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Sustainability as Conceptualized in the Field of Global Health

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Abstract

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Programs in global health often strive to be “sustainable.” However, there is little agreement in the field about how sustainability should be understood and applied in different contexts. As a result of this uncertainty, funders and implementers of global health projects often rely on definitions of sustainability that do not account for all its dimensions or that have priorities that are misaligned with the intended recipients of the intervention. The result is programs that are unable to providing long-lasting benefits for the stakeholders involved, including donors, practitioners, and the communities in which they work. To prevent these problems, I conducted a study of 4 key actors in global health – the Sustainability Development Goals, the Bill and Melinda Gates Foundation, PEPFAR, and the Global Fund to Fight AIDS, Tuberculosis, and Malaria. This thesis describes and critically analyzes how these organizations in global health define and apply the concept of “sustainability” in intervention implementation and research. It also serves to determine whether and how this conceptualization of sustainability differs between global health actors and global health literature.

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List of Acronyms

TERM	DEFINITION
ABC/M	Activity-based cost management
AIDS	Acquired immunodeficiency syndrome
BMGF	Bill and Melinda Gates Foundation
CHW	Community health workers
FAQs	Frequently asked questions
FY	Fiscal year
G8	Group of 8
HIV	Human immunodeficiency virus
MDGs	Millennium Development Goals
NGOs	Non-governmental organizations
NSPs	National strategic plans
OPV	Oral poliomyelitis vaccine
OVC	Orphans and vulnerable children
PEPFAR	President's Emergency Plan for AIDS Relief
RFPs	Request for Proposals
RSSH	Resilient and sustainable systems for health
SDGs	Sustainable Development Goals
TB	Tuberculosis
UN	United Nations
USD	United States Dollar
WHO	World Health Organization

Purpose

The concept of sustainability has pervaded the field of global health. With the introduction of the United Nations' Sustainable Development Goals in 2015, actors (funders and implementers) and stakeholders (all other related entities) alike have turned their attention to “sustainability” as a crucial aspect of their work. The National Academy of Sciences has called sustainability science an “emerging field”, and academic literature published about the topic has increased dramatically (Sustainability Science). Research about sustainability and global health as a subtopic of sustainability has attracted increasing attention, leading to thousands of papers centered on or mentioning the subject (Asatani et al., 2020).

This relatively new incorporation of sustainability in the field of global health – both research and implementation – stems partly from decolonization movements. Various actors and stakeholders desire to move from the historical view of colonial medicine and international aid – colonial, with a short-term focus, and emergency relief-oriented – to a more modern global health model. This entails a move away from interventions designed solely based on external and funder interests, with paternalistic enforcement that reinforces notions such as social and power hierarchies and racism (Packard, 2016). Rather than relying on a one-way humanitarian aid model, a more sustainability-oriented approach places control of interventions and health programs in the hands of national governments, as well as other local stakeholders with direct ties to communities receiving interventions (Espinal et al., 2021). Sustainable development, therefore, is an attempt to reconcile tensions between different facets of global health like economy and development, using the environment, equity, and education of people to understand the interrelationships of these considerations (Van Niekerk, 2020). This is particularly important in the field of global health and global development. This is because factors such as economic

development and population health may be opposing interests, as we have seen with debates surrounding Covid-19 quarantine restrictions, and these tensions must be addressed for both short- and long-term betterment.

This thesis serves to describe and critically analyze how key organizations in global health define and apply the concept of “sustainability” in global health implementation and research. It also serves to determine whether and how this conceptualization of sustainability differs between global health actors and global health literature.

Background and Significance

Despite the popularity of the concept of sustainability in global health implementation and literature, there is still considerable uncertainty and variability in its definition. It is unclear what “sustainability” refers to in the context of the global health field, or what is being sustained. As a result, there is ambiguity in how sustainability is currently being applied in global health implementation, and even less agreement on how sustainability should be measured and evaluated in global programs. This is in spite of the huge budgets of global health actors; just the U.S. government and the Bill and Melinda Gates Foundation allocated \$40 billion and \$5.1 billion USD for global health and development in 2019 (Ingram, 2020, About: Bill & Melinda Gates Foundation). Such large sums of money often fund programs that require recurring investments and may not provide long-term benefits to donors, community members, or other stakeholders. If programs and interventions including adequate and appropriate sustainability dimensions, they would be able to maximize their benefits and allow recipients to benefit from them over the long term in a way that best meets their needs.

Filling this gap in knowledge is crucial for determining priorities of global health interventions, as well as for upholding accountability to the many stakeholders involved in global health. A clear understanding of sustainability is needed to ensure that interventions can have long-lasting benefits for the intended beneficiaries. If there is little agreement about the definition of sustainability, programs may perpetuate unintended effects such as colonial ideas and paternalistic attitudes. The Rockefeller Foundation in the international aid era, for example, emphasized public health models and disease control with messages that relied heavily on condescension. These ideas were passed on to early schools of public health that were founded under this logic, representing a sustained attitude of rejecting expertise of local populations. This, in turn, led to a continuation of a colonial approach in international aid and represents one model of sustainability, despite its resulting lack of effective and lasting health improvements (Packard, 2016).

It is also possible for organizations that implement programs to value their legacy or continued presence over their effectiveness. A danger of an outsized focus on the sustainability of programs themselves that are intended to last is that NGOs that are “long-lived rather than effective in the field” are given priority over those that produce results and are subsequently no longer needed. Contrarily, it can also lead to organizations that attempt to overstay their welcome, such as those responding to a humanitarian emergency (Yang et al., 2010). Continuing to try to “help” when aid is unwanted often happens when programs mistakenly define sustainability as long-lasting programs, rather than focusing on long-lasting outcomes.

Rather, there can be a likely more beneficial view of sustainability which values health restoration and a commitment from donors and implementers to long-term plans to address specific diseases (Yang et al., 2010). Without clarification on what is being sustained, however,

program implementation may have faulty priorities, leading to waste of time, energy, and resources, which can also leave communities worse off than before they received aid.

Yang et al. (2010) has examined some of the key consequences of uncertainty in the definition and application of sustainability, including long-term commitments of funding projects that are not needed; lack of long-term commitments when they are needed; misunderstandings between funders, implementers, and other stakeholders about what should be required in programming; difficulty for implementers to know how to design for and evaluate sustainability; inconsistency of sustainability between implementers such as academic institutions, NGOs, and government agencies; inconsistency of sustainability across funders, sectors, and geographies; lack of accountability of implementers to donors; and a difficulty in evaluating impact of global health investments. These can create “undue administrative burdens” for implementation organizations that must justify each action they propose to be sustainable, even when a sustainability should not be applied.

There is also an issue of accountability. When not all stakeholders are considered in the design of a global health program, the long-term goals of programs are typically dictated by donors and, to a lesser extent, implementers. However, these goals may be inappropriate because they often generate little accountability to communities that receive programs and do not consider or strengthen existing health infrastructure. The result may be parallel health systems that are intended to serve the same purpose, but one is temporarily funded with large amounts of foreign funds and the other struggles to afford adequate supplies and fall into disrepair. In fact, while not all global health programs operate top-down, there is often no accountability to people who will be most affected by changes, creating a perverse accountability system (Randall Packard, 2019). The Sustainable Development Goals, for example, do not consider indigenous views of

sustainability, which emphasize, in part, the “interconnectedness of the members of both the community and the environment” (Virtanen et al., 2020). Cases like these can further inequities and prevent progress. Furthermore, lack of clarity around sustainability often puts undue focus on vertical interventions rather than health systems improvements. This is because it is easier to see short-term progress in specific disease areas, but also because evaluating the “sustainability” of crucial services such as primary care or investments such as infrastructure improvements is challenging (Yang et al., 2010).

Part of the challenge of addressing this issue is the fact that appropriate interventions change with the overall development of a community as well as specific progress on a goal. This adds complexity to the conceptualization of sustainability and necessitates flexibility in its application (Yang et al., 2010). A need for flexibility in sustainability may make it even more difficult to apply a long-term view to global health. However, without a working definition of sustainability, it will be almost impossible to accommodate this need for versatility. Consequently, if global health is to produce meaningful, lasting results, we must conceptualize sustainability effectively and to a sufficient degree to understand how to effectively apply it.

Methods

The purpose of this analysis was to obtain an overview of how global health organizations, and individual authors, conceptualize sustainability in their global health programs and in the literature. Because of the immense scale of the task, obtaining a comprehensive view of how sustainability is conceptualized in the field of global health is unlikely. Instead, the purpose of the selection process and sampling rationale was to gain a view of sustainability from specific actors and literature.

