for policy-makers to consider its implementation.

5.1 Mobilising GPI for PPR: establishing a new 'beyond-ODA' budget line

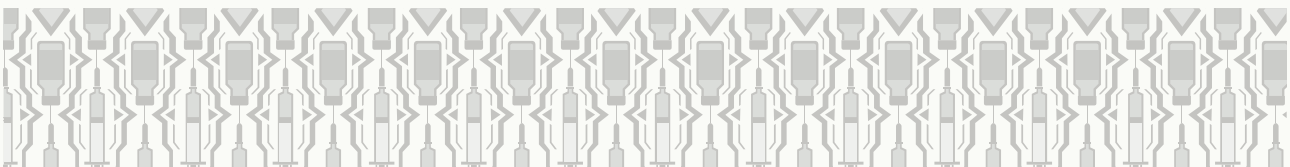
The first step in establishing any GPI scheme is to identify a new international budget line for global investments. The current pandemic presents a once-in-a-lifetime opportunity for establishing widespread international commitment to such a non-ODA budget line: substantially less ambitious than ODA's headline 0.7 per cent and more clearly targeted to common outcomes. If initially focused on a clearly specified global public policy goal, such as the achievement of a minimum standard of PPR, it would be easier to explain this to electorates and citizens and to measure and track progress over time. There are then numerous ways that such a funding line could be resourced, and countries may well choose slightly different paths to meeting their fair share target each year. Pay-in options include:

Pay-in considerations

Non-ODA sources. GPI funds are envisaged as separate and additional to ODA. There may be multiple ways in which a 'global investments' line could be entered into national budgets, including through legislation of the sort used to establish channels for ODA funds to 'investments' in private activity, as via Norway's NORFUND or the UK's CDC for example. In this case, each country would

46 Interview with Prashant Yadav.

47 WHO Council on Economics of Health for All. 2021. *Governing Health Innovation for the Common Good.* Counsel Brief No. 1 (9 June 2021) p.9. https://cdn.who.int/media/docs/default-source/council-on-the-economics-of-health-for-all/councilbrief-no1_20210609_corr.pdf?sfvrsn=90341716_5&download=true



have a 'global investments' line from which it would meet annual contributions and potentially also build up a buffer to be accessed for surge purposes in a crisis. The Norwegian development agency NORAD is currently evaluating the feasibility of such an approach.[48] Revenue could also be found from appropriate ministerial budgets (such as health or science and technology and/or defence); as recommended further on in this report, it may make sense to draw upon multiple budget lines from each country, as required by different aspects of the overall financing plan. This approach is already taken in the way that some countries contribute to the CEPI from R&D budgets, for example. National ministries that contributed would need to reframe how they operate (the creation of a new environment 'super ministry' of Economy and Climate Protection suggests that such retooling of national structures in light of international challenges is feasible). The advantages of this approach are that it moves some of the political debate over financing away from the already fraught international stage.

Box 3. How is GPI different to UN or other assessed contributions systems?

GPI is ultimately a form of assessed contribution system. It requires an ongoing commitment of national public revenue to internationally agreed outcomes on a fair share basis. However, it differs in certain respects to UN or other assessed contribution systems, such as those of NATO.

First, there are some differences with respect to what the contributions are used for and the way that GPI contributions would work:

- In contrast to UN 'membership dues', GPI is not funding a large international 'system' and its associated services (such as peacekeeping): rather it is a mixed-channel mechanism for allowing governments to directly fund outcomes they are not able to achieve on their own (such as cross-border GPG requirements, or pass-through funding to existing institutions that deliver these agreed-upon outcomes and services, and which would be required to report on this: current WHO contributions of some LICs are in the tens of thousands, while their Global Fund contributions are in the hundreds of thousands).
- GPI has a simpler assessments scale that is more transparent and that changes according to economic fortunes – also for rich countries. This means countries are not 'locked in' at the same rate over long periods: something which often leads to resentment and frustration with UN dues, and delayed or non-payments.
- Not all GPI contributions need take the form of paid-up dues. In-country spend for LICs could simply be marked as a contribution to a GPI fair share; for surge needs wealthier countries might provide both 'paid up' and 'callable' capital, as is standard practice within the Regional Development Banks and other IFIs. The language of 'global investments' currently being pioneered by Norway offers one way of framing the variety of contributions possible under GPI – in a simple and coherent way.

48 NORAD. 2021. *Bistand og globale investeringer: Neste steg I utviklingssamarbeidet? Utdypende analyse* (September 2021)

Secondly, there are some areas where GPI contributions for PPR would mirror aspects of less well-known assessed contribution approaches:

- Similar to the EU's Athena mechanisms for rapidly agreeing and determining the initial budgets of EU force deployments, GPI 'surge' contributions, on a callable basis (as above) could be pre-agreed in accordance with a GDP-type benchmark, with upper limits established, and an agreed (likely majority: here differing with Athena's unanimous requirement) voting arrangement on when to action those commitments (see: https://www.consilium.europa.eu/en/policies/athena/).
- Similar to NATO contributions (comprising both 'in kind' and 'financial' resourcing, and 'in-country' and regional as well as global spend) GPI mirrors the multiple budget pay-in lines of NATO financing; it also opens to national capability commitments in line with common agreed policy objectives (the US, say, may commit to funding a global central hub required to achieve surveillance coordination). Finally, like NATO budgets, GPI would draw on multiple budget appropriations within countries (e.g. foreign ministry appropriations for ongoing institutional overheads; defence ministry appropriations for hardware and troop costs). One area it would differ to NATO financing is in the 'costs lie where they fall' principle, which tends to encourage free-riding.

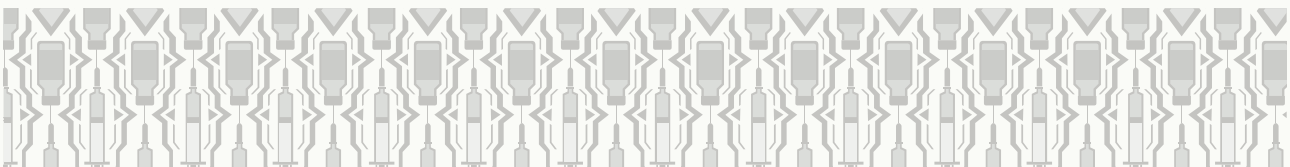
Offsetting government contributions with *domestic* revenue. The two routes to generating government revenue are credit and taxes. Both need to be utilised in relation to a GPI scheme, depending on the country. It would be important to the viability of the scheme that the domestic tax mix – how countries 'meet' their contributions – could vary so that different domestic political realities are respected. This involves taking into consideration debt-relief. Another alternative for raising revenue domestically would be a national tax credit scheme, whereby citizens could apply for a tax credit on a portion of their existing income tax that will then be cycled into GPI contributions. Global public investment seeks to solidify the rights and obligations that stem from global shared vulnerabilities and interconnectedness. This could therefore be an appropriate way of demonstrating the individual-level relevance of such a scheme in a way that would generate public support rather than 'donor fatigue'.

