Determining Sustainability Factors in PEPFAR-Sponsored Programs and Products Transitioned to Local Ownership

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Abstract

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The United States established the President's Emergency Plan for AIDS Relief (PEPFAR) in 2003 in response to the worldwide AIDS epidemic. In 2005, the Paris Declaration on Aid Effectiveness highlighted the need to plan for transition of aid investments to local country ownership and to assure sustainability of these investments over time. This study was conducted in collaboration with the International Training and Education Center for Health (I-TECH) at the University of Washington. I-TECH manages an international network that assists Ministries of Health to strengthen their healthcare delivery systems and has proven capacity to scale and transition programs to country ownership. This study undertook to learn more about six projects that were transitioned by I-TECH to local ownership and reported by stakeholders to be sustained for at least two years. The PEPFAR *Sustainability Index Dashboard (SID)* was used and measures sustainability based on four general domains – Governance, Leadership and Accountability; the National Health System and Service Delivery; Strategic Investments,

Efficiency and Sustainable Financing; and Strategic Information. The *SID* was used as an organizing framework for analysis of interviews with key informants. A structured interview guide gathered data from I-TECH Country Directors, Technical Advisors, and Project Managers. Four factors were mentioned most frequently by respondents as critical to successful transition and sustainability, including the availability of external funding for continued technical assistance, demand or need, institutional buy-in from key stakeholders, and the presence of an advocating champion. Seven core elements from the PEPFAR *SID* were prominent in the interview data - Planning and Coordination; Policies and Governance; Service Delivery; Human Resources for Health; Domestic Resource Mobilization; Epidemiological and Health Data; and Performance Data. The study discovered that, despite the presence of major supporting factors such as having a champion and institutional buy-in, the majority of the projects were still dependent on some level of external funding (i.e., technical assistance) to be sustained. This raises the question as to whether transitioned projects are truly sustainable if the local partner, usually government, cannot provide sufficient support to maintain and improve upon the aid investment.

Introduction

On June 5, 1981, the United States (US) Centers for Disease Control and Prevention (CDC) informed the world that five previously healthy males had uncommon diseases that pointed to dysfunctional immune systems. Eventually identified as Acquired Immune Deficiency Syndrome (AIDS), more than 100,000 cases were reported by 1989 and, by the end of 1995, the number of cases had reached 500,000 in the US. In 1997, the Joint United Nations Programme on HIV/AIDS (UNAIDS) estimated 30 million people worldwide had HIV and 16,000 people daily were infected. The first official act by the US to initiate worldwide funding was in August 2000

when the US Congress ratified the *Global AIDS and Tuberculosis Relief Act of 2000* that initiated negotiations for a trust fund to combat AIDS worldwide. The US President's Emergency Plan for AIDS Relief (PEPFAR) followed in 2003 with a $15 billion plan to address the AIDS epidemic internationally. From 2.19 billion in 2004, the annual budget steadily increased to $6.59 billion in 2014. Only 50,000 people were on ART in 2003 and now based on the last September 2017 report, more than 13.3 million people are now on treatment (U. S. President's Emergency Plan for Aids Relief, 2018). However, the 2018 annual budget request for $5.391 billion is an 18% decrease from the 2017 budget. (KFF, 2017) This has led to discussions on how best to use diminishing resources to refocus from "an emergency response to a sustainable country led-model. (KFF, 2017) This required PEPFAR to direct greater attention to local ownership and sustainable program improvements led by indigenous partner organizations.

This study was conducted in collaboration with the International Training and Education Center for Health (I-TECH) at the University of Washington. I-TECH manages an international network with more than 1,000 staff worldwide promoting high quality health care by developing and strengthening country-level health systems in resource-limited countries. I-TECH has proven capacity to scale and transition programs to country ownership (i.e., national Ministries of Health). I-TECH staff provide technical support in more than 15 countries at the request of the United States Government (USG) partners, national Ministries of Health (MOH) partners, and other local organizations in Africa, Asia, Eastern Europe, and the Caribbean region. Its wide range of products and technical assistance encompass the design, execution, and assessment of clinical training and mentoring partnerships: pre-service and continuing education offerings: laboratory systems strengthening activities; development of health information systems;

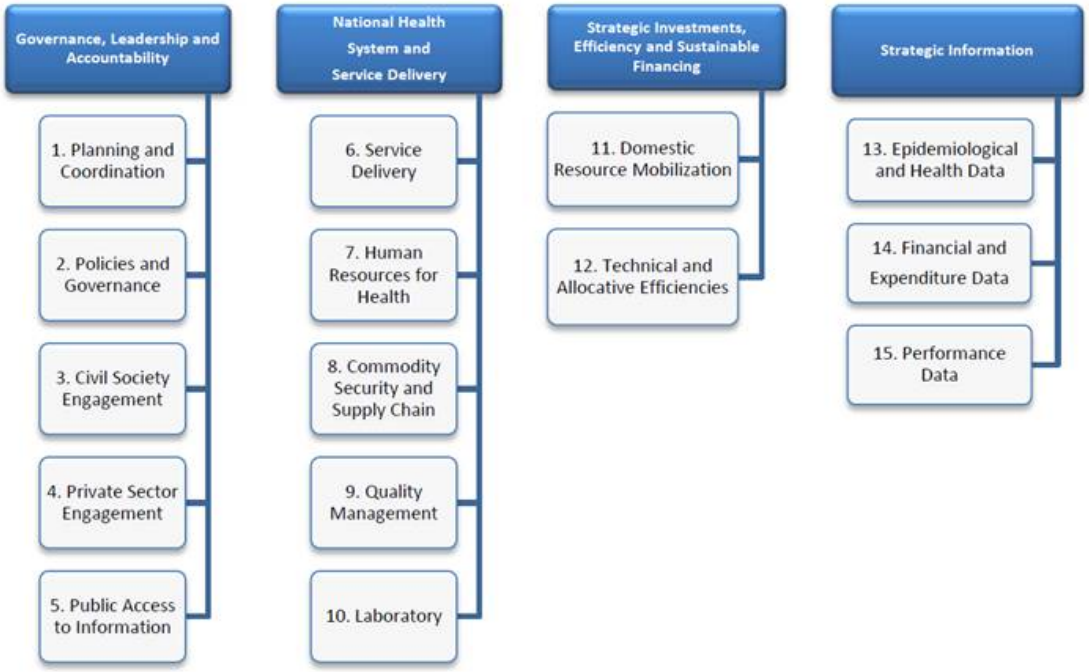
operations research; and more. I-TECH utilizes its *Partnership Model* as a guide for transition of resources and knowledge/expertise to local partners. (University of Washington I-TECH, 2018) (Appendix A). The study aimed to identify which sustainability factors were thought to be most important from the perspective of stakeholders since I-TECH had never fully evaluated the status of its transitioned projects.

