Use of systems mapping in Namibia

An approach for retroactive evaluation and prospective program design

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Acknowledgements

Abbreviations

ACS   African Collaborative for Health Financing Solutions

GRN   Government of the Republic of Namibia

HA   Health Accounts

HA-TWG   Health Accounts Technical Working Group

HRT   Harmonized resource tracking

HSS   Health system strengthening

MoHSS   Ministry of Health and Social Services

NASA   National AIDS Spending Assessment

PSEMAS   Public Service Employee Medical Aid Scheme

RQ   Research question

RT-TWG   Resource Tracking Technical Working Group

SHA   System of Health Accounts

UHC   Universal health coverage

USAID   United States Agency for International Development

Introduction

The African Collaborative for Health Financing Solutions (ACS) is a five-year, United States Agency for International Development (USAID)-funded project supporting six sub-Saharan African countries (Benin, Botswana, Burkina Faso, Namibia, Uganda, and Togo) advance their universal health coverage (UHC) agenda. Specifically, ACS works to support its countries march towards UHC around five core functional areas:

- Continuous demand assessment
- Multi-stakeholder collaboration
- Strengthening accountability mechanisms
- Promotion of continuous learning
- Provision of health financing technical support

In Namibia, ACS collaborated with national stakeholders to identify the following priority areas of focus: 1) Secure stakeholder consensus on the package of HIV/AIDS services for epidemic control; 2) Cost the package of HIV/AIDS services; 3) Support the government to institutionalize health and HIV/AIDS expenditure tracking; 4) Determine the feasibility and potential cost savings of giving Public Service Employee Medical Aid Scheme (PSEMAS) beneficiaries access to HIV/AIDS medication and supplies procured centrally by the Ministry of Health and Social Services (MoHSS); and 5) Support the government's sustainability planning efforts. These priorities are anticipated to assist the Government of the Republic of Namibia (GRN) to ensure that sustainable financing for the HIV/AIDS response serves as a key component of the country's UHC agenda and that steps are taken to plan and prepare for sustainable HIV epidemic control.

The purpose of this report is to provide an overview of the use of systems mapping techniques to visualize the Namibian resource tracking (RT) system at two points in time: before and after the effort to combine two parallel resource tracking activities. The report highlights the methodology that was used, the results of analyzing the pre- and post-harmonization maps to identify system challenges before harmonization and the changes to resource tracking system components post-harmonization and discusses the unique challenges with taking this approach in the COVID-19 context within Namibia.

Contextualization of the Study

With a relatively strong economy motivating international funders to reduce their investment in the country's health system, Namibia is facing constant pressure to achieve its health outcomes with its domestic budget, motivating a strong interest among health actors to identify relevant sustainable health financing solutions. Decision-makers are aware that sustainable health financing decisions require sound information to underpin successful policies and interventions. Decision-makers also recognize that access to reliable resource tracking (RT) data is essential to making comprehensive strategic investment decisions for desired health outcomes.[1]

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[1] Resource tracking consists of tracking past expenditures on health or on a specific disease in a country, as well as the flow of funds throughout the entire health system. The obtained information enables a detailed understanding of where the money comes from, who manages the funds, and how the funds are spent.

As a relatively young country who gained its independence in 1990, Namibia conducted its first resource tracking exercises in 2002. Until 2019, the country tracked its health-related expenditures simultaneously using two methodologies: Systems of Health Accounts (SHA), more recently referred to as the Health Accounts (HA), and the National AIDS Spending Assessment (NASA). SHA and NASA have different scopes in that the SHA focuses on all spending on health, while the NASA is disease-specific and focuses on HIV spending only, which includes health and non-health spending, and may also include spending on integrated efforts for co-morbidities (such as TB prevention for HIV-positive persons). While the SHA also estimates HIV spending specifically, as it is one of the key diseases that can be tracked separately within the SHA framework, the approach and level of detail of tracking HIV expenditures is slightly different to the NASA's. Historically, SHA was implemented with oversight by the Policy Planning & Human Resources Development Directorate (PPHRD), while NASA was done by Directorate of Special Programs (DSP), both of which are housed within the MoHSS.