Offsetting government contributions with *international* revenue. There are numerous proposals for international taxes that could be used to fund GPI-type contributions for PPR. They could include various health taxes, such as eliminating duty-free sales on alcohol and tobacco in airports and channelling the proceeds to PPR (a move it has been estimated could raise as much as US$8bn a year),[49] to taxes levied more specifically on PPR-relevant multinational profits, financial and currency transactions). Some of these suggestions have been around for a long time. The basic principle of financing GPGs and other common benefits by taxing associated negative externalities is also well-established and would build on the recent G7 commitment to a global minimum tax. In the US, for example, the trade deficit in pharmaceuticals is presently more than the trade surplus in aircraft.[50] Countries are free to opt for such multinational taxes unilaterally (it does not require international policy coordination). Rather, it builds on domestic federal corporate taxation policies, which presents a more varied set of arrangements.[51] Such approaches may also have the desirable counter-cyclical effect of mitigating large underlying price differentials in, for example, pharmaceutical markets between countries.

49 Lane, Chris. 2021. *Eliminating Duty-free Tobacco – What Went Wrong?* Center for Global Development (February, 2021). https://www.cgdev.org/blog/eliminating-duty-free-tobacco-what-went-wrong

50 Setser, Brad. W. 2020. *Tax Games: Big Pharma Versus Big Tech.* Follow the Money, Council on Foreign Relations (February, 2020). https://www.cfr.org/blog/tax-games-big-pharma-versus-big-tech

51 Zucman, Gabriel. 2019. *Taxing Multinational Corporations in the 21st Century.* Policy Brief 10 Economics for Inclusive Prosperity. (February, 2019). https://econfip.org/policy-briefs/taxing-multinational-corporations-in-the-21st-century/



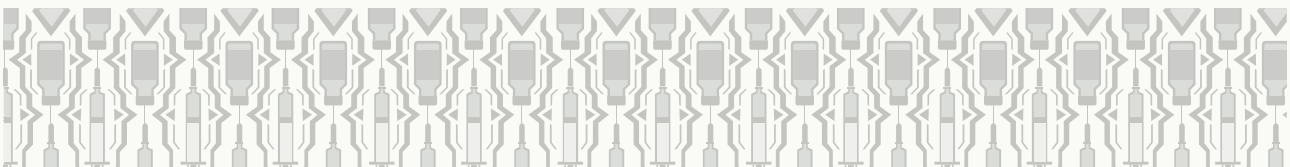
In-country (and non-fiscal) GPI spend. An extension of the above is that a degree of in-country financing should be available to be offset against a country's fair share contribution (this being another reason countries should find it feasible to meet their fair share). This is particularly important for the in-country elements of PPR and, potentially, via triangular-type cooperation, the regional elements too. It could also be extended to non-financial contributions, such as technology and/or sharing of knowledge and resources. For example, various forms of technology transfer would come under this category if they were made as investments in a country presently lacking such technology and where its utilization would bring that countries' PPR level up to the global minimum. Technology transfer is more common in South-South cooperation than it has been in ODA, but given the impact of geographical scarcity seen during Covid it is an approach that 'northern' actors should embrace more fully.

PanPrep Bonds and innovative co-financing arrangements. A potential route to enabling wider country buy-in to the scheme without resorting to direct transfers in the ODA guise would be to use a particular sort of bond financing: gross domestic product (GDP)-backed perpetual bonds, which could be called 'PanPrep bonds'. Such GDP-backed bonds would differ to social impact bonds, or related International Finance Facility for Immunisation (IFFIm)-type bonds, in terms of what they collateralise. IFFIm collateralises (raises money) on ODA pledges to which governments are bound to contribute as payment schedules over a period of time (usually 20 years). GDP-backed bonds, by contrast, collateralise economic growth in a given economy. They are partly counter-cyclical in that payments would go down when economic growth slowed (which is when it would be hardest to meet payments) and they allow non-domestic investors to assume part of the risk of any given country's debt burden. They could either be shorter term Treasury Bill-type issues, or long-term perpetual bonds. With perpetual bonds, governments – or a fiscal entity acting on behalf of a set of multiple governments – are issued without those governments ever committing to repaying the Principal to the private investors (in this case, most likely pension funds) purchasing the bond in question. In exchange for this freedom and reduction in the effective debt burden, the issuing countries agree to pay an interest payment (the Coupon) every year in perpetuity. This has win-win attractions for both investors and governments and raises possibilities for mutualising the fiscal burden of contributing to such a scheme. As with all bond financing, however, it also has its costs and risks, and any such approach to funding a GPI approach to PPR would need to be carefully explored.

Pay out considerations

A non-ODA set of flows organised as GPI would also look different to ODA in terms of pay-out. Specifically, it would not be bilaterally determined but subject to intergovernmental policy determination through transparent and fair negotiating procedures. This would require a new governance entity (and is the one area where GPI for a global outcome like PPR would require a new infrastructure). A dual chamber body is envisaged, one with management functions in relation to the fund, and the other a contributor assembly to set policy objectives, with representatives of that assembly making overarching decisions at a board level. The precise nature of such a structure is part of what needs to be co-created during the inception phase. Organised thus, a GPI approach would have three defining features at pay-out.

1. **Mixed-mode financing.** The pay-out structure is not country-to-country, as in much ODA spending, or simply pooled. Instead, the money is actioned in a variety of ways, including common pooling and in-country spending. Other portions would be allocated to cross-border transfer financing but collected regionally and disbursed, again, regionally. Where there was cross-region transfer financing (from Europe/North America to Africa say: in effect, North to South) then this would also occur between regional fiscal hosts. The existing regional development bank architecture could be built upon to manage this.



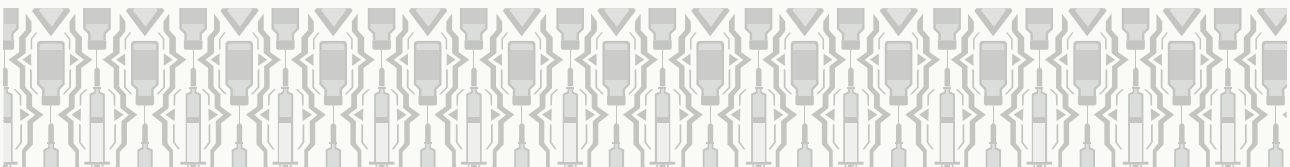
2. **Segmented financing.** Not all GPI funding would count as the same. Some contributions to GPI could be earmarked for in-country spending as a portion of domestic contributions to agreed GPI objectives (for example, investments in training health workers in health information systems [the basis of surveillance capacity] to bring this up to an agreed global standard). Others would be for GPG-type outcomes. In the context of a GPI arrangement for PPR, these differing outcomes are encompassed in the various pillars. Financing pillar 1 is largely within country spending. As we move across to pillar 4 it gets more 'global', and this ask is directed at the more globalised wealthy countries (similar to the methodology set out in the ACT-A burden sharing calculation). Where GPI differs is that while all countries contribute something to the scheme, they are not all making the same 'type' of contribution.