Four key global health actors were selected and studied for their conceptualization and/or application of sustainability. This included the Sustainable Development Goals (SDGs); I examined the differences between them and their predecessor Millennium Development Goals, and focused on how sustainability was incorporated into the SDGs. The SDGs served as the UN's conceptualization of sustainability and are the international framework that is followed in global health. For the other organizations, my sources were the Bill and Melinda Gates Foundation, PEPFAR, and the Global Fund to Fight AIDS, Tuberculosis and Malaria.

The organizations that I chose were diverse, to get the best exposure to different perspectives of global health through studying organizations and literature that have substantial impact on the global health field. This is why I have one international framework, one bilateral/foreign aid initiative, one multilateral aid program, and a large institutional donor. Two of the global health actors I chose have a narrow, defined focus, while the other two have broad focuses; there is also a mix of integrated/horizontal and vertical implementation structures. The organizations that I chose make up a significant source of the power, leadership, and implementation in global health, driving the goals, trends, and practices of the field. Their work is often modeled in theory and application throughout global health, whether from a financial, political/influential, innovational, reputational point of view, or a combination. Lastly, each actor had a large source of publicly-available materials for review.

For each global health actor, data were gathered from their websites. This consisted of browsing their main websites, with a specific focus on any sections of the websites that could contain information about theory and guidelines that they follow for their work, their procedures, their application processes, their monitoring and evaluation processes, their research, their reports, and their communications to stakeholders and the public. These were often found in About sections,

grant process and application sections, and reports sections. I searched for mentions of sustainability on each page and through website search bars when available. I included concept pieces, brochures, explainers, briefs, program handbooks, guidelines, evaluations, reports, and publications when they were available. I also reviewed grant applications directly when they were accessible. The data I gathered consisted mostly of written material, but also videos and images produced by each actor for explaining complex ideas. From these, I gathered concepts and definitions of sustainability, including categorization of sustainability types (what is sustained and what needs to be sustained) and aspects of sustainability (what is needed for sustainability to be possible – such as resources, practices, etc.), and picked out common themes. The findings from each of these sources were then compared to findings from a literature review I conducted.

For the literature review, I searched Google Scholar for "global health sustainability", limited to recent years, primarily 2019- 2021. I limited papers to these publication years to keep results manageable given this criterion turned up approximately 108,000 results. The purpose of the review was to gain a different perspective on the conceptualization and application of sustainability in the global health field. As such, I prioritized conceptual pieces, but many specific studies of sustainability in context were also included when they revealed useful information about the intended meaning of sustainability. I paid particular attention to definitions, conceptualizations, and explanations of sustainability. I also analyzed the concepts and definitions of sustainability in these research papers for common themes. The findings from global health actors and from the literature review were then compared, and I attempted to account the differences I found.

Findings

Sustainable Development Goals (United Nations)

Context of the Sustainability Development Goals

The Sustainable Development Goals from the United Nations are a “common benchmark against which the course of the human enterprise can be assessed”. They also provide a framework for both cooperation and accountability on the global scale to achieve a common vision between 2015 and 2030. They arose from the Millennium Development Goals (MDGs), a set of 8 goals that formed a “blueprint” for global development with approval from countries around the world and leading development institutions (Le Blanc, 2015). These included objectives such as reducing poverty, hunger, disease, lack of adequate shelter and exclusion, and promoting human rights. However, these goals did little to address long-term development and progress; this is exemplified by only one mention of “sustainability” on the About webpage of the MDGs, where then-United Nations Secretary-General Ban Ki-Moon touched upon “environmental sustainability” while also promoting goals and rights such as gender equality, health, and education around the world (United Nations Millennium Development Goals, n.d.). Even for facts sheets for each goal, there are simply cursory mentions of sustainability with no attempt at definitions, such as saying that “all food systems are sustainable” (Fact Sheet: Goal 1-8). As a result, the MDGs lacked integration across sectors on several accounts, including for strategies, policies, and implementation. Incoherent policies were advocated, specific sectors took precedence over others, and outcomes and trends diverged significantly across the broad spectrum of objectives that the MDGs tried to cover. This left room for significant improvement after the expiration of the goals in 2015 (Le Blanc, 2015).

From the shortcomings of the MDGs and out of a desire to incorporate long-term goals into the global development framework came several conferences, assemblies, and forums leading to the creation of the SDGs. This started with the Johannesburg Declaration on Sustainable Development and the Plan of Implementation, adopted at the World Summit on Sustainable Development in South Africa in 2002. This paved the way for the 2012 UN Conference on Sustainable Development, Rio +20, held in Rio de Janeiro, Brazil. The conference produced the outcome document, “The Future We Want”, which launched the process of developing the SDGs out of lessons from the MDGs. In 2013, the UN General Assembly set up an Open Working Group to develop a proposal for the SDGs; these were debated at the 2014 High-level Political Forum. In 2015, the General Assembly began negotiations on the post-2015 development agenda, and the 2030 Agenda for Sustainable Development was adopted in September at the UN Sustainable Development Summit, including 17 goals in a comprehensive framework of Sustainable Development Goals (The 17 Goals, n.d.).

These goals covered several of the shortcomings that were identified with the MDGs, including integration of sectors. The SDGs are much more of a comprehensive network of goals and targets, where targets rely on and refer to several other goals, than the MDGs. This integration and inter-reliance amongst goals is designed to facilitate policy and development across sectors. While the SDGs are much more integrated than the MDGs were, not all goals are made equal. For example, goal 12 for “responsible consumption and production” is connected with 14 of the 16 other goals, and goal 10 for “reduced inequalities” is connected with 10 other goals. These provide critical connections between targets and form a network whereby global health actors can produce holistic change. However, these goals and targets do not account for all known biophysical, economic, and social links that have been documented. An example is the least

connected SDG, goal 14 for “life below water” calling to “conserve and sustainably use the oceans, seas and marine resources for sustainable development”, which is only connected to 2 other goals (Le Blanc, 2015).

Sustainability in the SDGs

From the name given to the set of goals, sustainability is a pervasive theme of all documents and guidelines. However, this also presented challenges in examining definitions of the term because of how casually it seemed to be used. For example, on any given page were dozens of mentions of “sustainable economic development” or “sustainable use of natural resources” without much elaboration (The Future We Want, 2012). Because of the ubiquitous use of the word, it was difficult to find specific documents relating to the conceptualization and application of sustainability in reaching the SDGs. Even the pages outlining each goal and its associated targets and indicators, for example, did not include mentions of sustainability. Instead, sustainability in the SDG context referred mainly to what needs to be sustainable (practices and activities that should be sustained) as well as what is needed for sustainability (characteristics of programs and interventions, and approaches for sustainability). Even so, it was difficult to use a key technique of my methods for the SDGs; trying to search on the website for “sustainability” would have turned up nearly every page.

In *The Future We Want*, the UN proposes three pillars of sustainability: economic, social, and environmental. These three facets of sustainability are interlinked, as the SDGs call for achievement of sustainable development “in all its dimensions”. Rather than explaining more about what these dimensions entail and how they correspond with each other, the SDG materials focus primarily on different factors that are needed to achieve sustainability. For example, these include a focus on people (participants) at the center of sustainable development through

incorporating their participation in decision-making and providing them with a route to express their concerns. In addition, there must be commitment to strengthen international cooperation, though a more specific definition of how countries are to work together was not outlined.

Engagement of different stakeholders is also a need for sustainable development, encompassing government agencies, civil society, the public, public and private sector companies, and NGOs, with a specific focus on indigenous communities, women, and young people. Furthermore, there is a need to bridge the “science-policy interface”, the pipeline of new information and findings from research that can be implemented in effective ways. However, I was unable to find case studies, specific definitions, or information about application of these ideas (The Future We Want, 2012).

This was later elaborated upon in the 2014 High-level Political Forum, where the SDGs were conceptualized as a “revitalized global partnership for sustainable development [to] enable all nations to develop sustainably.” They also made the case that poverty eradication is a precondition for sustainable development, and sustainable consumption and production is an essential requirement. Economic growth should also be inclusive, sustainable, and create decent employment and should be flexible enough to tailor to national and regional contexts. It also called for the SDGs to be universal, holding high-income countries accountable as much as others (High-level Political Forum, n.d.).