National stakeholders recognized that the simultaneous use of these donor-driven methodologies was both time-consuming and draining on the country's financial resources. The application of these siloed methodologies resulted in inefficient and inconsistent management of limited health resources. It is from that perspective the Ministry of Health and Social Services (MoHSS), in collaboration with the ACS project, developed an approach that ensures the needs for both general health and HIV expenditures data can be fulfilled through one efficient and inclusive process that meets the requirements of both the SHA and NASA methodologies. The current hurdle is understanding the processes and decisions necessary to support this transition to a harmonized approach and the necessary steps to build the capacity and sustainability of country stakeholders to implement it in the future.

Purpose of the study

The ACS Harmonized Resource Tracking (HRT) evaluation team used systems mapping, process tracing, and outcome harvesting exercises in an attempt to demonstrate how, via the interventions of the ACS project, structures and processes of the Namibian Health System shifted over time to support the harmonized resource tracking (HRT) approach. The combination of exercises sought to illuminate what changes occurred across the system, why those changes may have occurred, and the positive and negative results of those system changes. The following three questions guided the assessment:

1. **What changes occurred for whom, where, and when?**

This study aimed to understand the changes observed regarding resource tracking for the health system. As such, the study focused on a sub-system of interest—the actors and interactions involved in health system resource tracking. Focusing on this sub-system enabled the efficiency of the assessment by clearly delineating the area of interest and refining the data collection tools. Without a boundary, the length and scope of the data collection could continue to grow over time. In addition, working in a sub-system that is well defined created supportive conditions for testing the feasibility of this innovative combination of methods in measuring systems change over time before attempting the approach on a larger, less well-defined system. Lessons from this study can be used to not only determine how resource tracking activities have led to changes in the broader system but also provide an example of how bundled approaches to health system

strengthening measurement, evaluation, research, and learning (MERL) for those interested in new approaches to measuring system change.

2. **How and why did these observed system changes occur?**

After identifying system changes before and after the launch of the HRT approach, the study focused on understanding how those changes occurred and why. Specifically, the HRT research team documented the steps required to ensure buy-in and agreement on the move to HRT among key system stakeholders, the specifics of ACS contributions to the way system changes occurred, and finally, determining, with certainty, the value add of ACS's support in harmonizing the resource tracking methodologies.

3. **What do these changes mean for the HIV/AIDS response in Namibia and overall functioning of the health system?**

Once the changes across the resource tracking sub-system are identified as well as the mechanisms used to achieve those changes, there was a need to understand the significance of the outcomes (positive and negative) in relation to the HIV/AIDS response as well as their potential carry-over effects on the broader Namibian health system. The significance is an important factor when trying to understand what a change in the efficiency of resource tracking means in the Namibian context, as expressed by the actors within that system. It answers the question, "why is the outcome important for allocative efficiency within the HIV/AIDS response or Namibian health system more broadly?" It provides practical information about how a gain in efficiency, for example, can be used to support other parts of the health system in Namibia and why it should matter to those within the health system.

Systems mapping methodology

In conducting this HRT Assessment, the HRT evaluation team identified the following research questions (RQ) to determine what changes occurred in the Namibian resource tracking system over time; how those changes were influenced or affected by the implementation of a single, harmonized approach to health expenditure tracking; and what outcomes that harmonized approach produced (both positive and negative) across the resource tracking system and the broader health system:

- RQ1: "How has the Namibian resource tracking system in Namibia changed over time due to the implementation of a single, harmonized health expenditure tracking approach?"
- RQ2: "How have the ACS project interventions contributed to shifts in the Namibian resource tracking system over time?"
- RQ3: "What are the outcomes (both positive and negative) on the health system that have resulted from the implementation of a single, HRT methodology in Namibia?"

In answering RQ1, the HRT evaluation team needed to understand how the resource tracking system (sub-system of the broader Namibian health system) changed over time. In particular, understanding the structures, behaviors, and patterns of the system *before* the implementation of the HRT approach as well as *after* the implementation of that approach, to determine shifts over time.