Literature Review

The 2005 Paris Declaration on Aid Effectiveness highlighted the concept of country ownership. However, no common definition has been arrived at despite regional and global consultations (UNAIDS, 2012). Ambassador Eric Goosby, the US Office of the Global AIDS Coordinator (OGAC) for PEPFAR (2009-2013) stated that, "The goal of creating an AIDS-free generation is a shared responsibility, with partner countries in the lead convening role." (Goosby, 2013) Collins and Beyrer referred to country ownership as, "generally referring to an expanded role by the affected country in planning, implementation, and financing of health programming." (Collins & Beyrer, 2013) Similarly, a definition of sustainability is not universally accepted. PEPFAR's definition for a sustained response to a country led initiative to prevent or treat HIV infection "…means that a country has the enabling environment, services, systems, and resources required to effectively and efficiently control the HIV and AIDS epidemic." (PEPFAR, 2016) An enabling environment includes a responsive political will, effective policies, and a fair justice system, HIV services that are responsive to the populations needs, systems that ensure quality, efficiency, and effectiveness of services, and resources that keep systems and services operating. A tool called the PEPFAR *Sustainability Index Dashboard Index (SID)* (Figure 1) is being used for countries to assess their sustainability landscape following transition of resources and

knowledge to local ownership. It helps to inform PEPFAR on priority areas for investment and monitor progress in selected countries based on four general sustainability domains – Governance, leadership and accountability; the National Health System and service delivery; Strategic Investments, efficiency and sustainable financing, and Strategic Information (U. S. President's Emergency Plan for Aids Relief, 2018). The *SID* was used as an organizing framework for analysis of findings in this study.

Figure 1. The PEPFAR Sustainability Index and Dashboard (SID)



The sustainability of health investments has been discussed in the development literature, and numerous factors for sustainability have been identified (Hutchinson, 2010), (Scheirer, 2005), (Shediac-Rizkallah & Bone, 1998), (Wiltsey Stirman, et al., 2012). However, there is no clear consensus in the global health community with regards to specific criteria for assuring the sustainability of development investments (Hutchinson, 2010) (Scheirer, 2005) (Shediac-Rizkallah & Bone, 1998) (Wiltsey Stirman, et al., 2012). The *Program Sustainability Assessment*

Tool (PSAT) assesses capacity for public health program sustainability using a frame of eight domains – Political Support (includes Champions), Funding Stability, Partnerships, Organizational Capacity, Program Evaluation, Program Adaptation, Communications, and Strategic Planning (Luke, Annliese, Robichaux, Elliott, & Moreland-Russell, 2014). The *Cochrane Update* published 10 key elements for sustainability, including "ensuring supportive context (e.g., political, organizational/environmental), capacity building (e.g. stakeholders, community), effective partnerships and relationships and rigorous decision-making and planning" that basically correspond with the *PSAT* (Whelan, et al., 2014). A study by Hutchinson, based on a literature review, included 34 factors for assuring sustainability (Hutchinson, 2010) .

Other factors have been cited in recent studies where sustainability has been mentioned as important. These included: 1. Increased and continuing Stakeholder Involvement (Alemnji, Zeh, Yao, & P., 2014), (Biesma, Brugha, A, Spicer, & Walt, 2009) , (Burlew, Puckett, Bailey, Caffrey, & Brantley, 2014), (Moucheraud, et al., 2017), (Sharma, et al., 2013) , (Vogus & Graff, 2015), (Mpofu, et al., 2014), 2. Community Ownership in Low and Middle Income Countries (Iwelunmor, et al., 2016) , 3. Improving Service Delivery (Merson, Curran, Griffith, & Ragunathan, 2012), 4. Strategic Allocation of Resources (Merson, Curran, Griffith, & Ragunathan, 2012), 5. Co-financing of Countries (Mwisongo & Nabyonga-Orem, 2016), 6. Investing in Human Resources for Health (Palen, et al., 2012), 7. Financing Strategies and Strategic Allocation of Resources (Palen, et al., 2012), (Burlew, Puckett, Bailey, Caffrey, & Brantley, 2014), 8. Adjustment of Service Delivery Models to Recent HIV Prevention and Treatment Advances (Palen, et al., 2012), 9. Planning through high level diplomacy (Vogus & Graff, 2015), 10. Creating Sustainability Plans (Burlew, Puckett, Bailey, Caffrey, & Brantley,

2014), 11. Timing for Policy Intervention (Hirsch, Giang, Parker, & Duong, 2016), 12. Supporting Monitoring and Evaluation (Vogus & Graff, 2015), (Burlew, Puckett, Bailey, Caffrey, & Brantley, 2014), and 13. Shifting from American-funded NGOs to In-Country Organizations (Hirsch, Giang, Parker, & Duong, 2016).