Bill and Melinda Gates Foundation

Context of the Bill and Melinda Gates Foundation

The Bill and Melinda Gates Foundation, also known as the Gates Foundation or BMGF, launched in the year 2000 with the merger of the William H. Gates Foundation and the Gates

Learning Foundation. On their website, they describe themselves as a “nonprofit organization fighting poverty, disease, and inequity around the world” (Foundation Fact Sheet, n.d.). Their core belief is, “All lives have equal value” (Our Story, n.d.). Their mission is to “create a world where every person has the opportunity to live a healthy, productive life”, which is primarily achieved through grantmaking and technical assistance to global health and development partners that work in communities worldwide. Grantmaking areas are varied: Gender Equality, Global Development Program, Global Growth & Opportunity Program, Global Health Program, Global Policy & Advocacy, United States Program, and Charitable Sector Support (About: Bill & Melinda Gates Foundation, n.d.).

In addition to their broad scope of work, they were selected because of the scale of their grantmaking; between the BMGF inception in 2000 and Q4 of 2019, the organization granted a total of \$54.8 billion to their various objectives. This included \$5.1 billion in total direct grantee support in 2019, a slight increase from \$5.0 billion granted in 2018. They also have a foundation trust endowment of \$49.8 billion. In 2019, these grants were awarded to organizations in 48 states and Washington, D. C. in the United States, as well as 135 countries around the world (Foundation Fact Sheet, n.d.).

Sustainability in the Bill and Melinda Gates Foundation

As with the UN’s SDGs, the Gates Foundation made mention of sustainability in several different areas and pages of their website, though these are brief. For example, their “How We Work” page brings up the development of “sustainable research capacity” through “periodic reviews [of] its funding model to universities and other research partners” as its only direct mention of sustainability. It does allude to a desire to integrate what might be sustainability and improvement to their program design and implementation process; they say they “continually

collect and share data on our progress, reflect on lessons learned, and make course corrections as needed. Essential to this process is ongoing dialogue with our grantees and partners—which is embedded throughout our strategy lifecycle” (How We Work, n.d.). However, this is not specific and likely contains more focus on immediate improvement of any intervention. Furthermore, the entire How We Work section has no other mention of sustainability, including pages on how grants are made, grant seeking resources, glossary of terms, evaluation policy, and grantseeker FAQs.

Specific requests for proposal (RFPs) do not have much elaboration on sustainability either. For one RFP on polio immunizations in the Helmand Province of Afghanistan (“Building Polio Immunity in Helmand”), the Gates Foundation called for oral polio vaccine (OPV) to be delivered as an integrated service through a community-based approach. One of the four basic principles for the approach was that it should be “sustainable (to the extent possible)”. Other principles were feasible and responsive, community driven, and transparent. This grant description did not include any more information about sustainability, despite the fact that there could be considerable confusion about sustainability in this context (Building Polio Immunity in Helmand, n.d.).

For the Our Work page outlining specific high-level goals of the Foundation, there were also several mentions of sustainability or sustainable practices, but very little information or further explanation of what those entailed. On the main page, the only references to sustainability were “stimulate inclusive and sustainable economic growth” and “deliver sustainable and inclusive growth that benefits everyone” (Our Work, n.d.). For each of the program strategies that are listed under this page, there is also sparse information about sustainability, even in specific programmatic contexts. For example, under agricultural development, the only allusion to

sustainability is in the phrase “increasing agricultural productivity in a sustainable way” which is vague (Agricultural Development, n.d.). It is also mentioned in financial services for the poor in “[building] sustainable futures” (Our Work., n.d.). The page for financial services advocates for the development of payment models that are profitable and “sustainable business models [that] support their service offerings” as well though what these models look like is not defined (Financial Services for the Poor, n.d.). Under Water, Sanitation & Hygiene, the Foundation calls for “[enabling] universal access to sustainable sanitation services (Our Work, n.d.). The page for Water, Sanitation & Hygiene calls for “sustainable sanitation services”, and a “sustainable partnership model” with local governments, service providers, and community-based organizations, SDGs (Water, Sanitation & Hygiene, n.d.). However, these are not elaborated on; nor are there mentions of sustainability in other sections of the BMGF program strategies of gender equality, global health, global development, US program, global policy and advocacy (Our Work, n.d.).

United States President’s Emergency Plan for AIDS Relief

(PEPFAR)

Context of PEPFAR

PEPFAR is the President’s Emergency Plan for AIDS Relief, first authorized in 2003 when then-American president George W. Bush asked for \$15 billion over 5 years from Congress to “turn the tide against AIDS in the most afflicted nations of Africa and the Caribbean.” Since then, the government initiative has been overseen through the Office of the U.S. Global AIDS Coordinator and Global Health Diplomacy under the U.S. Department of State. Its budget is subject to

Congressional renewal every 5 years, and has been renewed in 2008, 2013, and, most recently, in 2018 (The U.S. President's Emergency Plan for AIDS Relief, 2020).

PEPFAR takes up about 62% of the United States' global health funding, which amounted to about \$6.9 billion in FY 2020. This was divided into \$5.25 billion for bilateral HIV aid, or 77% of the funding, and \$1.56 billion for multilateral aid through the Global Fund to fight AIDS, Tuberculosis, and Malaria (23% of funding). This, however, was significantly cut for 2021; only \$4.42 billion was requested by the Trump administration for PEPFAR (The U.S. President's Emergency Plan for AIDS Relief, 2020). In total, PEPFAR has invested over \$85 billion bilaterally in the global HIV/AIDS response, making up the “largest commitment by any nation to address a single disease in history” (PEPFAR - United States Department of State, n.d.).

The organization has substantial global reach. It works in 54 countries and has saved 20 million lives, prevented millions of HIV infections, and strengthened pandemic preparedness around the world. In FY 2020, it reported 17.2 million people received antiretroviral therapy, the treatment for HIV/AIDS. In addition, 6.7 million children were supported through Orphans and Vulnerable Children programs (PEPFAR Panorama Spotlight, n.d.). It has also committed around \$1 billion in annual direct health systems investments for global health security, pandemic response and resilience, and building enduring health care infrastructure and capacity (The U.S. President's Emergency Plan for AIDS Relief Fact Sheet, 2021).

PEPFAR was established as a response to an “emergency” situation but the long-term plan for the program has never been defined (The U.S. President's Emergency Plan for AIDS Relief, 2020). As such, it has, since its inception, been subject to many criticisms, some related to sustainability, including the outsized budget, narrow focus, and problem of entitlement (Bendavid, 2016).

Sustainability in PEPFAR

In contrast to the SDGs and the Gates Foundation, PEPFAR does have a definition of sustainability. Buried in the 2021 Annual Report to Congress, page 75 says, “For PEPFAR, sustainability of the HIV response means that a country has the enabling environment, services, systems, and resources required to effectively and efficiently control the HIV epidemic.” In other words, sustainability is “to what extent partner countries mobilize domestic financial resources for their HIV response and allocate those resources strategically and efficiently, whether they have an adequate laboratory system that provides accurate and timely results to patients” (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

Progress towards sustainability is measured by the Sustainability Index and Dashboard, which is an evaluation that takes place every 2 years; four domains of 1) governance, leadership, and accountability, 2) national health system and service delivery, 3) strategic investments, efficiency, and sustainable financing, and 4) strategic information broken into 17 elements, are examined. The tool is made of 110 questions and is designed to specifically assess key barriers to enhancing overall effectiveness and long-term sustainability of the interventions conducted via PEPFAR (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021). A report is written for each evaluation done for each country and includes a summary of strengths and vulnerabilities of activities in that country, as well as a full listing of each question with the data source and comments for each answer. Each evaluation is also carried out in collaboration with many governmental and civil society partners who play a major role in PEPFAR interventions, such as the Ministry of Health and Child Care, UN Joint Team, faith-based and non-governmental organizations in Zimbabwe, as well as national and regional

civil society organizations and the WHO in Ukraine (The HIV/AIDS Sustainability Index and Dashboard 2019 for Zimbabwe, 2019, The HIV/AIDS Sustainability Index and Dashboard 2019 for Ukraine, 2019).