Even with the strict definition of the sub-system that the HRT evaluation team was studying, it is important to note that these are *complex* systems. A complex system exhibits non-linear, organic, and adaptive behavior, making it difficult to predict what will happen in the system[2]. For further reading on system complexity and frameworks to understand the differences between complex, complicated, and chaotic systems, please see the references on the Cynefin Framework[3]. Understanding that health systems are complex, the only way to effectively make sense of these complex systems is to visualize the many pieces and see how they're connected to form an intricate whole. Then, identify the opportunities for change or innovation that are ripe for experimentation, learning, and adaptation.

To gather information about the entire resource tracking system—including the ways in which it's connected to the broader Namibian health system, the HRT evaluation team began with a document review. Using the data from the literature and conversations with the ACS Namibia team, the HRT evaluation team constructed an in-depth study protocol[4]. The questionnaires to guide key informant interviews focused on the resource tracking system before (pre-HRT) and after (post-HRT) the implementation of the harmonized approach. The included representatives are listed in Figure 1. Ultimately, 12 key informants participated in interviews about both the pre-and-post HRT system.

The HRT evaluation team found that the most useful way to visualize the system was to map it before and after the implementation of the HRT approach to demonstrate the system changes over time. The team used a systems mapping approach called 'systemigram' (coming from the terms: systemic and diagram) from the Boardman Soft Systems Methodology to visualize snapshots of the system that include its many components and their interactions or relationships.[5] There are many different approaches and methods for visualizing systems including causal loop diagrams[6], rich pictures (from Peter Checkland's Soft Systems Methodology)[7], stock-and-flow diagrams (from Jay Forrester's developments in Systems Dynamics at MIT)[8], and actor mapping.[9,10] The systemigram approach was particularly useful in this assessment because its series of nodes (circles) and linkages (lines) allows the user to visualize many components of the system, including

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[2] Meadows, Donella H., and Diana Wright. Thinking in Systems: A Primer. White River Junction, Vt: Chelsea Green Pub, 2008.
[3] Snowden, David J., and Mary E. Boone. "A Leader's Framework for Decision Making." *Harvard Business Review*, November 1, 2007. https://hbr.org/2007/11/a-leaders-framework-for-decision-making.
[4] This went through an IRB review and approval processes in the United States through Health Media Labs (project ID: 810R4D20; approval date: 12/14/2020) and received approval in Namibia through written consent from the Executive Director within the MoHSS on 02/01/2021
[5] Blair, Charles D., John T. Boardman, and Brian J. Sauser. "Communicating Strategic Intent with Systemigrams: Application to the Network-Enabled Challenge." Systems Engineering 10, no. 4 (2007): 309–22. https://doi.org/10.1002/sys.20079.
[6] Pegasus Communications, Inc. "Guidelines for Drawing Causal Loop Diagrams." The Systems Thinker: Building Shared Understanding 22, no. 1 (February 2011): 5–7. https://thesystemsthinker.com/wp-content/uploads/pdfs/220109pk.pdf.
[7] Bell, Simon, and Stephen Morse. "How People Use Rich Pictures to Help Them Think and Act." Systemic Practice and Action Research 26, no. 4 (August 2013): 331–48. https://doi.org/10.1007/s11213-012-9236-x.
[8] Forrester, Jay W. "Some basic concepts in system dynamics." *Sloan School of Management, Massachusetts Institute of Technology, Cambridge* 9 (2009).
[9] Gopal, Srik, and Tiffany Clarke. "System mapping: A guide to developing actor maps." *Boston: FSG. http://fsg. org/tools-and-resources/system-mapping* (2015).
[10] This report will not discuss these and other system visualization methodologies, but note that they are all useful tools in different contexts for understanding the dynamics of complex systems.

system actors (including institutions, individuals, networks, etc.[11]), resources, outcomes, and other phenomena. Moreover, rather than just showing the direction/type of influence between these components, the systemigram approach allows for nuanced definitions of the relationships between the different components.[12] Additional labeling and coding support further customization to categorize and define the many dynamics that occurred in the system.

By using a system mapping approach, the team was able to visualize the multi-directional, multi-dimensional relationships and interactions that comprised the resource tracking system—and do so in one diagram. In addition to these maps depicting the components of the system and their interactions, they also identify 'leverage points' in the system. Leverage points are "places in the system where a small change could lead to a large shift in behavior"[13] and thus potentially create opportunities for innovation and ripple effects across the system.