3. **Phased financing**. The four pillars illustration (Figure 1) also helps demonstrate how funding would be prioritised, or 'phased'. We might imagine that pay-in was tiered according to country capacity, such that wealthier countries footed more of the pillar 4 objectives (more explicitly GPG in nature) and poorer countries mostly used their contributions on essential in-country outcomes with the aim of securing a global minimum standard or towards regional manufacturing hubs. Pay-out on both these sets of contributions would then be phased according to global public needs. Where pillar 1 outcomes needed additional transfer spending to achieve a global minimum standard, these would be co-financed as a first take out of wealthy countries GPG-tiered contributions. If a poor country did not need to use up all its GPI contribution on in-country spending, then a portion of those funds too could go to wider transboundary regional and global objectives.

In summary, GPI is not 'one' fund and does not channel funds in a singular direction: different types of GPI contribution would go to different outcomes of what was collectively determined as the overall goal for PPR in year one, two, three, 'n'. Some of the funding, for example, in-country, would not need to pass through the aggregation mechanism. This is important to ensure that GPI for PPR would **build upon the global health infrastructure that already exists and focus on where remaining gaps are**: rather than creating overlaps and adding additional layers of complexity to an already complex ecosystem. As underscored, both in interviews and by the co-creation panel, a lot of the necessary **spend (and where the gaps therefore really do lie) is in areas where PPR needs support from investments in adjacent or underlying health systems need** (e.g in the training of local personnel to ensure country preparedness). While this may seem to increase the overall funding ask (by broadening the definition of what is PPR-relevant) it in fact opens up for dual benefits and spillovers arising from investments in these areas (an incentive to poorer countries in particular), while careful targeting according to need can be managed by **assigning funding strategically** (an incentive to all countries).

5.2 Building on existing infrastructure

A GPI approach could be built into existing arrangements rather than established as yet another 'fund' or process competing for attention. It would also build on the felt need for a more workable, premeditated solution than ACT-A provided, but which has shown that such aggregation mechanisms are feasible. The response to COVID 19, for all that it has been chaotic and challenging, has initiated a genuine discussion among countries and stakeholders about the need for such a solution. Two processes present concrete opportunities for testing a GPI approach to financing and governance. These are the recently launched Pandemic Treaty/Instrument discussions and proposals for a global health security Financial Intermediary Fund (FIF). Neither is sufficient on its own but both could potentially be modified in line with GPI principles and perhaps even linked.



GPI and the Pandemic Treaty

Current negotiations over a Pandemic Treaty or similar instrument present the opportunity to introduce GPI principles into a process that must be "co-owned by all countries, not a subset" as Tedros has argued.[52] This can be expected to take a period of months to a year or two.[53] A Pandemic Treaty building upon existing instruments and regulations (including the IHRs and associated work undertaken in relation to them, such as the JEE) offers a concrete way of incorporating GPI into a legally-binding process. The Treaty discussions were not initiated to discuss financing mechanisms, but they will need to consider the financing of country commitments under any resulting treaty or instrument. To be meaningful, a Pandemic Treaty will need the 'teeth' of an associated financing commitment (as we learned with the IHRs). Just such a need has recently been articulated by WHO Ambassador for Global Health Financing, Gordon Brown.[54]

GPI and the Global Health Security FIF

The US-Norway proposal for a Global Health Security Financial Intermediary Fund hosted by the World Bank but independently governed, is another active process where appetite for GPI could be tested. The FIF envisions a US$10bn-per-year ongoing commitment to PPR. The FIF therefore represents the right level of funding ambition for a GPI approach and could cover a large part of the 'four pillar' agenda outlined in Figure 1. However, the way the FIF is sometimes imagined, as a 'fund of funds' and lacking any apparent non-traditional donor country buy-in to date, means it falls short of what is needed. It lacks the core elements of legitimacy, fairness and inclusion, as outlined in Section 5.4. By adapting current proposals for this fund along more explicitly GPI lines, including by regionalising the proposal and by linking it to not just a Global Health Threats board but to a possible future Pandemic Treaty or other instrument, it would be easier to secure the global buy-in the FIF presently lacks. GPI commitments to a public return on investment and to public interest clauses in contracts (made robust by virtue of the number of countries involved) would also address a major problem with COVAX, which was the inability of the system to withstand individual countries offering less stringent terms to manufacturers independently.[55]

5.3 Securing political will: linking pay-in to pay-out via a new governance standard

Raising international finance is challenging and will only be more so in the context of limited fiscal space imposed by government outlays on the COVID-19 response. Ultimately, it will succeed or not according to the extent to which actors see it in their own interest to participate in a GPI approach. It is therefore essential that any new financing proposal, including for GPI, **incentivise** country participation as much as possible. One way to facilitate this in practice is by highlighting how a GPI approach stands apart from existing (and perhaps for some stakeholders and countries even tainted) international public financing arrangements.

Incentives for participation

To date, countries have been required to choose from the following basic approaches, all of which have strengths and weaknesses from the point of view of incentivising participation.

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52 WHO. 2021. *Global Commitments on COVID –19 offer way forward, but success depends on action being taken now.* Statement (24 September 2021). https://www.who.int/news/item/24-09-2021-global-commitments-on-covid-19-offer-way-forward-but-success-depends-on-action-being-taken-now

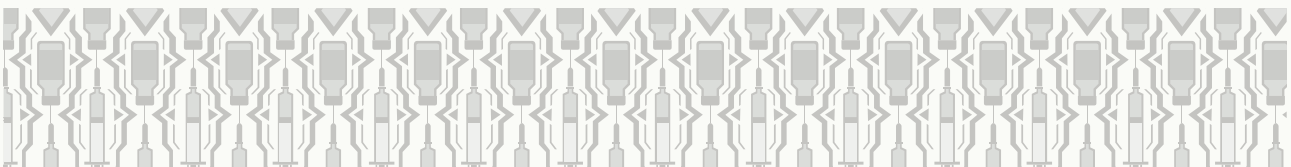
53 Negotiations for the UNFCC and the Basel Convention each took between a year and a year and a half. While this timeline might be shortened in the current emergency context (as it was for the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency following Chernobyl) it would still require multiple sessions.