Overall, sustainability is evaluated both through impact of interventions and political interests. For example, one of the goals of PEPFAR is to “reduce the future costs required to sustain the response, and leave a legacy of American compassion and commitment that will ripple across generations to come.” This goal is listed among other goals focused on impact, such as “sustainable interventions” and “sustain[ed] epidemic control” (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

Sustainability, according to PEPFAR, can only be achieved when certain criteria are met. This includes strengthening of health care delivery systems at the national and community levels. To achieve stronger health systems, PEPFAR contributes to lab construction and training lab specialists, whose expertise can be used for years to come, representing an aspect of sustainability. They boast a total of 290,000 health care workers trained in all intervention countries to date (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

There is also substantial focus on the need for stakeholder engagement and working through indigenous partners, particularly to account for financial sustainability of their operations. PEPFAR establishes partnerships with “partner governments, multilateral institutions, the private sector, civil society organizations, and communities to ensure that all populations, including vulnerable and marginalized populations, can access high-quality, non-discriminatory HIV prevention and treatment services that meet their needs” (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021). (This is in contrast to

the model that was initially implemented, where PEPFAR partnered exclusively with “Track 1.0 implementers”, or mostly U.S.-based NGOs and academic institutions with established and enormous capacity for intervention expansion and scale (Bendavid, 2016)). A crucial part of managing such partnerships is mutual accountability with partner governments and communities; this is tracked via a Responsibility Matrix. The matrix is a chart that lists specific responsibilities for each partner; PEPFAR, the Global Fund, and domestic partners are given appropriate tasks that are clearly defined to uphold accountability and facilitate sustainability of the programs when PEPFAR leaves (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

Political will is also crucial for sustainability; part of the definition PEPFAR uses is “that a country has the laws and policies, services, systems, and resources required to effectively and efficiently control the HIV epidemic.” This includes fiscal ability, technical capacity, and citizen engagement in program activities, embedded informally into “all aspects of program development and execution.” A formal model of collaboration between PEPFAR and partner governments was used at PEPFAR’s outset, but ultimately an informal partnership framework was decided on to facilitate political will and thus sustainability of program activities more easily. Civil society should also have “full participation” at “every stage of programming and planning,” though exactly what this means is unclear (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

Another essential aspect of sustainability is working with and implementing programs through indigenous partners. PEPFAR has set a goal of reaching or exceeding 70% of programs working with or through faith-based, HIV network, and community- and key population-led organizations. The idea of the commitment is to “provide a bridge from international efforts to

homegrown capabilities” with international donors responding with expertise when needed (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

Effective partnerships between programs and indigenous partners can be achieved by focusing on “prevention for impact” and providing “people-centered, stigma-free HIV services that meet people where they are with what they need.” Particular attention should be paid to children (especially OVC – orphans and vulnerable children), adolescents, women under 25, and men under 35. It is unclear what PEPFAR means by “prevention for impact,” but they mention finding people who are currently not on HIV treatment, increasing treatment retention, and achieving viral suppression for those taking antiretrovirals (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

They also advocate for strengthening health systems data capacity in several ways in order to facilitate and speed up the process of transitioning to full control of HIV/AIDS activities by the local government. A specific focus is put on Ministries of Health to “use data to improve health, education, gender equality, and economic opportunity while building the foundation for sustained and sustainable control of the HIV epidemic” (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

Finally, PEPFAR advocates for strengthening financial and fiscal sustainability of their activities, as the ultimate goal of the program is for the U.S. to be able to leave partner countries. This includes increasing financial contributions by and improving policy environments in partner countries. Financial sustainability is the ability to “initially afford the effort to reach epidemic control, and to then secure a stable funding source that will support health systems” that will serve to maintain epidemic control after it is achieved. A transition from donor funds is central to

this goal; PEPFAR uses a process called activity-based cost management, or ABC/M, data, a practice commonly used in private corporations, to break down specific costs related to specific activities. This breakdown is conducted to allow host governments to clearly understand cost breakdowns on the aid they receive and what they will be responsible for when PEPFAR stops financial contributions. Combined with the use of the “latest, most granular epidemiologic and cost data,” PEPFAR aims to control costs for donors and transition funding towards partner governments when possible (The United States President’s Emergency Plan for AIDS Relief 2021 Annual Report to Congress, 2021).

Global Fund to Fight AIDS, Tuberculosis, and Malaria

Context of the Global Fund

The Global Fund to Fight AIDS, Tuberculosis, and Malaria was founded in 2002 to provide multilateral aid. Discussions on its founding were held first at the G8 summit in Okinawa, Japan in 2000, and was officially launched by January of 2002. It functions as “a partnership to accelerate the end of AIDS, tuberculosis, and malaria as epidemics” by harnessing experience, insight, and innovation, both public and private, to “respond to diseases and build resilient and sustainable systems for health.” Its goal is to combine grassroots advocacy with global leadership against three major infectious diseases. The Fund invests over \$4 billion USD per year to locally-run programs in over 100 countries; it is funded 92% from donor governments and 8% from the private sector and foundations (Global Fund Overview, n.d.).

Since 2002, the Global Fund has disbursed over \$45.4 billion to 155 countries, making it one of the largest funders in the field of global health. This has been made up of \$17.5 billion from U.S. Congressional appropriations up until 2019; the United States is the largest single donor with

32.1% of total pledges to the Global Fund and 30.5% of total funds paid. The next largest donor is France, with 11.9% pledged funds and 12.2% funds paid (The U.S. & The Global Fund to Fight AIDS, Tuberculosis, and Malaria, 2019). These donations have led to 38 million lives saved (Global Fund Overview, n.d.).

The Global Fund operates on four principles:

- Partnership: with governments, civil society, technical agencies, private sector, people affected by diseases
- Country ownership: a response tailored to specific country contexts
- Performance-based funding: evidence-based and verified interventions and results
- Transparency: in applications, funding decisions, grant performance, results, governance, and oversight

Sustainability in the Global Fund

Sustainability is, as with PEPFAR, relatively well-defined. While there is no mention of sustainability on the Global Fund home, HIV/malaria/tuberculosis (TB), methodology, or funding web pages, the Global Fund has a sustainability policy document (Home – The Global Fund, n.d., HIV & AIDS, n.d., Tuberculosis, n.d., Malaria, n.d., Funding Model, n.d., Applying for Funding, n.d.). In it, sustainability is defined as “the ability of a health program or country to both maintain and scale up service coverage to a level, in line with epidemiological context, that will provide for continuing control of a public health problem and support efforts for elimination of the three diseases, even after the removal of external funding by the Global Fund and other major external donors” (The Global Fund Sustainability, Transition, and Co-financing Policy, 2016). This conceptualization is specific to maintaining program activities, and as well as

focused on financial/funding sustainability. The programmatic, financial, and governance aspects of sustainability are elaborated upon in the Global Fund's application and other policy documents.

In most mentions of sustainability, the concept is closely tied to transition. Sustainability and transition are key concepts on the Fund's applications, in two key documents: its Sustainability Policy document, and in its Sustainability, Transition, and Co-financing guidance note. The Global Fund defines transition as "the mechanism by which a country, or a country-component, moves towards fully funding and implementing its health programs independent of Global Fund support while continuing to sustain the gains and scaling up as appropriate" (The Global Fund Sustainability, Transition, and Co-financing Policy, 2016). This highlights the Global Fund's focus on programmatic and financial sustainability.

The Fund's application page allows for requests for funding for each of the three infectious diseases as well as funds for "resilient and sustainable systems for health" (Applying for Funding, n.d.). In each application, sustainability is one of eight guidelines for consideration. The Full Review, Tailored for Transition, and Tailored for National Strategic Plans (NSPs) funding request forms for allocation period 2020-2022 all ask applicants to outline how their intervention will "[address] critical gaps to strengthen the sustainability of the national disease response, including Global Fund-financed interventions." This includes, under the sustainability and transition section, a request for applicants to "explain the key challenges related to sustainability and how the country plans to address them" and outline plans for eventual transition of interventions to host countries (Funding Request Form: Full Review, Tailored for National Strategic Plans, Tailored for Transition, n.d.).

Programmatic sustainability (of both programs and capacity at the local level) is to be achieved, in part, by selecting local non-government and government entities as Principal Recipients. The practice involves selecting entities which “support national ownership and builds national capacity for implementation, even if this implementation is currently financed by non-domestic sources.” To expand the scope of impact of interventions beyond the immediate program through “equitable health impact” and “health systems and community systems,” the Global Fund also calls for their work to take advantage of opportunities for integration into existing HIV, TB, and malaria programs and broader health systems (Applying for Funding, n.d.).