While visualizing the many interconnected components of a system is useful in helping view the system holistically, it can be daunting and overwhelming to map a system in an unbounded way. Defining the boundary of the system of interest is a critical first step. As such, it was key for the HRT evaluation team to focus the RQs and bound the inquiry by looking specifically at *resource tracking*—the system of focus—as opposed to the entire broader Namibian health system.

The study questionnaires covered key components of the resource tracking system including actors, resources, feedback loops, duplicated efforts, missing linkages, efficiencies/inefficiencies, and opportunities for adaptation/innovation. The HRT evaluation team analyzed the data using Atlas.ti qualitative coding software to identify key themes related the resource tracking process (data collection, data analysis, etc.); resource tracking stakeholders' participation in the process and use of the findings; strengths and limitations of the approach; and linkages to the broader Namibian health system. Through the analysis process, the HRT evaluation team developed 38 'codes' and identified 470 coded statements in the interview transcripts. The information was used to develop the series of nodes and linkages in Kumu[14] systems mapping software that comprise the pre-and-post HRT system. After developing the pre-and-post HRT systems maps, the products were shared with the key informants in order to validate the findings. For additional detail, please reference the full study protocol in **Annex C**.

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[11] United States Agency for International Development (2022). *Health System Strengthening Learning Agenda* [White Paper]. https://www.usaid.gov/sites/default/files/documents/Final_HSS_Learning_Agenda_.pdf

[12] Sauser, Brian, and John Boardman. "Systemigram Modeling for Contextualizing Complexity in System of Systems." In *Modeling and Simulation Support for System of Systems Engineering Applications*, edited by Larry B. Rainey and Andreas Tolk, 1st ed., 273–302. Wiley, 2014. https://doi.org/10.1002/9781118501757.ch11.

[13] Meadows, 145.

[14] Created in 2011 by Jeff and Ryan Mohr as a simple way to talk about complex systems, Kumu is a single platform that allows users to collaborate in creating stakeholder maps, systems maps, social network maps, community asset maps, and concept maps. Learn more at https://kumu.io/.

Figure 1: External sources for primary data collection

| Methodology	Stakeholder group	Number of interviews	Total
KII	Government agencies	11	10
KII	Private Sector	1	1
KII	Donors	3	3
		Total	*14*

KII- Key Informant Interview

It was important to incorporate a diverse set of actors with varying roles, responsibilities, and incentives in the key informant interview process to allow for a fuller, more accurate picture of the system of focus. This broad set of actors were also critical for the results validation process. Three virtual validation workshops with three different groups of key informants were conducted to share the findings and draft systems maps to elicit feedback on the level of accuracy of the depicted systems. Key informants were asked to share whether they thought any components of the maps were incorrect and whether anything was missing. Key informants were also able to ask questions about the findings and participate in a general discussion about the system changes over time.

This systems mapping methodology can be used both retrospectively (as was done in this assessment)) or prospectively. In this case, the methodology was used to map a system at two distinct points in the past (based on data collected from key informants). This helped demonstrate how the system changed over time and determine what influence the ACS Namibia intervention might have had on that change. However, this methodology can also be used to develop a map of the present-day system to determine what current challenges, opportunities, and 'leverage points' exist. This prospective application can identify where and how to engage in a system to create the conditions ripe for change. In this sense, systems mapping is immensely powerful as a diagnostic tool that can be used in the early stages of program design to understand the context and determine a plan for action.

Constructing the maps

The construction of the systems maps required the use of a series of 'nodes' and 'linkages'. The nodes represent the nouns, and the linkages represent verbs that describe how those nouns are connected. The arrow on the linkage represents the direction of influence and the direction that the user should read the connected components. For example, the nodes and linkages in Figure 2 would read "Data collection is refined through data analysis. Data analysis is presented in reports."