54 WHO. 2021. Gordon Brown. *Historic World Health Assembly session offers new chance for future pandemics.* (29 November, 2021). https://www.who.int/news-room/commentaries/detail/historic-world-health-assembly-session-offers-new-chance-to-prepare-for-future-pandemics

55 Kavanagh, Matthew, Gostin, Lawrence and Sunder, Madhavi. 2021. "Sharing Technology and Vaccine doses to address Global Vaccine Inequity and end the COVID-19 pandemic." *JAMA Network* Vol 326(3): 219-220, DOI:10.1001/jama.2021.10823

Contribution type	Incentive	Disincentive
UN dues	• Pay-in is 'assessed' • Universal membership creates felt-sense of obligation • Club benefits accrue.	• Can be hard to enforce payments (e.g. US arrears at UN have led to financial squeeze on the organisation; in 2019, 64 of 193 members were in arrears at some point • Link between payment and benefits is insufficiently visible to larger contributors; link between payment and outcomes is less direct too.
ODA Phase I (Donor-Recipient)	For donors: • Global solidarity arguments underpin scope for bilateral influence • Political interest in some countries • Enhancing national economic interests. For recipients: • Access to scarce resources.	For donors: • Costs (few countries have successfully met 0.7) • Most multilateral funds look to a relatively small group of rich donor countries for the bulk of their replenishments • Donor fatigue For recipients • Conditionality • Inadequate autonomy in policy-making • Lack of incentives to develop domestic e.g. tax capacity. For middle incomes: • 'Graduation' means losing valuable external finance and resource and facing higher prices of health products • Exclusion from decisions.
ODA Phase II (Donor-Recipient sharing some decision-making + civil society)	• Incorporation of civil society voices • Greater transparency • Enhanced policy space for recipient countries • Recipient countries given a voice in governance • Smaller and more agile governance structures, often including 'science based' decision-making.	• Failure as yet to incorporate ODA funding from MICs or alternative.
GPI	• All countries contribute (reducing overall burden on rich countries) • All countries decide (giving LIC and MIC countries a meaningful say in decisions) • All receive (benefits do not only accrue to poor countries, incentivising rich and MICs) • Fair share calculations embed 'capacity to pay' principle • Scope for universal and defined benefits • All countries and stakeholders (including civil society) have a role to play in designing the rules, system, implementation and monitoring and accountability.	• Requires a broad base of country buy-in (how broad depends on the purpose of the fund/system) • Requires rich countries to accede their dominant share in decision-making for a reduction in their overall financial contribution • Requires LICs, LMICs and MICs in particular to feel ownership.

Table 2. Incentives within a GPI approach compared to ODA and UN-type dues



In Table 2, GPI represents a potential fourth phase in the history of international public finance. In contrast to the three previous phases, which centre upon an underlying model of charity (and often tacit acceptance of structural inequality) combined with the self-interest of geopolitical influence, GPI presents a new narrative, in tune with present concerns for equality, social justice and decolonising agendas, where all countries have equal responsibility for raising and deciding on an international public policy outcome: in this case PPR. Self-interest here stems not from geopolitical gain but from socio-economic security. In contrast to the previous three phases, in a GPI approach, governance and funding are linked together and tied to outcomes. This leads to the realisation of the following range of incentives for participation, which can be classified into universal and income-level specific (see Table 3).

Incentive category	**Description**		
Universal Incentives	**Cost-sharing:** being able to share the overall burden of costs (something traditional recipient and donor countries alike would be able to claim. **Governance:** having a meaningful say in system design and the ultimate governance of such a system (something that seems to appeal to MICs) and transfer to the regional level of the most challenging decisions over outcomes, allowing for regional cooperation and leadership (something that opens up a feasible path to, for example, regional manufacturing hubs, the use of which could be more effectively overseen by virtue of the lower barrier to regional, as opposed to global, political agreement). **Security**: with a more robust funding scheme and geographically diverse membership group, a GPI approach to PPR would ensure a more robust PPR offering than an equivalent initiative led by just a few countries. In terms of contracts and step-in clauses it would give countries greater confidence than was the case with COVAX. It would provide all countries access to a fair portion of 'surge' funding, with pre-agreed criteria on how much was used, for what, and where, in the event of a pandemic. **Coordination.** A GPI approach, especially if based on a prior grouping of say WHO Member States, would combine an ability to act with a level of geographical coverage and coherence that was absent in the COVID-19 response.		
Income Level-specific Incentives	Low-income countries	Middle-income countries	High-income countries
Benefits	Benefits: • Pay something, but in return 'receive something', namely (a) share in governance, (b) guaranteed insurance coverage (firm access agreements), (c) guaranteed rights to receive fair share of technology/vaccines; (d) UHC elements re eventual delivery capacity issues (e) co-participation and building trust.	Benefits: • Pay more than LICS, less than HICs, and 'receive more' (all of a, b, c, d) **PLUS** (f) R&D investment and infrastructure as regional delivery hubs.	Benefits: • Pay most, but also benefit most from the economic costs avoided (a trillion dollar hit to global trade will cost the US more than Burkina Faso).

Costs of not participating	Costs of not participating: • No guaranteed access to vaccines (the COVAX problem) • No capacity to influence equal access agreements at point they are signed • You lose the predictability. **BUT:** • Costs (above) of not participating may be deemed more acceptable than risks of reliance on rich country partners. Core dynamic: • Trust	Costs of not participating: • No global subsidy for domestic R&D/ production capacity • Missed opportunity to assume co-design of, inter-alia, vaccine roll-out schedules (to whom first). **BUT:** • Costs (above) of not participating may be deemed insufficient to override incentives of 'going alone' (e.g. securing deals with China/Russia). Core dynamic: • Quid-pro-quo.	Costs of not participating: • No ability to ensure pandemics are addressed globally/risk of mutations etc. • No '100 day'-type global commitment/ guarantee • You lose the predictability. **BUT:** • Costs (above) of not participating may be deemed more acceptable than costs of not delivering fast to nationals. Core dynamic: • Value for money.

Table 3. Incentives for GPI participation by country income level

Participation and compliance

Alongside incentives, it is also necessary to consider sanctions and the matter of enforcement. The WTO is a more effective body than most UN agencies because it has a dispute settlement mechanism, including the threat of trade sanctions. GPI can use a similar mechanism in the case of non-contribution. Possible, non-trade/legal sanctions could include the loss of decision-making powers. Other alternatives include applying interest charges to late payments or on shortfalls relative to the pre-determined fair share allocation; paying contributions 'on account' (in two to four instalments per year, rather than once a year, to prevent countries holding on to dues until the final deadline); fractioning off different parts of the overall fair share and allocating these to different budgets within the country (e.g. defence ministries to cover the cost of distribution of medical technologies and border aspects of a global PPR commitment only). Some of these proposals align in part with those put forward for reform of UN contributions hosted by the Ford Foundation.[56] They are listed here to demonstrate that options exist. To enforce sanctions would require both a governing board, as outlined above, and potentially a dispute resolution settlement. The latter would need careful consideration: it is important the footprint of GPI governance arrangements remains as streamlined as possible. But this may provide countries with an incentive – knowing they had a process of raising disagreement.