A study by Oberth et al presented a conceptualization of sustainability in the HIV and AIDS response by presenting six factors, namely financial, epidemiological, political, structural, programmatic, and human rights (Oberth & Whiteside, 2016). A study by Savaya et al (Savaya, Elran-Barak, & Spiro, 2008) compared sustainability of successfully and unsuccessfully sustained community social programs after initial funding was ended and concluded that successful programs were not funded by a local government, but by an NGO. The leader of the NGO found alternative funding sources to sustain the program, local community relationships for supporting services and lobbying, and new champions from the community to raise funds. Relationships among sustainability factors were examined in a large study by Schell et al (Schell Sarah, et al., 2013) and presented in a conceptual framework for sustainability in public health related programs using literature reviews, an expert panel, and a concept mapping method that included scientists, funders, and practitioners. Of 85 relevant studies, nine core domains were mentioned that included Political Support, Funding Stability, Partnerships, Organizational Capacity, Program Evaluation, Program Adaptation, Communications, Public Health Impacts, and Strategic Planning. A solar system-like graphic framework emerged, with the center being Strategic Planning and all other factors equidistant to the center and to each other in a circular pattern. This framework was proposed to aid health programs to assess their capability for sustainability.

Methods

I-TECH has transitioned 262 products or projects to local partners since 2003, including teaching aids, curriculum and training packages, program infrastructure improvements, pre-service and in-service training products, clinical guidelines and policy documents, e-learning courses and tools, information systems, and more. This study undertook to learn more about six of these that were reported by stakeholders to be sustained for at least two years beyond transition. All six met the PEPFAR definition of sustainability, and the study attempted to identify factors that might account for their success. They were also selected based upon purposive sampling, with consideration to issues such as access to stakeholders with knowledge of the programs. Desk review and interviews with key informants (i.e., who were recommended by the founding director of I-TECH) also helped to narrow the selection to projects reported to be sustained over time and with adequate records, reports, and key informants to enable further exploration. These individuals were selected based upon their knowledge of the transitioned project or products and ability to report on their current state (i.e., degree of sustainability).

The six projects selected were:

1. Haiti's Electronic Medical Record System, *iSanté*

The Haitian Ministry of Public Health and Population (MSPP) and the CDC Global AIDS Program in Haiti contracted with I-TECH in 2005 to develop *iSanté*, an electronic medical records system to replace the paper-based existing system. A destructive earthquake in 2010 significantly damaged 12 of the 67 clinics it was supporting. Access to medical records were crucial to treatment of survivors. CDC, I-TECH, and the MSPP provided support. I-TECH was instrumental in recovering and replacing equipment and software (Flowers, Sutton, Labbe-Coq,

& Lober, 2010) By 2012, I-TECH and its partners had built a point-of-care system used by health providers through the country. I-TECH currently supports data quality and data completeness of *iSanté* through system revisions, education, and onsite technical assistance. *iSanté* was transitioned to the MSPP in 2012. As of 2017, it is functional in 141 sites.

2. Haiti's National Nursing School (*Ecoles Nationales d'Infirmières*) Curriculum

I-TECH started integrating HIV/AIDS material in the nursing curriculum in 2006. There was a complete revision of the 3-year to a 4-year nursing curriculum in 2012. I-TECH hired consultants and organized workshops to develop the new competency-based curriculum; it was finalized in 2013 and validated in 2014. I-TECH provided computers, books, and more to the school and organized the Training of Trainers workshop on use of the new curriculum. The curriculum was transitioned to MSPP in 2014.

3. Namibia's *HIV Clinical Mentoring Program*

I-TECH developed the first HIV clinical management curriculum in 2003. It soon became apparent that on-site mentoring would be critical to successful implementation of HIV management and ART. I-TECH then supported the Ministry of Health and Social Services (MoHSS) to introduce a clinical mentoring program in 2006. This program started with physicians from outside Namibia with ample experience in ART coming to Namibia and mentoring physicians on-site where ART was provided. With time physicians working in-country developed expertise in HIV-management and some became clinical mentors for less-experienced colleagues. As the number of patients on ART increased, it became clear that nurses would need to be trained in management of less-complicated cases and that treatment

would need to be decentralized to smaller clinics. Hence after a task-shifting demonstration project which showed that nurse-managed HIV treatment was feasible and effective in Namibia, the MoHSS implemented a Nurse Initiated Management of Anti-Retroviral Therapy (NIMART) Program with training support from I-TECH. Clinical mentors visit sites and support clinical HIV rounds, provide individual mentoring to physicians and nurses as well as in-service targeted training as needed at specific sites, review of chart with the local staff, and support for quality improvement committees and utilizing clinic data for action. The clinical mentoring program was largely transitioned to the MoHSS in 2015, although I-TECH continues to fill gaps, with mentors particularly in areas where MoHSS mentors are not available. The mentoring program has now expanded to include experienced nurses who then mentor other nurses.

4. Tanzania's *Clinical Assistant to Clinical Officer Upgrade Course*

This program started in 2014 in coordination with the Ministry of Health and Social Welfare (MOHSW) to address the lack of mid-level primary care clinicians in Tanzania. It is a two-year program for active Clinical Assistants to upgrade to Clinical Officers. It is a distance-based curriculum that takes two years to complete compared to the one-year residential course. I-TECH and PEPFAR supported the initial course when it was paper-based; the upgrade included creating a course that blends electronic and classroom teaching using three learning methods: self-paced distance learning using interactive e-learning medical materials on tablet computers; in-person classroom activities; and practical hands-on clinical training. Graduates earn a Diploma in Clinical Medicine. The revised course was transitioned to the MOHSW in 2016.