Lastly, the application page advocates for financial sustainability – making the most of limited funds. The Global Fund asks applicants to “demonstrate their effort to minimize costs of the inputs by showing that: (i) quality assured health products are budgeted at the lowest sustainable costs; (ii) feasibility and sustainability analysis of new technology has been conducted to justify the investment; and (iii) human resources are deployed and properly compensated in line with national human resources procedures and salary scales, in support of sustainability.” In line with these considerations is the Global Fund’s desire for eventual transition to exclusively domestic funding for all HIV, TB, and malaria activities. Financial sustainability is considered to support long-term sustainability of any program that is financed. The application also calls for sustainability in governance, but it is unclear what exactly is meant by this (Applying for Funding, n.d.).

The first key document from the Global Fund on sustainability is their Global Fund Sustainability, Transition, and Co-financing Policy document. This document was published in November 2014 when the 2017-2022 strategy for the organization was developed; sustainability was identified as a priority for the organization. The Fund claims that it is “essential that

countries are able to scale up and sustain programs to achieve lasting impact,” which requires “development of National Health Strategies, Disease Specific Strategic Plans, and Health Financing plans; [ensuring] that Global Fund financed programs can be implemented through country systems; and supporting countries to do transition readiness assessments and elaborate transition work plans, when needed, to facilitate well-planned and successful transitions.” While the application of sustainability may differ between countries that have differing capacity to take over domestic programming, the Fund asks its program designers to account for “sustainable transition from Global Fund support”. It is unclear whether this support entails all financial aid, expertise, and other types of support, but the key consideration for funding programs is for “[alignment of] domestic financing incentives to ensure that as countries move closer to transition, they take up key programs” (The Global Fund Sustainability, Transition and Co-financing Policy, 2016).

The sustainability policy document also outlines four principles required for sustainability. These are:

- Differentiation: tailoring according to the context
- Alignment: of Global Fund programs to existing HIV/TB/malaria and health systems
- Predictability: of timeline, notice, and resources needed for eventual transition from Global Fund support
- Flexibility: for adaptation of programming and transition plans to country- and region-specific characteristics and needs

To implement sustainability, the Global Fund uses a multipronged approach which includes investing in appropriate acr (RSSH), capacity building, advocacy, and service delivery interventions. This approach focuses on key and vulnerable populations, human rights and

gender-related barriers and vulnerabilities (regardless of income level). It requires collaboration with a variety of stakeholders that work at various levels, especially national and local. When programs are being transitioned to local governments, the Global Fund also provides “innovative financing,” which allows countries to bridge the gap between their budgets and their needs. This is a “highly concessional” package that includes both grants and government-sourced loans and makes up a key part of sustainability and transition by allowing countries to move towards transition when they are ready (The Global Fund Sustainability, Transition and Co-financing Policy, 2016).

The second of two key documents is the Sustainability, Transition, and Co-financing Guidance Note. It references the definition of sustainability used in the sustainability policy document and reiterates several of the points made in that document. Like the policy document, it also includes a strong focus on financial sustainability. It does, however, touch upon several additional dimensions of sustainability that are important to consider: financial, epidemiological, programmatic, systems-related, governance, human rights, and political. There is a strong emphasis on country and regional context in implementing these dimensions; all of these aspects aim to “minimize the risk of programmatic disruption and mitigate potential negative impacts that could result from a decrease or absence of Global Fund financing.” In other words, the Global Fund wants to create programs and interventions that can function in the absence of their financing. To achieve this, programs must carry out “robust national planning” (either for specific diseases or the health sector generally), enhancing domestic resource mobilization to progressively increase domestic financing for health and the three diseases, enhancing Value for Money, investing in resilient and sustainable systems for health (RSSH), enhancing alignment and implementing Global Fund activities through national systems, increasing efforts to address

human rights and gender-related barriers to access, and strengthening national governance” (Guidance Note, 2020). This includes defining short- and long-term goals, priority setting, costing, and financing.

Literature Review

While my search for “global health sustainability” turned up almost 80,000 results in Google Scholar alone after restricting publications to 2020, there is vast disagreement of what it means. Most papers highlighted a specific type of sustainability (financial, environmental, programmatic, etc.) without consideration of sustainability in its many facets. Many papers broadly listed “sustainable” activities without exploring what sustainability meant or how it should be applied. Other papers advocated for many different factors that should be taken into account when applying sustainability, but most of these papers did not provide a working definition of sustainability that needed to be broadened. As a whole, the literature that I found provided few actual definitions or conceptualizations of sustainability, focused largely on environmental and programmatic sustainability, and called for an expansion of the idea of sustainability in global health. No papers explored how any conflicts between different facets of sustainability should be addressed in relation to each other, especially when they come into conflict.

Definitions and Conceptualizations of Sustainability

I found several different conceptualizations of sustainability in the global health literature. Many of them focus on specific contexts, but many of them shared a common theme: avoiding adverse effects on the community, the environment, and the economy. The ones that were found are shared below:

- “Sustainability... is understood as the economy’s ability to maintain itself and continue to operate without jeopardizing over time the very purpose of its existence: managing resources from nature and for people. It refers to practices that sustain long-term economic growth without adversely impacting environmental, social and cultural aspects of community” (Van Niekerk, 2020).
- “Sustainability refers to the pursuit of economic and social development capable of focusing on current needs without jeopardizing the possibility of future generations meeting their own needs” (Ventura et al., 2020).
- Sustainability is the responsibility “to maintain the consistency and permanence of emergency response actions, especially with investments in public health systems, with universal access, and to minimize the structural causes of pandemics linked to the environment” (Ventura, Guilio, & Rached, 2020).
- Sustainability can “differentiate between ‘sustainable development’ as a process and ‘sustainability’ as an outcome or property. We further highlight that sustainability is a wider concept than environmental sustainability, recognizing that the term ‘sustainability’ has evolved from its earlier focus on environmental or natural resource limits on growth or development, to a broader vision of sustainability as three interdependent pillars of environmental, social and economic dimensions” (Leach et al., 2018).
- Sustainability is “meeting the needs of present and future generations while substantially reducing poverty and conserving the planet's life support systems” (Sustainability Science, n.d.).

In the first definition, Van Niekerk later realized the need for inclusivity and equity (Van Niekerk, 2020). This combination of economic sustainability and the focus on equity was also

used in the paper by Ventura et al., which highlighted issues including cultural diversity, maintenance of biodiversity, ethical values and equity, equal rights, justice, and autonomy. This recognition of various dimensions of sustainability is also present in the Ventura, Guilio, and Rached paper. These two Ventura papers share two authors, but they use different definitions of sustainability. Both, however, include social, ecological, economic, spatial, political, institutional and cultural aspects into their conceptualizations as well as “solidarity and shared responsibility for the planet’s resources, human rights and a revised production and consumption models” (Ventura, Guilio, and Rached, 2020).

The Leach et al. paper focused also on the “long-term maintenance of desirable and meaningful life support systems which are biophysically, culturally and socially determined” (2018). This seems to refer to a strong need for context-dependent definitions of sustainability. Interestingly, this is the only paper that called explicitly for sustainability to be defined flexibly so as to accommodate differences in cultural context.

What is Being Sustained?

As stated in the background section, there are many different aspects of an intervention that can be sustained in global health. Overall, there was very little literature about this; most papers assumed that the model of the intervention was to be sustained, several mentioned environmental sustainability, and a few mentioned financial sustainability (transition from outside donors to domestic funding).

Overall, there was both direct and indirect emphasis on the need for sustainability of the model of the intervention. This was to be done in a variety of ways, but especially through collaboration with local partners, integration of the program into existing local health systems, infrastructure strengthening, and personnel training. These were done so that the intervention and the services

that it provided could continue even after the program applied its “exit strategy” (Hadley, 2020). The key here was to ensure that national stewardship was achieved, which would in turn drive sustainability. This can be done through facilitating “adaptive, contextualized planning and monitoring” and ensuring flexibility (Bandali, 2021). Presumably, this is the same model that the Global Fund advocates: provide the funding and the expertise in collaboration with local stakeholders, and then turn over the program to them.

Another benefit of turning over an intervention to local authorities is financial sustainability, which is achieved primarily through a transition to domestic funding. This again is related to what the Global Fund, and to lesser extent PEPFAR, outline for their programs. In one study of a community health worker program, financial sustainability was a significant concern. The prevalence of funding from external sources, in this case, “threaten[ed] the sustainability of this critical workforce” because of the instability of this funding source. Instead, the study examined how Mali conducted a “transition to a sustainable CHW program supported by domestic funding through strategic and rational investment,” leading to significant cost reductions that were more easily afforded by the national government (Saint-Firmin et al., 2021).