5.4 Governance

Within any GPI arrangement there are various of ways to potentially allocate stakeholder powers and responsibilities within the governance structure. These include:

Representative decision-making. GPI awards all countries an equal voice. A representative mechanism is suggested as the most efficient way of meeting that requirement in a large chamber

56 See also the various debates within the UN 5th Committee on budgetary allocations, most recently: United Nations (2021) "While Agreeing on Capacity-to-Pay Principle, Speakers in Fifth Committee Differ over How Best to Re-adjust Scales of Assessment for 2022–2024 Budget Cycle" *Meeting Coverage and Press Releases* (October, 2021); see also Chapter 10 of House of Representatives Committees (2001) "Completed Inquiry: Australia's Role in United Nations Reform" *Joint Standing Committee on Foreign Affairs, Defence and Trade* (June, 2001)

arrangement (in the context of PPR it may be necessary to include all 192 WHO Member States). Here all contributors would obtain entry into a primary governance chamber nominally divided into different regions (as the WHO is divided) or income groups. Upon meeting their fair share allocation, those groups would then be eligible to stand as representatives on a smaller overarching GPI Board tasked with making decisions alongside representatives of civil society and public health experts. In this scenario individual countries are 'competing' for a seat on the board only with other countries of similar standing to themselves. Decisions as to the number of representative sub-groupings within the primary chamber, their thematic organisation, and the overall weighting of different seats would all be best decided in a period of 'co-creation' prior to the launch of the new funding regime, along similar lines to those used in the WHO Executive Board and in the Board of the Global Fund.

Public health-led decision-making. Combining political representation with public health-led decision-making is important in a global *public* investment approach to PPR. Successful examples can be found where country-level political representation is combined with country-level public health decision-making. They include existing models in the realm of science-led international policy ambitions (e.g. CERN, The European Organization for Nuclear Research, requires each country to nominate two representatives to its governance board: one governmental and one scientific). Such models represent a more democratic way of incorporating science-led decision-making than reference groups such as the Scientific Advisory Council used by CEP.

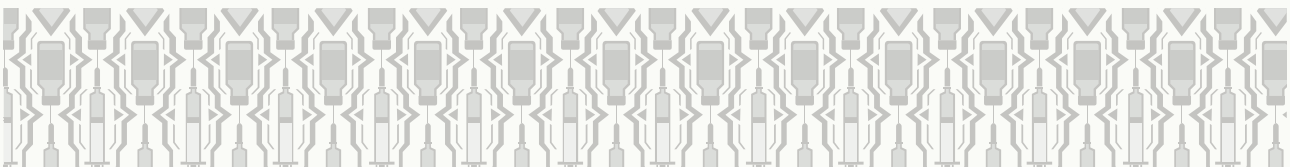
Principles-led decision-making. Global public investment would ideally rest upon three intersecting decision-making principles, which together would work to secure the public interest. They would also help resolve the collective action problem at the heart of COVID-19 international decision-making. These principles would apply throughout a GPI approach and are embedded in the commitment to co-creation. They would not shape decision-making per se but set the parameters for how that decision-making would take place. At heart, PPR is a collective action problem. Overcoming this means all parties to the scheme need to agree to certain ground rules by which their subsequent decision-making (and the way in which they will resolve any differences) will be settled. Agreement on a set of 'core' principles to which all adhere confers **legitimacy**. Along with a structure that is deemed to be both **inclusive** and **fair**, the basic 'facilitators' of what is termed 'conditional cooperation' can be put into place. These are not abstract ethical concepts, but concrete institutional guidelines that acknowledge self-interest and political reality alongside altruism. Approached in this way, such principles represent the key to unlocking a GPI approach and are at the heart of what recent research into large-scale collective action problems tells us is needed in order to secure international cooperation for a global PPR framework or commitment.[57]

Legitimacy. In the context of PPR, legitimacy demands that decision-making is informed by public health concerns, transparent, trustworthy and demonstrably in the public's interest. All these elements are critical to effective PPR. Recent research into the structural determinants of COVID responses to date concludes that "the way a country was led, and whether leadership sought evidence and shared the reasoning behind resultant policies, had notable effects."[58] Global Public Investment demonstrates legitimacy through securing a broad base of cooperating parties via co-creation in the design, through public interest clauses in the decisions-reached, and through independent monitoring of outcomes.[59]

57 Harring, Niklas, Jagers, Sveker C. and Logren, Asa. 2021. "COVID-19: Large-scale collective action, government intervention and the importance of trust." *World Development* Vol 138, DOI: 10.1016/j.worlddev.2020.105236

58 Rigby, Michael J, et al. 2021. "When Covid-19 first struck: Analysis of the influence of structural characteristics of countries – technocracy is strengthened by open democracy." *PHLOS ONE* Vol 16(10), (04 October 2021). DOI: https://doi.org/10.1371/journal.pone.0257757

59 See for example similar suggestions as outlined in WHO. 2021. Council on the Economics of Health for All issues brief on equitable health innovation" Council Brief No. 1 (09 June, 2021) (pp. 8–9 esp). https://www.who.int/news/item/09-06-2021-council-on-the-economics-of-health-for-all-issues-brief-on-equitable-health-innovation



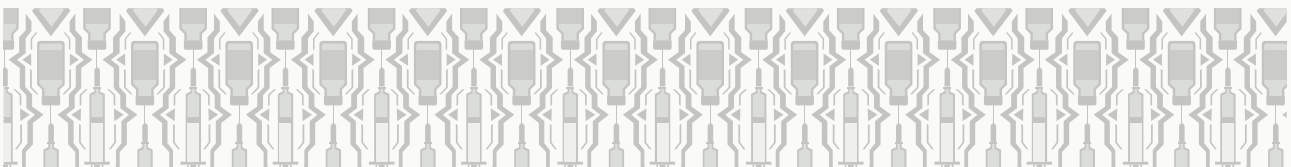
- **Fairness.** In the context of PPR, fairness demands that ability to pay and demonstrable need should determine how costs and benefits are allocated. Research on large-scale (international) delivery of GPG-type outcomes reveals that commitments to fairness need to be present "from the earliest phase when the agenda is set to the final stage of securing implementation and compliance."[60] There is, however, no one overarching standard of 'fairness', which is why fair outcomes need to be agreed upon in relation to fair processes also: meaning non-coercive, open, and equal negotiations. Simply presenting a pre-assigned 'fair share' calculation will not be sufficient. Global Public Investment demonstrates fairness through process as well: such as its commitment to co-creation and equal shares in the decision-making process, as well as by incorporating appropriate additional stakeholder voices beyond states and governments.
- **Inclusivity.** In the context of PPR, inclusivity demands that all affected parties are brought around the decision-making table. As discussed earlier in this report, this was demonstrably not the case with COVAX. Global Public Investment demonstrates inclusivity by including all countries and relevant stakeholders in ways that foreground the public interest. States are not taken as 'simple' proxies for global publics therefore: they must themselves demonstrate commitment to access and fairness in their PPR policies, as must private-sector actors also.