5. Botswana National *Monitoring and Evaluation (M&E) Cadre*

This new cadre was introduced to Botswana as a result of partnership among US CDC, I-TECH, the Botswana MOH, and the Ministry of Local Government. The M&E Cadre was started by recruiting new Botswana university graduates without M&E training, but with a background in demographics or statistics. I-TECH provided them with M&E training, mentoring, and distance-based consultation using the I-TECH training framework. They were employed by the government of Botswana, but trained by I-TECH. The M&E Cadre responsibilities included strengthening data collection, guaranteeing steady and timely reporting and feedback, encouraging a culture of data use and evidence-based planning, and building M&E capability within the health system. CDC Botswana noted in a 2012 press release that the M&E project was "a true example of how a USG funded project can be successfully transitioned". It was fully transitioned to the MOH in 2012.

6. Caribbean *Guidelines for the Prevention, Treatment, Care and Control of Tuberculosis and TB/HIV*

This was a joint effort of the Caribbean regional stakeholder, I-TECH, and the University of California San Francisco's Curry TB Center. In 2003, the Caribbean Region was experiencing one of the highest prevalence rates of HIV infection in the world. Initially, 12 countries from the Caribbean Region started collaborating in 2003 to develop HIV/TB guidelines. The original Caribbean Guidelines were a copyrighted product of Caribbean Regional Epidemiology Center (CAREC), a PAHO/WHO Center. Consensus was reached and, through the advocacy of CHART (Caribbean HIV/AIDS Regional Training Network, then led by I-TECH), the guidelines were electronically disseminated to Governments and MOHs in the Caribbean Region. I-TECH used

the guidelines for further development of training curricula and also for mentoring. I-TECH fully transitioned the CHART program and guidelines to the University of West Indies in 2012. Background information on each selected project was gathered from 12 I-TECH Country Directors, Technical Advisors, and Project Managers. A structured and standardized interview guide was used for interviews (Appendix B).

Interviews lasted between 30-60 minutes and were mostly face-to-face meetings at the I-TECH office in Seattle, Washington, USA. Respondents who were not physically accessible were interviewed by the researcher via Skype. Follow-up questions were done via email correspondence. Permission to record responses was requested prior to all interviews, after which they were personally transcribed by the researcher. All recordings were deleted after the transcription.

Transcriptions were reviewed using Microsoft Word and summarized, with factors related to sustainability noted and counted. Question #5 was examined separately since respondents answered it after studying the *SID* framework. The PEPFAR *SID* core element mentioned were listed and counted separately. The *SID* uses a scoring system to assess four overarching domains- 1. Governance, Leadership, and Accountability, 2. National Health System and Service Delivery, 3. Strategic Investments, Efficiency, and Sustainable Financing and 4. Strategic Information. Each of these domains has specific core elements under them that are central to sustainability of the HIV/AIDS response. It was these core elements that were analyzed for Question #5 (Appendix B). The *SID* was used for pre-set codes that included the 15 core elements and emergent codes for those not included in the *SID*. This resulted in thirteen of

fifteen themes emerging from the *SID* and four new themes retrieved from the other interview questions.

Results

I. Sustainability Factors Emerging from Questions #1, 2, 3, 4, 6, and 7

Questions #1, 2, 3, 4, 6, and 7 asked respondents to describe the project, stakeholders, documentation, and history. Four factors were mentioned most frequently by respondents, including the availability of external funding **(Funding),** the presence of someone who advocated for project sustainability (**Champion**); the degree of demand or need for the project (**Demand**); and the degree of buy-in or support and commitment from the national MOH for the project (**Buy-in**). Factors from answers to all questions except #5 were tabulated and are displayed in Table 1 below. Table 2 displays responses for Question #5. Factors that were mentioned for at least three projects were included in the final tables. The frequencies were distributed from highest to lowest for both tables. "Yes" indicates a significant factor mentioned by the respondents.

Table 1. Summary of Four Most Common Factors from Questions #1, 2, 3, 4, 6, 7.

		Factors		
Country/Program	Funding	Champion	Demand	Buy-in
Haiti EMR *iSanté*	Yes	Yes	Yes	Yes
Haiti *Nursing Curriculum*	Yes	Yes		Yes
Namibia HIV *Clinical Mentoring Program*	Yes	Yes		Yes
Tanzania *Clinical Officer Upgrade*	Yes		Yes	Yes
Botswana *M&E Cadre*			Yes	Yes

Caribbean *Clinical Guidelines*	Yes	Yes	Yes	Yes

II. Sustainability Factors Emerging from Question #5

Question #5 focused the attention of respondents on the *SID* domains and elements and asked them specifically which they thought could account for a project or product's successful transition and sustainability. It was shown to all respondents prior to asking Question #5.

Each of the four domains of *SID* contain core elements (15 in total). Respondents were asked to elaborate on their choices of influential core elements. Elements mentioned by three or more projects represented by respondents were deemed important to note. Seven core elements met this standard- namely Planning and Coordination, Policies and Governance, Service Delivery, Human Resources for Health, Domestic Resource Mobilization (HRH), and Epidemiological & Health Data and Performance Data (these last two are placed together because they were mentioned in 2/3 of all responses).