Figure 2: Constructing systems maps with nodes and linkages
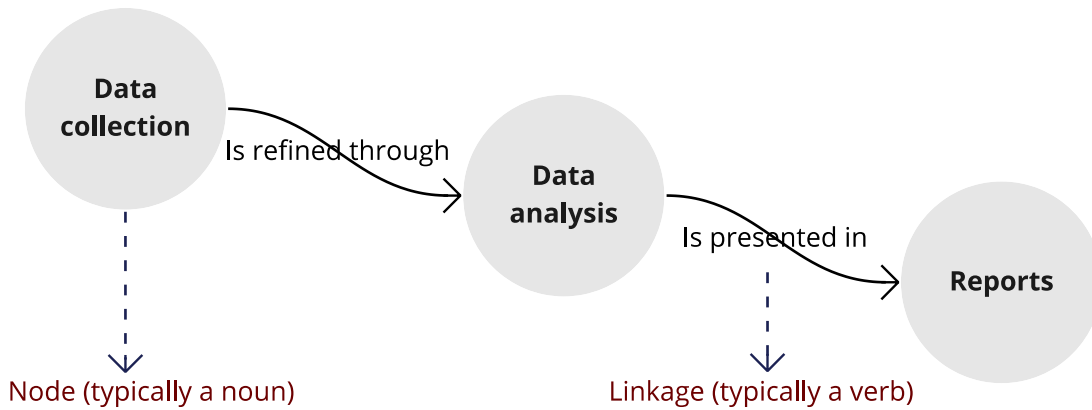
Data collection is refined through data analysis that is presented in reports

Additionally, the legend signifies where to start reading the map (green nodes), which nodes are 'leverage points' (orange nodes), and which components of the system are connected to HA, NASA, or both (represented by blue or yellow half-rings around the nodes, respectively).

Figure 3: HRT Assessment systems mapping legend[15]

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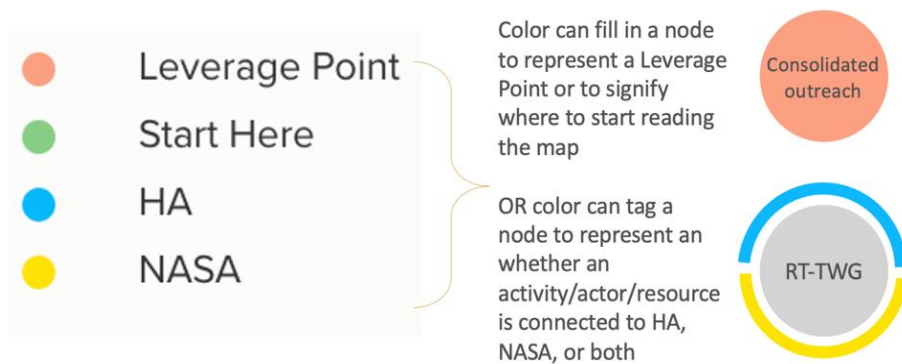
[15] RT-TWG denotes the Resource Tracking Technical Working Group.