5.5 A modular approach: adapting to different levels of ambition

In the implementation scenario envisaged in this section, the first step is for the principles of a GPI approach to be incorporated (as the 'software') into existing processes and structures (the 'hardware'). This could include interfacing both with the ongoing global treaty (or compact or framework) process negotiated within the context of the UN system/WHO *and* with an appropriate and non-complicated funding mechanism (a FIF hosted at World Bank or equivalent). Depending on the level of country buy-in to those two processes, and the extent to which key actors – the US and China in particular – engage, it would then be necessary to adjust the overall 'scope' of a GPI approach to funding PPR. This would need detailing, but in principle it should be possible to envisage three 'modalities' of a GPI approach for PPR. The first and most basic option would focus primarily on core needs and with an in-country weighting. This would look similar to current ODA practices in terms of the underlying transfers, but would be governed by inclusive decision-making and coordination elements, along with oversight functions and monitoring of compliance provided with legitimacy via the Treaty (or other) process. A second option would raise a greater level of funding and would allow more focus on regional infrastructure (including, for example, manufacturing). A third option would allow for greater build-up of a surge component and has the most explicitly 'global' returns. These basic scenarios are outlined below:

- Option 1: Four pillars where focus is on bringing all countries up to minimum level of in-country capacity, community health support, and common understanding of coordination and response frameworks, to be binding if at all possible: likely involving a number of committed countries covering a limited set of prioritised pandemic risks and threats.
- Option 2: Four pillars with greater focus on regional and global build-out of systems and PPR infrastructure, including stockpiling and redundancies for response, and entailing up-front investments in R&D and regional manufacturing, with public interest clauses built in and enforceable coordination and response frameworks: likely involving a larger number of countries.

60 Albin, Cecilia. 2003. "Negotiating International Cooperation: Global Public Goods and Fairness." *Review of International Studies* Vol 29: 365-385, "When global problems are on the table … negotiations are mostly large-scale multilateral talks of great complexity. They determine to a large extent whether effective cooperative agreements are formulated, honoured by the parties, and implemented. How an agreement was negotiated and designed can go a long way to explain later setbacks regarding participation, implementation, and compliance." (p.366). DOI: 10.1017/S0260210503003656



- Option 3: Four pillars with wider country buy-in and scope, as in Option 2 above, but with an additional focus on surge financing capacity. Note that – given many of the costs of surge financing come from the cost of products – the public interest clauses in GPI contracts with producers would also, effectively, reduce the overall size of surge funding needed; as would the level of health systems resilience it would help to build up.

6. Conclusion, recommendations and next steps

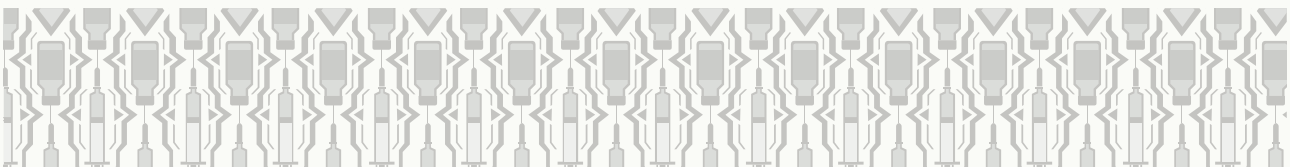
After years of insufficient and uneven allocation of funding for PPR there is now a growing recognition that a broad-based approach to health is needed to ensure we are better prepared for the next pandemic event. Investment in building resilient health systems, including community health care, developing R&D and manufacturing capacity, and securing rapid deployment of funds to finance PPR are being discussed in different fora. WHO has recently held a special session for the World Health Assembly that passed a resolution to start negotiating a binding legal instrument, treaty or convention on PPR as well as negotiating targeted amendments to the IHR.

Yet this emerging consensus is simultaneously being undermined by continued national protectionism in response, by a reluctance to engage in tech transfer by producers, by wealthy countries pushing others to the back of the vaccine queue, and by a continued reluctance to provide the necessary resources to make the system that we do have actually work. A more compelling framework and narrative is needed to capture this once-in-a-lifetime opportunity to reshape the way that we finance global common needs, and what is achieved today in the context of current acute PPR needs will be even more valuable tomorrow in the context of climate adaptation and mitigation.

GPI provides a way of encouraging countries to engage in the financing of these necessary common endeavours, and to provide them with the tools, and the means of compliance, needed to make that engagement worthwhile. A GPI approach to PPR *specifically* builds on much of the existing global health architecture and its instruments to provide a globally coordinated, but regionally, nationally and locally delivered means of ensuring that a theoretically-achievable level of PPR is actually achieved in practice. In order to realise this vision, we propose practical steps should be taken by key stakeholders, as follows:

Governments

1. Prioritise national spending on building resilient public health systems with an adequate % of total government expenditure as part of a larger GPI financing arrangement focused on PPR. Countries' economies depend on populations that have adequate health care.
2. Commit a complementary % of total government expenditure to GPG aspects of overall PPR needs.
3. Adhere to clear accountability mechanisms at the public, national, and global level to trace the fulfilment of funding commitments and spending objectives.
4. Engage in co-creation of a GPI arrangement. This is particularly critical in times of emergency to stop 'nationalism' that leads to hoarding of life-saving medical products and deprives other people from accessing these tools.



5. Agree to invest a specific common amount on scaling up biomedical R&D and diversified manufacturing capacity on an international basis. For example, while African countries must finance the implementation of the Africa CDC vaccine manufacturing plan, other countries must also contribute to the plan.

6. Agree to include GPI as a way of financing PPR in the forthcoming Pandemic Treaty negotiations, encompassing the above points with clear enforcement, transparency and accountability mechanisms, including independent review systems.