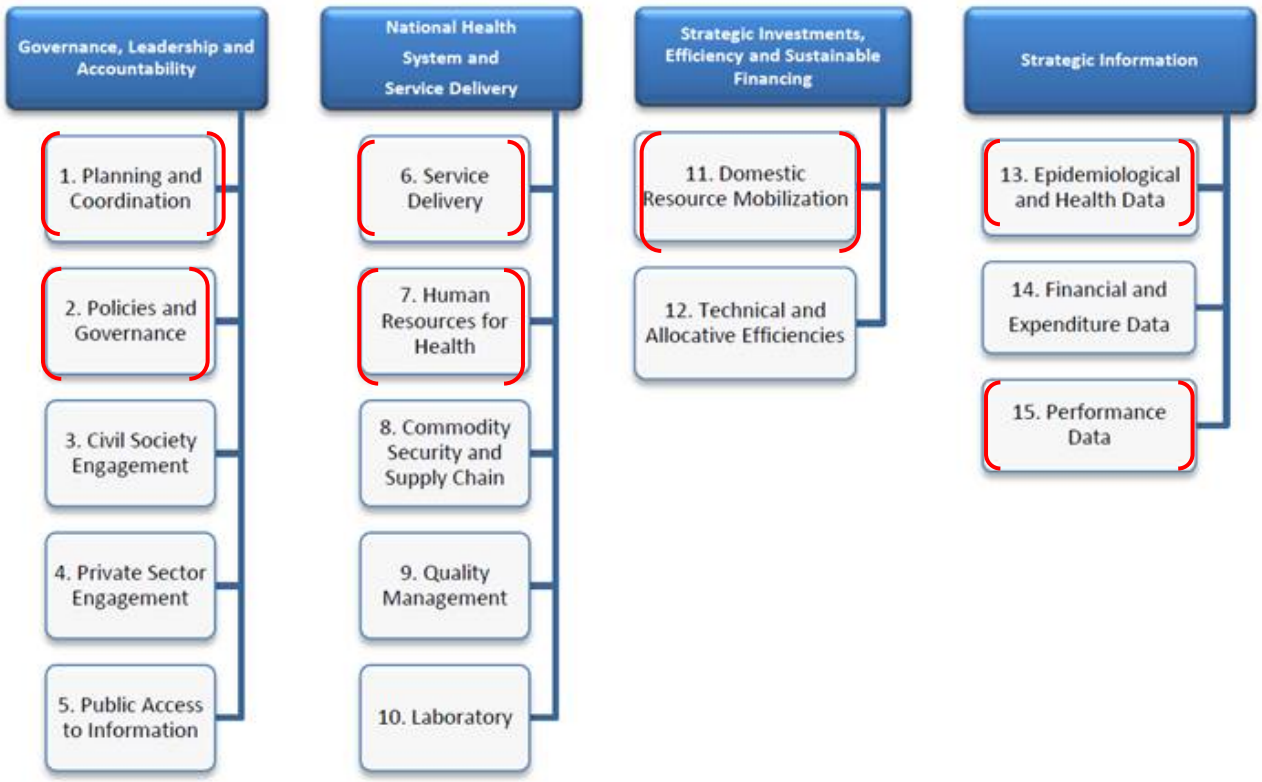
Table 2: Significant *SID* Elements Related to Sustainability of I-TECH Projects

	I-TECH Projects						
	Haiti EMR *iSanté*	Haiti *Nursing Curriculum*	Namibia HIV *Clinical Mentoring Program*	Tanzania *Clinical Officer Upgrade*	Botswana *M&E Cadre*	Caribbean *Clinical Guidelines*	Total number of Projects for the *SID* Core Elements
Governance Elements							
1. Planning & Coordination		Yes	Yes ***Important***		Yes ***Main factor. Key to transition***		4
2. Policies & Governance			***Important***		Yes. ***Big part of transition***	Yes	3

3. Civil Society Engagement							0
4. Private Sector Engagement							0
5. Public Access to Information			Yes				1
National Health System Elements							
6. Service Delivery	Yes	Yes ***Most important***	Yes ***Important***			Yes ***Key driver***	4
7. Human Resources for Health	Yes	Yes ***Most Important***	Yes. ***Very important and critical***	Yes	Yes	Yes ***Key driver***	6
8. Commodity Security & Supply Chain	Yes		Yes ***Essential***				2
9. Quality Management			Yes ***Key***				1
10. Laboratory			Yes				1
Strategic Investments Elements							
11. Domestic Resource Mobilization	Yes	Yes	Yes ***Key***	Yes			4
12. Technical and Allocative Efficiencies			Yes		Yes		2
Strategic Information Elements							
13. Epidemiological and Health Data	Yes ***Crucial***	Yes	Yes ***Top priority***		Yes	Yes	5
14. Financial & Expenditure Data			Yes. ***Top priority***		Yes		2
15. Performance Data	Yes ***Crucial***	Yes			Yes		3

Figure 2 (below) is another way of showing which PEPFAR SID sustainability factors were mentioned for at least three programs. These are marked in red brackets. Only six of the 15 core elements met this standard.

Figure2. Most Frequent PEPFAR *SID* Core Elements Identified for Successful Transition and Sustainability (Red Brackets)



Discussion

The factors most mentioned by project respondents (excluding the *SID* factors) were availability of continued funding, presence of a champion, demand, and buy-in. Prior to transition to local ownership, all projects were annually funded by external sources. It appears from interviews that all still needed some degree of continued external funding after transition, with the exception of the Botswana *M&E Cadre* and the Tanzanian *Clinical Officer Upgrade*. Those projects were maintained by the two governments, but, in the case of Botswana, they eventually scaled back the program because of decreased funding and a freeze in government hiring. In the case of Tanzania, continued funding for the program comes from the enrolled students' tuition and their

purchase of the electronic tablets that contain the curriculum. This keeps the program running, but it is not sufficient to update the curriculum over time. All other projects needed external funding to be sustained by the local partner, calling into question the definition of sustainability used for this examination. After the January 2010 earthquake, the Haitian government recognized the importance of retrieving records of patients for treatment, with the Haiti *EMR iSanté* central to this emergency response. Despite this and being fully transitioned at this point, the newly burdened government did not have the capacity to fully fund it. Today, the Haiti *EMR iSanté* still receives external financing for supporting maintenance of operations, replacement of vital infrastructure, and research and development. The Namibian *HIV Clinical Mentoring Program* is owned and managed by the Government of Namibia but is still receiving PEPFAR and Global Fund support in order to continue hiring clinical mentors. The Tanzania *Clinical Officer Upgrade* project was transitioned because PEPFAR funding ended early. Technical assistance was externally provided for another year but updating and maintenance work on the curriculum now lags. However, the Tanzanian government did mobilize funds to support the human resources needed for the transitioned training program because Clinical Officers are part of the new Primary Health Care System.