Figure 4: Example of nodes, linkages, and legend used in HRT Assessment systems maps
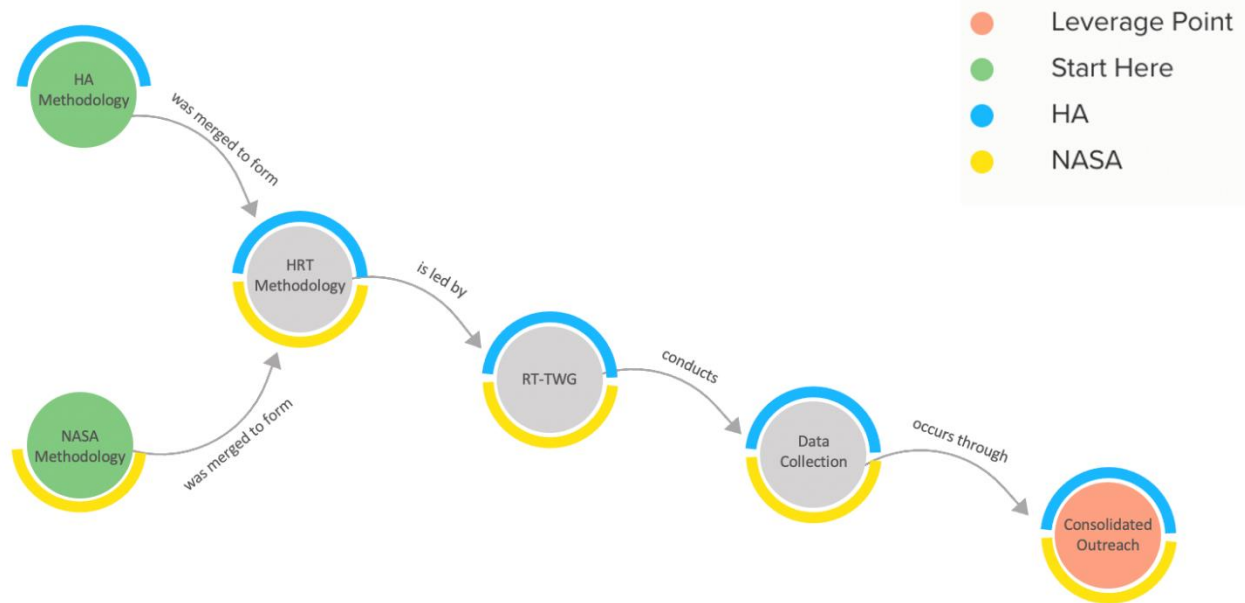
In this example, the user would start with either "HA Methodology" or "NASA Methodology", noting that the two were merged to form the "HRT Methodology". Additional examples of these maps are included below.

In addition to depicting the components of the system and their connections through a series of nodes and linkages, the coded insights from the qualitative data analysis process are tagged to these nodes and linkages through the Kumu software so a click on a node/linkage will show the qualitative data that underpins that component of the system. For instance, it lists how many respondents made certain statements and shares anonymized quotes. An example of this is the node for "Divergent findings" in Figure 5. Clicking on this node in Kumu allows users to see those seven key informants (the number shown in parentheses) mentioned that HA and NASA findings are often conflicting. The user can also see an anonymized quote describing the implications of those conflicting findings.

Figure 5: Example of coded insights from HRT Assessment tagged to nodes and linkages in Kumu software
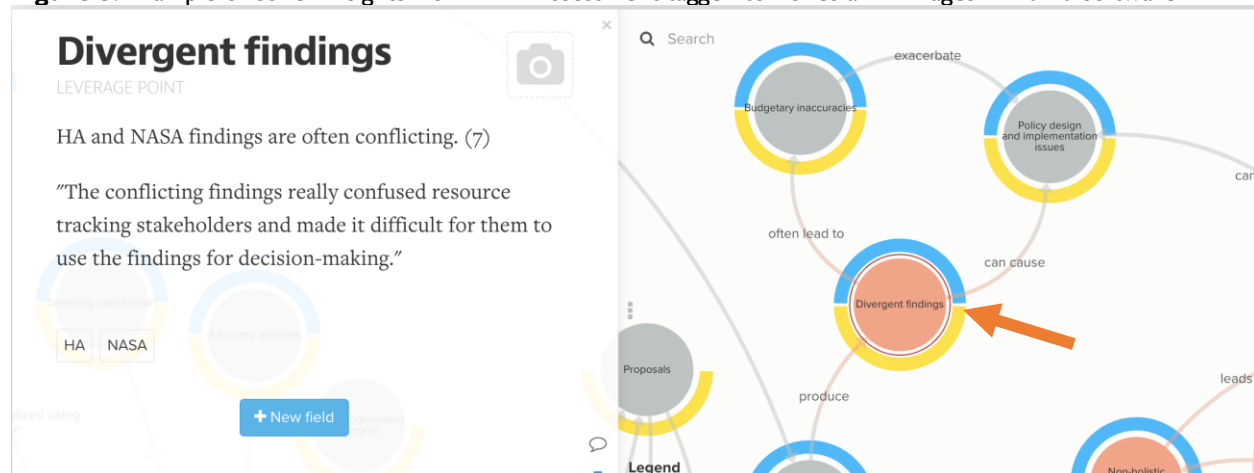
Implementation timeline

The implementation timeline for this methodology is shown below. There is a clear time lag between the selection and onboarding of local research consultants and the implementation of data collection process through key informant interviews. This delay was due to the COVID-19 pandemic and is further discussed in the Limitations section below.