7. Agree specific actions that are essential to ensure that any financing scheme, GPI or otherwise, is positioned to ensure equity and to safeguard the public interest. These are:
    a. Agree an automatic IP waiver on products relevant to pandemics once WHO declares a disease as a PHEIC, and until the situation goes back to normal.
    b. Increase Member States Assessed Contribution to WHO and enable the organisation to fulfil its mandate, including by allowing it to access and verify data on diseases and pathogens.
    c. Conditional pre-purchasing agreements with pharmaceutical and other medical products companies on sharing knowledge and technology via a coordinated mechanism such as the WHO COVID-19 Technology Access Pool, which can sublicense production to capable companies in the South.
    d. Donors to favour funding for collaborative research between various centres, especially involving African and other southern institutions.

Multilateral organisations

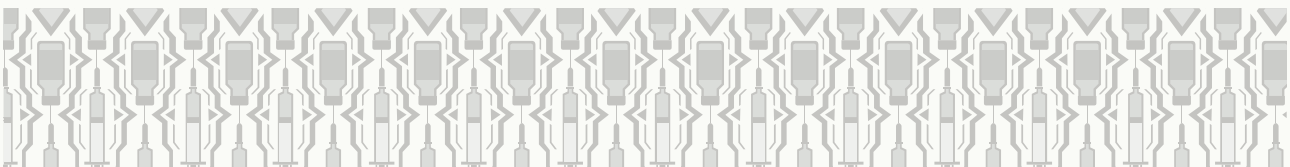
1. All agencies to undertake an audit of how GPI principles could be incorporated into the way their activities are financed to fulfil their mandate effectively, efficiently and collaboratively.

2. WHO to build on its regional support, for example the Pan American Health Organization and WHO/AFRO, by enhancing the capacity of the regions and to provide tailored technical support to countries in the service of GPI priority-setting and delivery.

3. WHO to support inclusion of GPI within PPR treaty or as an associated funding arrangement, potentially also linking to the ongoing G20 process, targeted amendments to the IHR, and to ensure the implementation of the Global Strategy and Plan of Action on IP and health.

4. Existing public private partnerships (such as CEPI, Gavi) to consider how GPI principles could expand their contributor pool and better include non-northern countries. Seeding GPI principles across institutions will facilitate the creation of the necessary policy space to develop a GPI arrangement internationally.

5. WTO to agree on the current proposal for a TRIPS waiver for COVID-19 relevant products and to adopt an automatic waiver for the future so that once WHO declares an infection as a PHEIC it remains for the duration of the pandemic. The waiver would open the road to local production by several capable companies in the South, where a GPI approach can support scaling-up of manufacturing capacity.



Research institutions and civil society

1. Embrace and advocate for GPI as a way of financing health care, biomedical research and PPR. Share GPI principles within communities and ensure wider country and public ownership of the idea, particularly in lower- and middle-income countries.
2. Adopt and promote collaborative research agendas that value intellectual capacity in southern institutions, such as universities in South Africa, Thailand, Brazil, Kenya, Uganda, Senegal, and many other countries, and enhance the scale-up of southern capacity in these and other lower- and middle-income countries.
3. Research institutions and civil society to establish a 'knowledge community' of GPI experts from the South and North to develop practical ways of implementing GPI in various aspects of health systems, medical research and other aspects of global health.

Foundations

1. Help promote GPI in PPR debates where they are involved and have sectoral expertise (including the new Global Alliance of Foundations).
2. Support independent civil society in the promotion, implementation and accountability of GPI through flexible agile funding for activities, including South-South collaborations, research, regional meetings and advocacy.
3. Promote GPI principles within Foundation practices with a focus on co-creation and public interest commitments.

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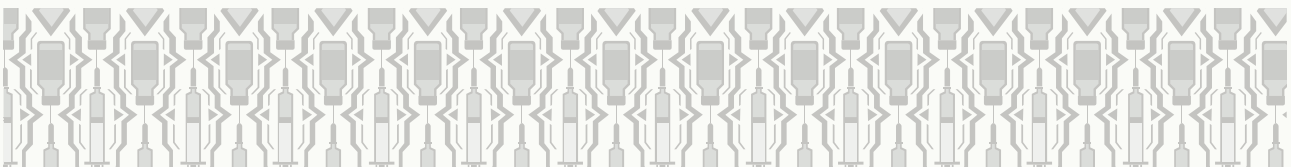
Appendices

Appendix I: Co-creation Panels

PANEL 1: Challenges of enabling effective and robust pandemic preparedness	
"With COVID-19 it is clear that public health evidence has been thrown out the window and some other considerations are driving responses. There is something about narratives and if we are able to crack that it is important, because narratives drive a lot of things. So, I like that it is not just about the financial aspects but it is about the rethinking of what global health is and who we are as global citizens, and not just based on the idea that there is one group of people who are recipients and one who are providers – many of the problems of global health stem from that, the lack of acknowledgment of voices of people from different parts of the world." (Catherine Kyobutungi) "We are frustrated and we can't continue doing things the way we have done things before. We have to start walking the talk of solidarity globally and get to a place where we apply a different level of consciousness to how we traditionally have thought of 'charity' or 'aid'. All of this should be shaped and driven by the work on decolonising our understanding of what 'aid' looks like, how it lands and how it is received, generated and conceptualised." (Tian Johnson) "In most instances, we saw with Ebola, the funds only start flowing when there is a crisis – but that is already too late. We should have come up with preventative measures, we should have been prepared to respond." (Precious Matsoso) "So, the question is – what is it that we need to do to make sure that there is funding for global public goods?" (Precious Matsoso)	**Lack of community participation** • Pandemic preparedness needs to put communities at its heart. "(…) outbreaks start in communities, and they end in communities". Different cultures need to be taken into consideration in planning community actions". • Civil society tends to be closer to communities – it could act as the bridge between the service users as well as being the eyes and ears. (Precious) • Governments and scientific institutions need to further link science (be it surveillance, or technical infrastructure) to communities, rather than seeing them as opposing poles. • The concept of co-creation is interesting and has been lacking in global health initiatives. **Lack of trust** • Building trust between different actors (especially between governments and communities, but also with civil society, scientists, industry). Trust is key to enabling community co-creation in pandemic preparedness. • The importance of national trust and national ownership combined with effective accountability mechanisms will further be important to ensuring effective international coordination of pandemic preparedness. One option here may be to build and maintain (acute: e.g. COVID) pandemic preparedness capacity by linking it with expertise and resourcing for chronic infectious disease work (e.g. HIV/AIDS). **Lack of clarity about how to define pandemic preparedness** • Defining the 'what' of pandemic preparedness needs to be done carefully in order to establish the right 'limits' of what a GPI-style approach to funding pandemic preparedness may be able to do. This may entail addressing cognate challenges, such as whether or not to define pandemic preparedness as a GPG. It also involves establishing what elements require collective funding and coordination, and what elements are best planned and implemented at regional, national or local levels. • "Civil society across the global South has been advocating for vaccines to be declared a public good but there has been consistent push back – how would this dynamic differ in the context of pandemic preparedness?". (Tian) **Complexity of preparedness** • Preparedness has many aspects – it is important to define what areas to prioritise. • There is a need to develop a coherent but ultimately modular approach. For example, some elements of pandemic preparedness require national buy-in (such as delivering resources, or maintaining a sufficient quality of surveillance capacity, which in turn will require the support of communities). Others require international cooperation (such as sharing of information and technologies). Yet others require regional management and delivery. For example, the question was raised as to whether Africa needs GAVI to procure vaccines? Why can't the CDC be used to procure vaccines regionally? **Harmful norms and lack of accountability** • Civil servants can be gagged by pharma through non-disclosure agreements – what does that mean for this potential structure and approach. • Addressing harmful norms e.g. looting and corruption – for us to effectively mobilise national support for this global structure there needs to be a considerable amount of time and effort into raising national trust. **Lack of funding** • Pandemic preparedness is grossly under-funded – in country and globally.