A "champion" refers to a person or persons who actively advocates for a program and significantly contributes to its sustainability following transition. Each project studied was able to identify its champions. The Haitian *Nursing Curriculum* was championed by the Director of Nursing from the MOH. *iSante* received support from the General Director of the MOH and persons from the National AIDS Control Program under the MOH. For the Caribbean *Clinical Guidelines for HIV*, the Ministers of Health from each country, and local HIV experts advocated

for their creation and dissemination on behalf of governments in the region. Transition to local ownership of the Namibian *HIV Clinical Mentoring Program* was supported by the President and the Minister of Health. Clearly the presence of a champion facilitates transition, but, coupled with continued need for external funding, this again calls into question whether programs can be sustained even with a champion. The study by Savaya et al (Savaya, Elran-Barak, & Spiro, 2008) concluded that successful programs were sustainable largely because two types of champions appeared. After funding was terminated, initially it was the leader of the original NGO that supported the program, looking for alternative funding. When the program grew roots in the community, new champions emerged from the private sector and local government. Many un-sustained programs do not have these two types of champions.

Demand refers to need for the project based on compelling epidemiologic evidence. For the Haiti *EMR iSante,* the General Director of the MOH recognized that health data was not consistent, so he created the National Committee for the Health Information System (CONASIS) to standardize national data. The Botswana *M&E Cadre* was developed because the CDC and the Government of Botswana recognized the complete absence of professional staff in Botswana able to collect and analyze national health data. This was the driving force for their joint investment in the project. There are now people assigned in each district who feed district level data for disease surveillance, operational research, and planning for use at the national level. Those interviewed regarding the Namibian *Clinical Mentoring Program* mentioned demand as a key factor for attempting to sustain the project. As a result of changes in guidelines for initiating ART, more people are qualifying for treatment and demand has increased for mentors. While demand is

clearly important, it does not automatically mean that local partners can sustain a project that helps to meet demand.

Buy-in means that the MOH or other local partner takes action by organizing meetings of stakeholders, creating new in-house staff positions, promoting teamwork, supporting activities that increase the number and skills of healthcare workers, and supporting the transition of the program to the local partner. The buy-in factor was present in all the programs that were successfully transitioned to local ownership. In the Haiti *Nursing Curriculum*, the MOH organized meetings with stakeholders (i.e., I-TECH, MOH Nursing Officials, the Information and Training Center in Health Administration [CIFAS], the Health Sciences Training and Development Department [DFPSS], and the Nursing School Directorate) and held follow up meetings on the second and third year thereafter to validate and present the curriculum to the public. The Government of Namibia has created new positions within MOH for mentors, demonstrating their commitment to the program. The Tanzania *Clinical Officer Upgrade* was placed under the directorate of the Department for Health and Human Resource Development within the MOH, legitimizing the project ahead of hiring a cadre to maintain it. In order for the Botswana *M&E Cadre* to be transitioned, the government created a new cadre inside the Human Resources structure, legitimizing the cadre. Twelve countries in the Caribbean bought into creation, distribution and updating of the *Clinical Guidelines*. They were all involved from the beginning, and each country's MOH provided local HIV experts to participate in development.

The PEPFAR *SID* model is used to take a snapshot of a country's overall sustainability situation after the transition of PEPFAR projects. Based on the four domains and 15 core elements, it

locates gap areas and monitors progress. The most frequently mentioned factors for sustainability related to *SID* factors in this study were planning and coordination; the presence of supportive policies and governance structures; access to trained human resources; strategic investments (or resource mobilization); and strategic information (or the availability of health and performance data). Planning and coordination implies the active participation of stakeholders in the planning phase of program transition and, later, sustainability. Stakeholders typically included the US Government through PEPFAR, the MOH, Medical Organization Heads, and University officials. In the Haiti *Nursing Curriculum*, the respondents emphasized the importance of seeking the participation of people who know the subject matter well for confirmation of demand and for tailoring the product to local needs. For the Botswana *M&E Cadre*, there was a true partnership among CDC, I-TECH, the MOH, and the Ministry of Local Government in planning and coordination. This is significant in that the *M&E Cadre* was probably the most truly sustained of the six projects studied.

The presence of supportive policies and governance structures refers to policies and laws that allow for the creation of new positions, absorption of healthcare workers, and other opportunities to strengthen the national health system. For example, the Government of Botswana created a new cadre within the Human Resources structure of MOH**.** Human Resources for Health (HRH) refers to a national health system where the health infrastructure is supported by adequate funding and support to assure a well-trained healthcare workforce. HRH was mentioned as significant in all six programs. For the Caribbean *Clinical Guidelines*, a sponsoring University partner provided infrastructure through their leadership and an IT department that maintains and upgrades the *Guidelines*. The Namibian *HIV Clinical Mentoring Program* and the Botswana

M&E Cadre essentially created HRH for health systems strengthening. The Namibian program shifted its delivery model from mentors who were Medical Officers to Nurse Practitioner mentors, and the presence of this existing cohort made this a seamless transition. Domestic resource mobilization is a factor in *SID* that includes program funding sourced from both PEPFAR (or other external sources) and the local government. It also relates to cost effectiveness and appropriate allocation of those resources. Concerns about domestic resource mobilization were reported for the Haiti *EMR iSanté* because of fears that there may be no long-term financing plan capable of supporting the ongoing maintenance of the EMR. Similar to comments highlighted earlier about external funding, the Namibia *HIV Clinical Mentoring Program* was mentioned as an example- it is still dependent on external funding. In the Strategic Information Domain, epidemiological health data and performance data refer to real-time data for decision-making. They indicate how resources are being used and influence decisions on where these resources may be redirected to higher incidence areas. Performance data drives investment decisions by US government donors and local governments. The Haiti *EMR iSanté* project affirmed that these factors were important for improving clinical care as it is being used for data exchanges between the local and national level sites. Because of the limited availability of trained programmers specifically for *iSanté*, a standard Open Medical Records System – OpenMRS - has been adopted that will widen the pool of hirable programmers. In the Haiti *Nursing Curriculum*, one of the modules on Health Information Systems (HIS) teaches about the use of data for decision- making.