Figure 6: HRT Assessment timeline

Step 1: November 2020 Onboard the ACS Namibia team and conduct a review of existing documents

Step 2: December – January 2021 Select local research consultants, determine sample, and design data collection tools, IRB application process

Step 3: March – May 2021 Conduct interviews and additional document review

Step 4: June 2021 Data analysis and mapping

Step 5: July – August 2021 Draft reports and knowledge products

Step 5: August – October 2021 Findings validation, refining and finalization of products, dissemination

Limitations

Data collection

The systems mapping data collection process included conducting key informant interviews with stakeholders connected to resource tracking within the Namibian health system. Two local consultants were contracted to lead this primary data collection process. Under normal circumstances, the key informant interviews would have been conducted in person. However, at the time of this assessment, the COVID-19 pandemic was surging in Namibia, and it was not feasible to conduct interviews in person as it would lead to undue health risks to the team and

the respondents; therefore, the key informant interviews were conducted via Zoom. Unfortunately, it was difficult to connect with some of the key informants, as many of them worked with the Ministry of Health and were busy managing the response to the COVID-19 crisis—or in some cases, were ill themselves. As a result, the data collection and assessment timelines and assessment were significantly delayed. Once interviews were scheduled, there were some issues with bandwidth/connectivity. Technological difficulties compounded the general limitations of conducting virtual interviews as opposed to in-person (not being able to gauge reactions, body language, sense the type of response and probe more deeply, etc.). Additionally, some key informants did not understand all of the questions, whether about the resource tracking process or, more commonly, about the connections between the resource tracking process and the broader health system. In these instances, the HRT evaluation team was not able to gather as much information and in some cases had to skip some questions. For the majority of key informants who did understand the questions, however, the HRT evaluation team was able to gather a wealth of stakeholder perspectives and insights.

Data analysis and stakeholder validation

After gathering primary data through key informant interviews, the data was coded using Atlas.ti and analyzed to determine key components of the system and to surface themes. The thematic analysis was used to develop the maps of the pre-and-post HRT systems. After developing draft versions of these systems maps, it was critical to complete a stakeholder validation process to confirm the accuracy of the visual representations of the system over time.

Under normal circumstances, the stakeholder validation process would be conducted in an in-person workshop; however, due to the COVID-19 pandemic and risks (discussed above). three validation workshops were conducted over Zoom using an online collaboration platform Miro.[16] During virtual validation workshops, some participants had challenges with internet connectivity and/or using the Zoom or Miro platforms. With Miro in particular, participants had varying degrees of comfort interfacing with the platform and thus shared their feedback verbally rather than directly typing/adding feedback. The feedback was coded in real time (by a HRT evaluation team member) by adding participant comments to the Miro board for participants to view/follow along. During group discussions, it became clear that some participants were deferring to more senior participants, demonstrating some limitations to eliciting open/honest feedback due to hierarchy. Additionally, due to the virtual format, the validation workshops had to be shorter (2.5 hours) than the originally planned in-person workshops (full-day) to maintain participants' engagement. To mitigate this challenge as much as possible, draft systems maps and guidance for using the Miro platform was shared in advance of the workshop so that participants could review and maximize time in the workshop. However, sharing findings and obtaining feedback through a virtual workshop on a much tighter timeline resulted in participants expressing the need for more time to review the systems maps individually and sharing feedback. As a result, after the virtual workshops, participants were individually contacted to elicit additional feedback. Following this additional outreach, it was noted that there was consensus on the systems maps and any suggested changes were minor. This demonstrates a strong level of accuracy in the systems maps from the perspective of those key system actors.

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[16] Miro is an online collaborative whiteboard platform that enables distributed teams to work effectively together, from brainstorming with digital sticky notes to planning and managing agile workflows. Learn more at https://www.miro.com/

Systems mapping findings

When reviewing the pre-and-post HRT systems maps, different features and components can be identified of this dynamic system at two distinct points in time. First, by looking at each map individually, there are clear structures, patterns, opportunities, and limitations (e.g., inefficiencies, missing components, etc.). Then, by comparing the pre-and-post HRT maps, it is visible the changes to structures and patterns over time and the ways the system has improved performance (or not), through the HRT implementation process.