Lastly, there was significant focus on environmental sustainability, including within the healthcare sector globally and among food sources. Many of these addressed environmental issues in the context of climate change, acknowledging that the impact of climate change is a significant issue in many sectors of global health. For example, one study of a bioclimatic building in Sudan that housed a top hospital studied the structure’s “systematic sustainability and resilience.” This consisted of understanding sustainable resource use (emergy), which served to reduce the hospital’s environmental impact and maintain its functions through potential climate, resource, societal, economic, and geo-political crises (Cristiano, Ulgiati, and Gonella, 2021).

Another study advocated for the inclusion of environmental sustainability as a new domain for evaluating quality of healthcare systems (Ossebaard and Lachman, 2020). Barbier and Burgess (2020) recommended environmental sustainability as well through the use of cost-effective environmental policies that help achieve the Sustainable Development Goals. One additional study analyzed the environmental implications of national food-based dietary guidelines in 85 countries, focusing on country-specific environmental effects on factors such as greenhouse gas emissions, freshwater use, cropland use, and fertilizer application (Springmann et al., 2020). These studies highlight a significant focus of global health and development programs that monitor their environmental impacts.

Factors Needed to Achieve Sustainability

Many papers found focused on different needs that must be met to further sustainability in global health. Two main factors are research and collaboration with other fields. In order to make progress in achieving sustainability, research must be carried out. There has been significant research done on the SDGs, which enables both the public, private, and civil society sectors to make decisions regarding the pursuit of the Goals (Asatani et al., 2020). Research on sustainability serves several practical purposes, such as identifying “critical gaps regarding diagnostics, guidelines, interventions and surveillance [that] need resolution” and providing information on implementation science (Espinal et al., 2021). Data provided from studies also informs specific situations, such as emergency response situations, when sustainability typically is prioritized. As with the Covid-19 pandemic, for example, research about the sustainability of pandemic response can strengthen continuous investments in public health systems (Ventura, Giulio, and Rached, 2020). Integration with other research fields can also aid sustainability in

understanding more about various influences that contribute to or detract from it (Zhu et al., 2020).

Research can highlight the inherent tension in global health interventions between the influx of external expertise, infrastructure, and resources, and the existing public health infrastructure of the host country. This is often known as “capacity building” in global health, but how capacity building is applied differs by context (Ventura, Giulio, and Rached, 2020). Research can also call attention to how current definitions of sustainability are not inclusive of certain populations, especially historically underrepresented and minority groups. Indigenous populations, for example, may champion “learning individuals’ connections to other beings” as an important aspect of sustainability, but this is typically not reflected in Western science and therefore not integrated into global health programs (Virtanen, 2020).

The need to integrate data from other fields in global health sustainability was also a theme from several papers. Some topics have significantly influenced sustainability in global health (such as engineering in water, sanitation, and hygiene projects), but additional fields such as political science, operations research, and economics would further some facets of sustainability (Asatani et al., 2020). Integrating knowledge from these fields would increase the number of interventions that incorporate sustainability considerations and address some current barriers to doing so. For some public health programs, national ownership of interventions can be achieved with more focus on national governance, policy, planning, financing, and delivery systems. This is especially important for achieving SDGs, which are inherently interconnected and require a “paradigm shift” to incorporate fields such as economics and politics that can meet the needs of a variety of stakeholders, including governments, international funders, communities, and civil society (Espinal et al., 2021). Additionally, interdisciplinary perspectives help influence public

policies and actions that are crucial to enable “structural and long-term solutions” that can address critical issues that hinder global health and development, such as equality, cohesion, and social justice (Venture, Giulio, and Rached, 2020).

The importance of One Health, especially for infectious diseases, has garnered significant attention as well among sustainability research. This includes how biomedical and ecological considerations are needed for sustainability, and are “central to understanding disease emergence and risk.” Issues of sustainability, including rapid population growth, urbanization, consumption of natural resources decrease stability of healthcare systems and threaten their ability to maintain adequate services (Zhu et al., 2020).

In order to better understand the ways that global health and development complement each other and require trade-offs, linkages between various fields must be measured. While the SDGs were designed to be more interlinked than the MDGs, and have in many cases achieved that goal, many assessments of SDG progress do not account for these relationships. Such analysis is crucial to understanding how governments and other stakeholders can decide between goals and set priorities. For example, the study by Barbier and Burgess found a 20% reduction in the net welfare change for poverty reduction in poor economies between 2000 and 2016 when interactions with all SDGs are taken into account, compared to analysis of poverty reduction (goal 1) alone (2020). This finding draws attention to the mismatch that occurs in real settings between, for example, the No Poverty goal (#1) with the Climate Action goal (#13).

Factors that Should Be Included in Sustainability Considerations

Many of the papers found discussed the expansion of current conceptualizations of sustainability. Few defined those definitions being used, however. Neither did they explain what limits there should be to adding to sustainability considerations or practical ways to implement their

suggestions while avoiding over-expansion of the concept of sustainability, which could lead to a dilution of its understanding and implementation. Nevertheless, the factors tended to identify shortcomings of current global health programming.

A major factor that was identified as having the potential to further sustainability of current global health programs was investment in infrastructure. For example, sanitation and wastewater infrastructure and improvements in clean and renewable energy can foster progress towards the SDGs, particularly Goals 6 and 7 (Barbier and Burgess, 2020). In healthcare service, expansion of diagnostic capacity, training of medical personnel, and increasing access to healthcare consumables greatly increases the likelihood of being able to provide adequate care in the face of challenges, including emerging infectious diseases. Infrastructure also includes the influences of social and ecological systems (Zhu et al., 2020). In the global health security agenda, investing in public health systems, improving access to healthcare services, and minimizing structural causes of disease aids in maintaining the consistency and permanence of global health response, especially in emergencies (Ventura, Giulio, and Rached, 2020).

Another factor was stakeholder engagement, particularly of government and affected communities. This was paired with recommendations for more attention to context-specific considerations. Strong country leadership, for one, ensures that priorities in healthcare can receive appropriate amounts of care. Systems that require strong infrastructure, such as prevention, referral, and treatment services, can improve long-term sustainability of global health programs. Because of the long timeline inherent to sustainability, country health systems that are in the hands of national governments can “articulate clear health and development outcomes” that can engage stakeholders. They can also ensure the provision of high-coverage, effective services that are responsive to contextual factors, disease burden, and system capacity. Not only

does this increase accountability of programs, but also secures funding and integrates existing resources (Espinal et al., 2021).

When certain groups, especially marginalized populations, are excluded from key decisions in policy such as education and access to stable employment, instability and social breakdown can result. This can worsen existing inequalities, threatening various characteristics – such as accountability and legitimacy – of sustainability and is one of the key barriers of sustainable development. Often, this marginalization is perpetuated by social dynamics (Van Niekerk, 2020). Addressing paradigms of ignoring vulnerable groups will contribute to more programs that are well-received and provide lasting benefits to their recipients.

To combat lack of consideration of program participants, “active engagement” of communities that are impacted by various interventions is crucial. Cultural tailoring and inclusion of civil society leadership facilitates the adaptation of programs to local context and strengthens governance, which in turn promotes sustainability (Espinal et al., 2021). For example, interventions in indigenous communities often overlook the different cultural and socio-philosophical experiences that they have. Specific ideas of relationality, community-based governance, education, language, quality of life and health, and communal recognition of certain non-humans as life-givers are core dimensions of sustainability in many indigenous groups. For these groups, sustainability goes beyond a future-oriented system of development. As a result, accounting for different conceptualizations of sustainability is crucial for implementing sustainable policies and programs (Virtanen et al., 2020).

Lastly, especially in the face of the Covid-19 pandemic, unexpected threats such as pandemics should be accounted for. Acknowledging, for example, the link between practices such as deforestation (which violates environmental sustainability) and emerging infectious diseases and

other health effects can result in policy change and increase preparedness for inevitable disease outbreaks (Zhu et al., 2020). Furthermore, sustainability includes a responsibility to “minimize the structural causes of pandemics linked to the environment” so that emergency response can be consistent and permanent as well as promote equality, cohesion, social justice, and transformative changes (Ventura, Giulio, and Rached, 2020).