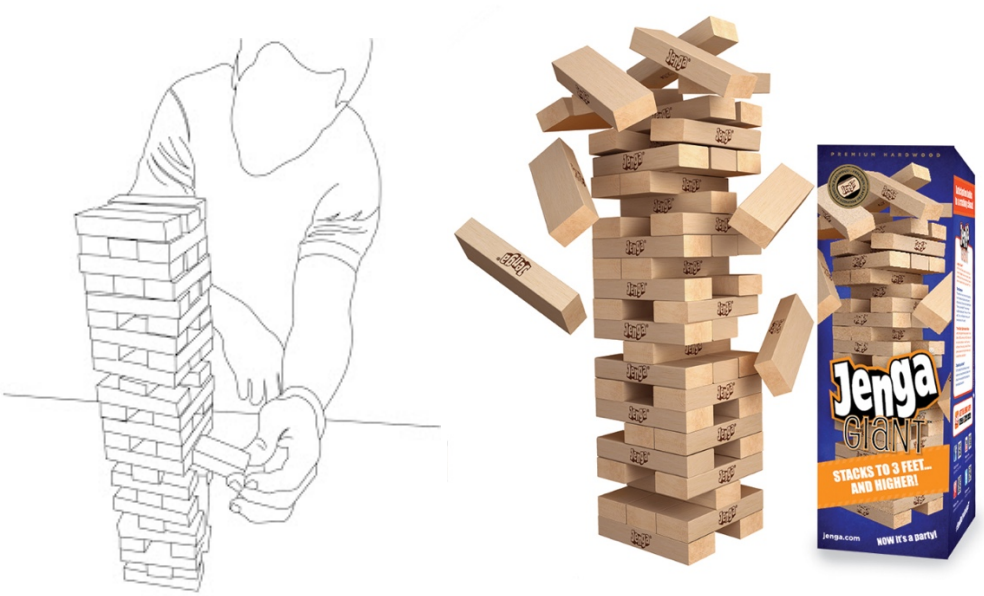
This study raises the question of whether fully functional projects are truly sustainable if one key factor- outside funding- is indispensable after their transfer to local governments. The earthquake

in Haiti revealed the government's need for continued assistance in order to use the *iSanté EMR* in that emergency situation. The change of priorities in the PEPFAR program resulted in Namibia's *Clinical Mentoring Program* being transitioned sooner than it could be fully maintained. Other external conditions such as the global economic downturn led to an early transition of the Tanzania *Clinical Officer Upgrade.* Even with the presence of an advocating champion, a strong demand for the project, and institutions working for project transition and sustainability, the bottom line for sustainability may be some degree of planned external funding for a defined period or re-applied in an emergency situation. The whole ecosystem described by the PEPFAR *SID* should be re-examined and aligned to acknowledge the possibility of unpredictable and uncontrollable external factors (e.g., natural disasters such as earthquakes or drought, abrupt leadership and political changes, economic downturns) that impact sustainability. Nonetheless, it is also critical to pursue the goal of assuring that aid investments are not open-ended and can be successfully transitioned to country ownership and sustained over time by them.

Conclusion

Successful sustainability may be similar to the tower game called Jenga. Jenga (Jenga Rules. http://jenga.com) uses wooden blocks to build a tower. They are first stacked in a way that builds a stable tower, and then players remove one wooden piece at a time until enough pieces have been removed to cause the tower to collapse. The winner is the last one to remove a piece without causing it to fall. Jenga implies that all wooden pieces are contributory to the integrity of the tower, though not all pieces are needed for it to stand.

Figure 3. JENGA Game Applied to the Concept of Transition and Sustainability



The same principle could apply to the question of how to create or predict sustainability. Envisioning a Sustainability Tower, one would build a tower from the base up until it reaches a point of integrity and sustainability. The lower levels include blocks that are key to sustainability, and the upper levels consist of factors that are less critical. Jenga has five levels. All levels must start from the Foundation level, which, in the proposed conceptual model, is the presence of external funding to establish a strong program that can be transitioned (PEPFAR funding, in this example) and could be accessed, as needed, for some time following transition. Projects without this are largely not sustainable. The first level after that is labeled Key Factors because these are found in the beginning of all the projects and were declared as essential. All of these were critical for moving the projects forward, supporting the next factors, and progressing the levels towards sustainability. Based on this study, those building blocks would include: Buy-in, Demand, and the presence of an advocating Champion.

Next, there is a progression from the second level (policy and governance) to the third (strategic investments) and, finally, to the fourth level of strategic information. Each level has a total of ten points. Each wooden slat would be named after a factor for sustainability (e.g., buy-in, champions, planning and coordination, demand). Slats inserted at each level would divide the ten points proportionately among factors at that level and based on their frequency. Scoring would be all or none for each factor. A score of less than five at any level would make the whole tower unstable and transitioning/or maintaining an investment unlikely. Some slots might be replaced by other slots that were not present at the start. For example, core elements in the PEPFAR *SID* that were not used, but are relevant to a particular program, could be added.