PANEL 2: GPI as financial arrangement for pandemic preparedness	
"Communities should be meaningfully spotlighted across the Pillars. In COVID-19, they have been the first to be side-lined. We hear about the billions of dollars going into R&D, and cold chain, and vaccines shipping. But then we have to deliver these vaccines from ports to arms. And here communities are absolutely key." (Tian) "We think of preparation as a system whereby people ARE called to tests. But people have to then get to tests. They need to learn their results. The response needs to be accessible for communities." (Precious) "If all receive according to need, global surveillance model is clearly part of that. But if we talk about a big pot of money all pay into, and governance, UNAIDS and ILO are among the few examples of how money can actually get to communities. Even if it's regional, how does the money get to those communities?" (Katherine) "We want to see communities empowered to do things that they need to do at the local level." (Padmashree) "Rural communities have less voice because the administrative infrastructure is often less formalised." (Padmashree) "Almost anything could be funded but we should strike a balance between what is large and tangible and what is small and important." (Katherine)	**Definition** • Use economic terminology v. financial framing • Importance to frame GPI as a multi-sectoral initiative/framework • Important to emphasise both policy and legal frameworks – as it takes time to get legislation passed • Need to be careful about using technical terminology. **Surveillance** • Surveillance v. resilience – importance of laboratory services • What happens before detection is key • Surveillance all happens at local level – advanced purchases happen at global level. **Communities** • Need to consider the issue of 'trust' of communities – it is an area that needs attention and resources • Communities must be at the core – all communities. • Introduce a level of autonomy and ownership that is linked to trust-building and community action, across all Pillars **Who should be the money recipients?** • Need a structured approach: local/global? urban/rural? • How do we build on existing mechanisms?

PANEL 3: Options and approaches to implementing GPI pandemic preparedness	
"Community engagement in a structure like this – means mandated civil society representatives are part of all decision-making components, and civil society members represent the diversity of communities." (Tian) "Industry should be consulted. But we do not want them in governance." (Tian) "We [civil society] are not industry, or other profit-making groups, so meaningful participation must be budgeted and paid for." (Tian) "The money comes from people, the tax payers (…) We are all contributing. It doesn't matter your income level, or where you live, it matters whether or not you actually feel listened to and whether you feel part of the conversation." (Katherine) "On community language we know that community involvement is put in soft language. Unless communities had a board seat on Global Fund it wouldn't have worked as well. So we need to write about community as a hard part of the model, not a nice thing." (Anton) "Communities should have a strong voice in the governance." (Tian) "GPI can become a 'software' that informs other people's hardware." (Anton)	**Inclusivity and role of communities and civil society** • Communities and civil society must be integral to all components of GPI • Role of civil society is a 'non-negotiable' – with civil society comes funding • Communities need to speak with communities to get buy-in • Money comes from tax payers, and they need to feel involved – that is what will lead to long-term sustainable investment • Civil society is under-funded – GPI must lead to greater funding for the work of civil society. **Geographical scope** • Regional is preferable as it prevents North dominating, but it is important to ensure there is cross-fertilisations across borders. So it should have regional decision-making but a global scope. **Key opportunities to pitch 'GPI'** • G20 • Climate discussions • Pandemic Treaty – but no real opportunities until May 2022 • African Union **Importance of narrative** • Narrative is key to secure political buy-in • Difficult to get traction for challenging/innovative ideas – it is important to be strategic about how we generate support for our ideas • Once we have identified 'champions' it is important to identify where to 'launch' them. We need to have the right advocates in the right place. • Importance of messaging • Shall we present principles people sign on to as opposed to a full structure.

Appendix II: Co-creation Panel Members

Tian Johnson	Researcher; Head, African Alliance
Precious Matsoso	Former Director General, South African Ministry of Health
Katherine DeLand	Chief of Staff, Ebola Response, WHO
Catherine Kyobutungi	Executive Director, African Population and Health Research Centre
Tido Von Schoen-Angerer	Paediatrician, University of Fribourg; former Executive Director, Médecins Sans Frontières Access Campaign
Padmashree Gehl Sampath	Senior Advisor, Global Access in Action, Beirman Klein Centre, Harvard

Appendix III: Interviewees – high-level interviews

Name	Role	Area of Expertise
Prashant Yadav	Senior Fellow, Centre for Global Development; Affiliate Professor, INSEAD (Institut Européen d'Administration des Affaires); lecturer, Harvard Medical School	Health care supply chain
Homi Kharas	Senior Fellow, Centre for Sustainable Development, Brookings Institute	Economics, global cconomy
Luc Debryune	Former Head of Vaccines, GlaxoSmithKline	Vaccines
Fatima Hassan	Director, Health Justice Initiative	Access to medicines, advocacy law
Achal Prabala	Coordinator, AccessIBSA project for India, Brazil and South Africa; Shuttleworth Fellow	Access to medicines
Dr Nicaise Ndembi	Co-Chair, African CDC Vaccine Delivery Alliance	Vaccines
Alain Alsahani	Vaccines and Special Projects Pharmacist, Médecins Sans Frontières Access Campaign	Vaccines, access to medicines
Ellen 't Hoen	International Medical Activist	Medical policy, law, IP
Felix Stein	Post-doctoral Fellow, Centre for Development and Environment, University of Oslo	Vaccine financing
Patrick Silborn	Senior Director, Research Mobilisation and Financing, Asia Pacific Leaders Malaria Alliance	Global Health and Development
Martin Friede	Scientific Officer, WHO for Vaccine Research Switzerland	Vaccine delivery
Paul Felhner	Chief Legal Officer and Corporate Secretary, Axcella Health	IP, pharmaceuticals
Harald Nusser	Lead, Global Patient Solutions, Gilead Sciences	Global health, access to medicines
Douglas Webb	Manager, Health and Innovative Financing, HIV Health and Development Group, United Nations Development Programme	Global health financing