Discussion

Implications of Sustainability in the SDGs

The SDGs serve as a normative framework that reflects an international commitment to cooperation in goal-setting and global development. As such, the framework lacks setting-specific perspective because the goals must allow for flexibility in their application to a specific program and context. The goals need to be broadly applicable and address a key criticism of the MDGs – a lack of integration between various goals (Le Blanc, 2015).

The goals of the SDG framework logically give rise to the vague conceptualization of sustainability that it offers. Aside from brief, cursory guidelines on sustainability, the Sustainable Development Goals do not have a clear conceptualization of sustainability, nor do they have recommendations or instructions about what needs to be sustained or what sustainability looks like when it is achieved. For each specific goal, the targets and indicators do not have easily accessible information about how sustainability can be incorporated and evaluated in those contexts. Given that most, if not all, global health and development projects are based on the SDG framework in some way, this is a very interesting finding. It is possible that, because of the wide scope of the SDGs and the variety of contexts that they should apply to, not explicitly defining sustainability allows (or forces, in some situations) individual organizations to develop

their own conceptualizations and tailor definitions and applications for their own context and purpose.

What is described is the need for integration of three pillars, which elevates the importance of each of economic, social, and environmental aspects of sustainability. There is some reflection of this integration within the goals themselves; for example, Target 4.1 reads, “By 2030, ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes” (Goal 4, n.d.). The link between this target and other goals, such as Goal 10 (reduced inequalities) and Goal 6 (clean water and sanitation) may be relatively easy to understand, though it is not explicitly outlined (Goal 6, n.d., Goal 10, n.d.). There is an assumption here that the previous siloed approach to education, for example, will give way to this integrated, more “sustainable” approach. However, it is difficult to determine whether this is true based on the lack of easily accessible, easily-located information about how sustainability should come from this SDG framework. As a result, it seems that a lack of definition about sustainability (particularly for economic and social sustainability) may lead to a focus on specific goals, targets, and indicators from the framework, and less on sustainable outcomes, especially if they may conflict with each other.

Implications of Sustainability at the Bill and Melinda Gates Foundation

At the Gates Foundation, sustainability is clearly a consideration for their programming. The term is referenced all around the website, particularly on explanatory pages. In addition, I participated in a Gates Foundation grant that was given to CARE, an international NGO based in Atlanta, Georgia, to study the post-project sustainability of several different CARE interventions around the world. The initiative started with funding for 5 pilot studies and included provisions

for further studies in the future to advocate for improvements in sustainability across the field of global development.

However, there did not seem to be a clear definition of the concept. This included my post-project sustainability study; my team and I defined sustainability, and the definitions my team used were quite different from those used by my fellow CARE interns for their projects. Having no definitions of sustainability does allow for tailoring to the specific study and context; each team developed a definition that fit the project, and in general, the grantee and communities can work together to develop one. Some examples are below:

- “The extent to which the effects of an intervention are maintained after formal project support has ended” (BERCHI, CARE Ethiopia)
- “System change defined as ‘change in the underlying causes of market system performance that leads to a better-functioning, more pro-poor market system” (Dairy Value Chain Project, CARE Bangladesh)
- “The achieved state and benefits of women’s economic empowerment are maintained, and WEF beneficiaries continue adaption to evolving conditions while achieving financial well-being” (Women’s Enterprise Fund, CARE Philippines)

However, as with the SDGs, no definition of sustainability can become a burden for smaller organizations if there is insufficient guidance. This is particularly important because it is unclear how much the Gates Foundation influences discussions and planning with grantees, a key part of the program development process laid out on their website. Collaboration between the BMGF and grantees is a key part of the intervention planning process, but the procedures around this were not publicly disclosed, if the Foundation even has standard operations in place. As a result, the application of sustainability for each program will be different, with different aspects of

programs being sustained and different requirements to achieve it, creating divergent conceptualizations of sustainability. It is also possible that there is an internal definition/criterion used for sustainability. Should this be the case, the question of why it is kept private is important to explore.

Furthermore, sustainability is a key principle to consider for proposals and applications. How it is evaluated in the application process, however, is unclear. Proposals received, therefore, may address different and limited aspects of sustainability, which may make it difficult to compare them. This ambiguity may, on the other hand, allow grantees to conceptualize sustainability for themselves, tailored to their specific project, including topic and intervention. An example is with the OPV immunization program for Helmand. For a polio vaccination program, the outcomes of vaccination, by definition, are lasting protection against polio for children. While the WHO recommends multiple doses of OPV and children may receive booster shots years after their initial immunization, a vaccine program does not need to be “sustained” in order to have achieved its intended effects (Oral Poliomyelitis Vaccine (OPV) Questions & Answers, 2012). By explicitly asking for sustainability considerations, it seems that the BMGF is referring to something other than sustained health outcomes. Because there is no further information, however, there is no way to be certain. For program proposals that emphasize only sustainability of immunity conferred to children, another that concentrates on the long-lasting provision of service to the province, and another that focuses on the training that may be provided to local health workers, choosing between these different proposals is extremely difficult. Ideally, the BMGF may prefer to have all these aspects for a sustainable vaccine program, but by requiring but not defining sustainability, several challenges may arise in evaluating grant applications and designing and conducting health programs.

Implications of Sustainability at PEPFAR

PEPFAR has dual interests which are highlighted in their many documents and reports available on their website: health outcomes and political awareness of the United States' role and contributions to the fight against HIV/AIDS. It has a "highly focused" purpose and a need for high levels of transparency in its operations (Bendavid, 2016). Several factors contribute to this unique set of circumstances; PEPFAR is a bilateral aid organization, meaning it is accountable to the American public. It has been very successful and comes directly from the U.S. president, and as a result, has been used as a political tool. These features play a part in requiring a focused definition and application of sustainability; because the American public was sold on PEPFAR as an emergency program to fight a very specific disease, sustainability and how it should be applied has set parameters that may make it easier to define.

The conceptualization that PEPFAR uses for sustainability is also largely focused on financial sustainability. On first glance this seems odd but is no longer once PEPFAR's political interests are considered. As mentioned above, PEPFAR is an emergency response; it must be reauthorized by Congress every 5 years making budget considerations a constant political debate. It also makes up the largest portion of U.S. foreign aid by a significant degree. Its purpose has also been subject to criticism by media and academic researchers alike, for many reasons. For example, the budget of \$6.9 billion in FY 2020 seems hefty, especially in light of current events in the domestic U.S. There are parties which hope to see more investment within the country, calling for sustainability efforts for PEPFAR to facilitate the process of transition (Oberth & Whiteside, 2016).

Having a specific, publicly accessible definition of PEPFAR also may aid it in response to some of these criticisms that have been leveraged against it, which may account for the accessibility of

the definition on its website. For example, political pressure to increase activities and improve health outcomes without a corresponding increase in budget have been a reality for PEPFAR since its inception. More articles about PEPFAR have been written than about the Global Fund, President's Malaria Initiative, and GAVI, the vaccine alliance combined, according to a 2016 study (Bendavid, 2016). It is possible that this intense focus on PEPFAR has driven a strong, specific focus on sustainability, and that the narrow scope of the program facilitates the definition of sustainability.

Implications of Sustainability at the Global Fund

The Global Fund provides a relatively specific definition of sustainability. The only place on the website that lists it are the sustainability policy document and guidance note; the practical application of sustainability is still unclear. However, it seems to be much more important for consideration in the application process than the other organizations that I have examined because of the attention given to addressing it in the application and the sections asking grantees to plan for sustainability and transition. The Global Fund also breaks down sustainability into different facets, which is something unique to them.

It is also the only organization that focused on identifying and addressing barriers to sustainability. This is significant because there are many different requirements that must be met or that contribute to sustainability, but with those also come more challenges in meeting needs. By specifically asking grantees to list possible barriers, the Global Fund can better handle these difficulties and address them in implementation. This may be due to the strong desire to transition funding eventually to local governments and partners.

One interesting note about the Global Fund is its strong emphasis on financial sustainability and the link between sustainability with transition. This is likely due to political pressures from

Global Fund donors, which may prioritize being able to make an impact without having to spend more money; this is likely facilitated by the fact that individual countries fund most of the organization. With so much focus on funding, there is the challenge of assessing the relative importance of financial sustainability and other types of sustainability, however. For example, when sustainability of outcomes and financial sustainability clash, it seems that financial sustainability will take priority. This may mean that programs will be reduced in scope or stopped when funding is scarce but the procedures and criteria for determining hierarchy of sustainability facets are absent.