Table 3. Sustainability Tower for PEPFAR Investments

LEVEL of SUSTAINABILITY		
4th Level The National Health System		
Human Resources for Health (6pts.)	Service Delivery (4 pts.)	(Maximum score = 10 pts) (> 5/ level is supportive)
3rd Level Strategic Investments		
Domestic Resource Mobilization (10 pts.)		Maximum score = 10 pts (> 5/ level is supportive)
2nd Level Governance		
Planning & Coordination of Stakeholders (5 pts.)	Policies Supporting Program (5 pts.)	Maximum score = 10 pts) (> 5/ level is supportive)

1st Level The Key Factors			
MOH/ UNIV Buy-In (4 pts.)	Demand/ Epidemiologic Data (3 pts.)	Champion (3 pts.)	Maximum score = 10 pts (> 5/ level is supportive)
The FOUNDATION Level United States Government Funding (PEPFAR) (10 pts)			Maximum score = 10 pts (> 5/ level is supportive)

The global health landscape turned more toward seeing aid investments as a partnership between donors and recipients since the 2002 Monterey Consensus and the 2008 Financial Crisis. These events encouraged the concept of transition to country ownership as an efficient use of donor funding. This has significantly changed how resources are used and has motivated planners to consider more closely how transition and sustainability occur. Many factors need to be present to achieve this- some more than others and some as a prerequisite for others. Some level of continued external funding, even after transition, appears fundamental to any project and the buy-in, demand/need, and presence of a champion factors are key pillars. All major factors in this study may be hierarchically interrelated. The researcher presented a conceptual model based on the game, Jenga, as a potential tool for planning how to achieve successful transition and sustainability. He hopes that this model can be refined and eventually used by researchers, planners, and practitioners involved in the containment of HIV and AIDS.

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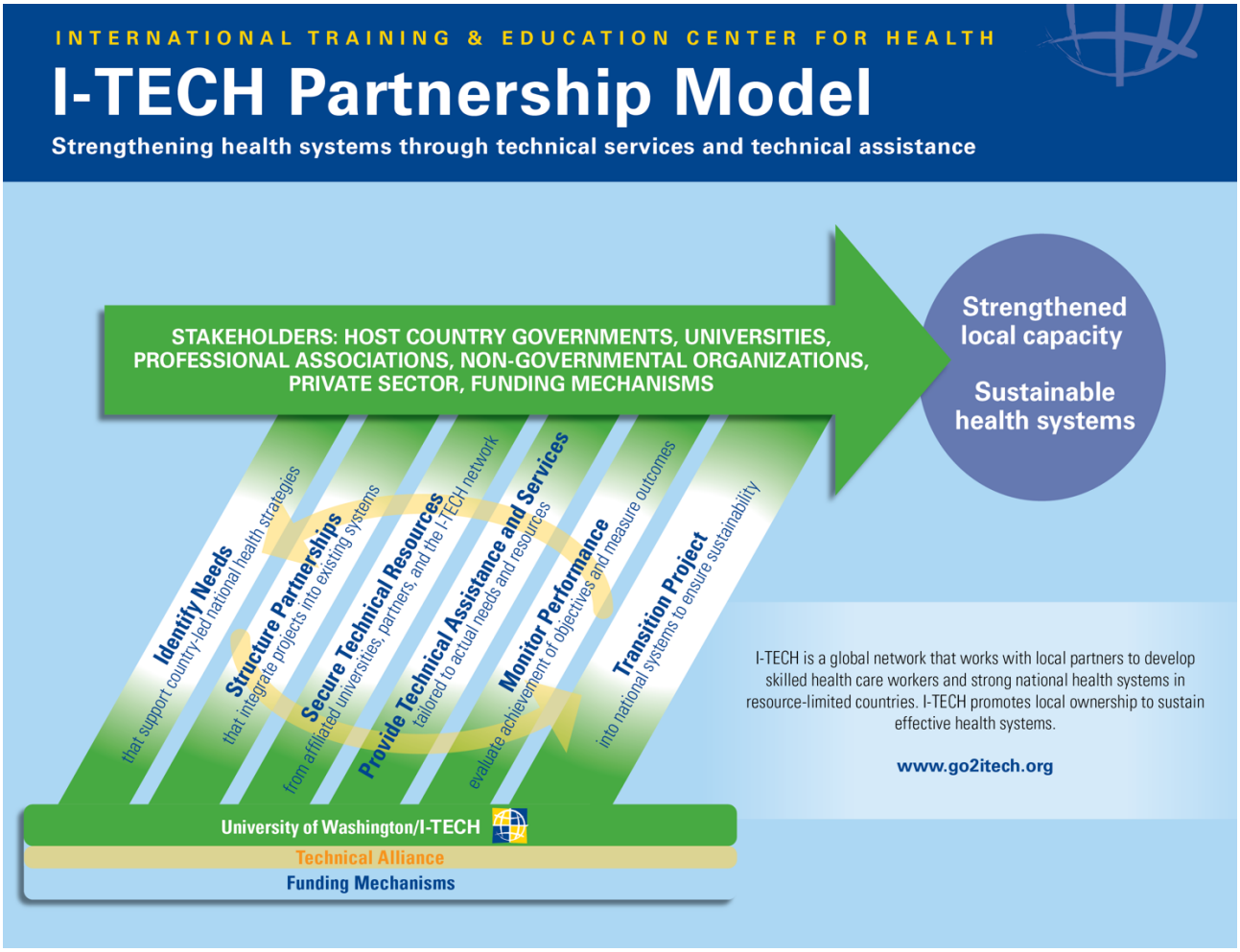
Appendices

A. The I-TECH Partnership Model_ 060117.



B. Interview Guide

1. What is the background of the project/product?
2. Who were the key stakeholders?
3. To the best of your knowledge, what year was it transitioned to local ownership?
4. What is the current status of the project/product?
5. How has it evolved? Has it been sustained over time? Improved upon over time?
6. In relation to the SID, which among the 15 elements were most influential for the program's successful transition and current sustainability? How or why?
7. What lessons about transition and sustainability do you think we can learn from this effort?
8. What documentation do we have on the program and/or its transition?