Key Finding 1: All actors mention “sustainability” and “sustainable” programs, but only organizations with narrow scopes defined those terms. When sustainability was conceptualized, it was often with a focus on financial sustainability, with some mention of programmatic and environmental sustainability.

For each of the four actors studied, “sustainability” was a pervasive theme on their websites. There is, surprisingly, still considerable ambiguity in conceptualization and/or application of sustainability in global health programs. It is a major consideration for not only their application review processes (when applicable), but also for goal setting in program design and implementation. However, only PEPFAR and the Global Fund defined sustainability and provided elaboration on what long-lasting effects their work should achieve. It may have been easier for these two actors because of their specific, narrow scope of work (HIV/AIDS for PEPFAR, and HIV/AIDS, TB, and malaria for the Global Fund). Ironically, both organizations have also received significant criticisms of the narrowness of their scopes of work, due to the inherent intersectionality that exists between these diseases and other health outcomes, both communicable and non-communicable. As such, both organizations pointed to structural and

other benefits (such as the investment in laboratory resources) that were also a result of their work.

Even when sustainability was defined, these definitions were difficult to find. They were buried in reports and documents that required several clicks to find and did not have corresponding summaries available on their websites directly. This is despite the fact that sustainability is mentioned on most web pages and seems to be a significant consideration in grant applications, where more elaboration on what the organizations are looking for should be easily accessible. These organizations also seem to display their commitment to sustainability across their website, which is incompatible with their lack of specific information about what it means.

Additionally, sustainability was often broken down into different facets, with an emphasis by PEPFAR and the Global Fund on financial sustainability. This may be because these organizations are accountable to their donors – governments of high-income countries, which, in turn, are accountable to their citizens. In the case of PEPFAR especially, its success has led to its being used as a political tool, with presidents using the PEPFAR model for political gain. This creates pressure to try to maintain results with minimal funds, resulting in an agenda to “transition” to local funding. This phenomenon embodies perfectly what Partners in Health founder Paul Farmer identified as supporting programs that are “long-lived rather than effective in the field,” meaning that the focus of sustainability is put on the program itself, rather than the outcomes that it produces or the health systems improvements that may be more meaningful in the long run (Yang et al., 2010).

Lastly, only the Global Fund explicitly addressed barriers to sustainability in their evaluation process. This seems to be a unique approach, given that identification of barriers was not addressed by any other actor or in any literature that I reviewed. Identifying barriers to

sustainability would help in the process of overcoming them. The fact that this formative research is not considered in other contexts is likely a shortcoming.

Key Finding 2: Most literature about “sustainability” addresses its application to specific interventions and contexts. Much more attention is given to examining what is needed to achieve sustainability, or how the definition needs to be expanded, rather than defining what it is. However, no discussion of the implications of such expansions of the concept is explored.

Whether theoretical or applied research is examined, sustainability is still a confusing, complex topic in the literature. Only four of the two dozen papers that I read attempted to define sustainability, and out of these definitions, one was largely economic, and another was specific to pandemic response. Even papers that were focused on criticisms of current conceptualizations of sustainability often did not define the term, making it difficult to reach consensus on such a vague term. This may be a product of the lack of definition by actors themselves (who often fund research) and the SDGs, which are correspondingly vague. Without a definition, however, it is difficult to fully understand how advocating for more research, engagement of various stakeholders, or other recommendations can be implemented.

There is also significant desire by authors to expand global health’s understanding of sustainability, such as incorporating indigenous views of sustainability. Some of this was consistent with building upon the concepts used by some global health actors, with a focus on environmental sustainability, for example. However, no sources addressed either the challenges that would be associated with expansion of sustainability definitions or spoke about the difficulties in setting priorities between different aspects of sustainability when they should come into conflict. The closest that a paper came to exploring the relationships between sub-topics of

sustainability was Van Niekerk's 2020 paper, which acknowledged that attempts to achieve some goals in sustainability stood in direct conflict with others, and even quantified some of these conflicts, but stopped short of identifying how to navigate this challenge. An example is the goal of reducing poverty, which may, at least on the short-term, produce sub-optimal results in maintaining environmental sustainability and controlling climate change. In reality, however, all of these factors influence sustainability, whether from an economic, governance, financial, environmental, or other standpoint.

Potential Explanations for the Findings

There are many possible reasons that global health sustainability is so difficult to understand and define. One is that sustainability is innately context dependent. Because the field of global health is so vast and interdisciplinary, there is no single definition or conceptualization that is suitable for every context. Le Blanc makes this argument when he criticizes the Sustainable Development Goals: "the universalistic definition of sustainability within SDGs can hinder other views on sustainability, which differs from it" (2015). Because the global health actors that were selected for this study have large budgets and control some of the global health agenda, they, by definition, work in many different contexts and culture. This is particularly true of the SDGs, which theoretically apply to *every* program in *every* country. If the definition of sustainability from the UN is too narrow, many more criticisms would arise from programs, likely serving marginalized groups, that cannot utilize such a definition. This could account for the finding that PEPFAR and the Global Fund, which have specific, narrow focuses, define sustainability while the Gates Foundation and the SDGs do not. This problem is more easily addressed in literature, where problems can be identified, and theories can be set forth without having to incorporate these ideas into program design and implementation. Given the relative infancy in which global

health sustainability research is, it is possible that, with time, sustainability can be better conceptualized, and the resulting definition can inform priorities that are suitable for each local context.

Another possible reason is that many global health interventions are based on an emergency aid model even when they intend to work over the long term. A video explaining the High-level Political Forum that created the SDGs advocated for keeping long-term sustainable development high on the global agenda – a challenge because interventions are “often driven by short-term crisis” (Second meeting of the High-level Political Forum on Sustainable Development, 2014). This may be consistent with a historical view of global health, which started as a colonial pursuit to fix immediate problems so that paternalistic governments could keep people healthy only long enough to extract necessary resources. Because there was no intention of long-term results, there was no incentive to consider sustainability. In this case, there is also little incentive to go beyond financial sustainability, which is strictly a consideration controlled by the donors. As with the first reason, it is possible that the field is shifting towards a sustainability-first approach (shown, for example, in some of the differences between the MDGs and SDGs). This would account for the beginnings of explorations of more in-depth definitions of sustainability in literature but not in large global health actors, which may be much slower to take action.

Limitations

There are several limitations to this study. For example, the review of sustainability by global health actors was not comprehensive. While the SDG framework, Gates Foundation, PEPFAR, and the Global Fund are key organizations in the global health field, many smaller organizations may have vastly different conceptualizations and applications of sustainability. Such smaller and

newer organizations may have more freedom and motivation to prioritize sustainability in their programming and place a much larger emphasis on sustainability. Furthermore, for each of these actors, only publicly available documents were reviewed. This may be significant because important decision-making principles, such as grant application review procedures and setting priorities between competing facets of sustainability, may have explicit criteria which are only known behind closed doors. As a result, it is difficult to determine how sustainability is being implemented. These are potential areas for future research.

Additionally, the search for both information from global health actors and in literature centered on “sustainability” while synonyms were not reviewed. This may result in an incomplete set of data. However, given that the main framework addressing sustainability globally is known as the Sustainable Development Goals, and that each source examined mentioned sustainability continually, this is unlikely to be a significant issue. In cases when “sustainability” was not explicitly mentioned, proximal terms such as “persistence,” “continuation,” and “long-term” were assumed to mean sustainable when they were used.

Furthermore, it is possible that implementers and workers in the field may stray from donor frameworks and planned interventions, which could lead to different ways that sustainability is applied in the field. This could be another topic to explore further in the future.

Conclusion

Though sustainability is a ubiquitous and oft-mentioned concept in global health, it is seldom defined, and there is little agreement in the field on what it entails. Many existing global health actors and literature mention several facets of sustainability, such as environmental, financial, and economic. However, how these aspects of the concept interact with each other and how they

should be applied to promote long-lasting health on a global scale is not clear. If the Sustainable Development Goals and current programs are to achieve truly “sustainable” development, it is crucial to better understand how resources can be used to produce results that are worthwhile. Rather than focus on the maintenance of the intervention or program, or exclusively on environmental sustainability, global health actors must apply a well-conceptualized perspective on sustainability that addresses its many dimensions as well as the interactions between these dimensions in real-world scenarios. Only by doing so will global health move away from its colonial, paternalistic roots and support sustainable health programs that promote health equity, focus on community-level needs, and are responsive to a variety of threats to health in the 21st century, such as emerging infectious diseases and climate change.

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