Pre-Harmonized Resource Tracking Findings

The following findings describe the pre-HRT system, as depicted in **Annex A**.

Data Collection

Inefficiencies

In order to collect health expenditure data, both the HA and NASA methodologies required outreach and discussions with the same stakeholders (MoHSS staff, civil society organizations, etc.), henceforth referred to as 'RT respondents'. Not only did this require significant stakeholder engagement, but the stakeholders started to feel respondent fatigue as a result of being contacted frequently for similar purposes. During the HRT Assessment one key informant noted, "there's significant limitations to running the two processes in parallel, which would even include respondent fatigue, someone saying, but I answered all these questions two months ago and now you're asking for the same data, but in a different format." During the key informant interviews, there were three distinct mentions of this respondent fatigue, which they connected to a limited ability to gather accurate data in a timely manner needed for completion of the NASA and HA methodologies.

Figure 7: Part of pre-HRT System Map demonstrating inefficiencies caused by collecting data for two different methodologies from the same group of respondents
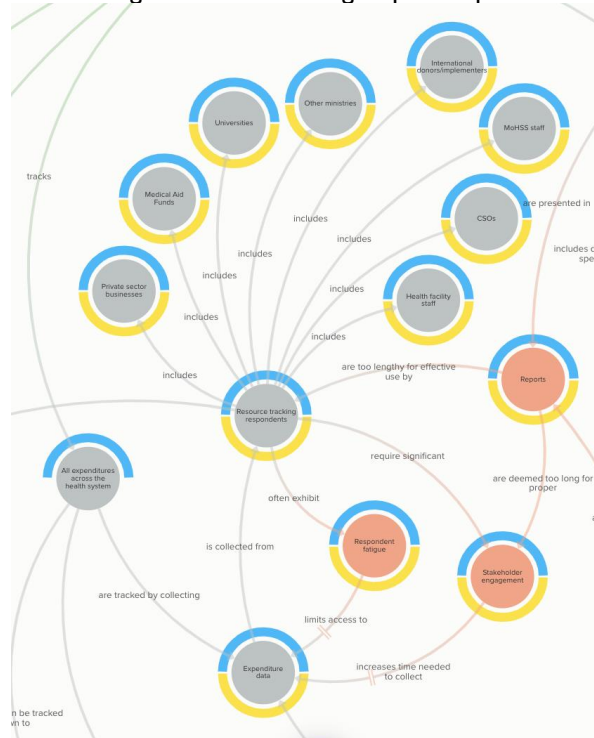
Level of specificity

While both the HA and NASA processes could, in theory, track expenditures down to the community level, this did not happen in practice. One reason is the lack of funding across local and external funding sources to track expenditures down to the lowest levels of the health system. Moreover, the NASA methodology exhibited a relatively greater level of specificity as compared to the HA methodology, as its data were broken down more "*to a level, actually a couple of levels beyond where the Health Accounts go to*", as one key informant explained. Some stakeholders considered this level of specificity unnecessary for the NASA methodology to achieve its aims. Despite its level of specificity, one ministry stakeholder noted their perception that the Directorate of Policy and Planning was not convinced of the rigor of the NASA methodology.

Data Findings

Reports

HA and NASA findings were both presented in reports for stakeholder use, including RT respondents. However, stakeholders found that those reports were too lengthy for appropriate and effective use. For example, one key informant mentioned that "*the recipients are intended to be the government of Namibia, you know, they're presented in fairly lengthy reports, which makes the uptake or the kind of interest in that probably, you know, not as great as we would hope it could be, because sometimes the reports are, you know, close to 100 pages long*."

Divergent Findings

While HA and NASA findings were used for a variety of applications, including spending optimization, advocacy activities, intervention design, and proposals, the parallel resource tracking methodologies limited the effectiveness of these applications because they produced divergent findings, as noted by seven of twelve key informants. These divergent findings led to policy design/implementation challenges, as well as budgetary inaccuracies. As one key informant noted, "*The conflicting findings really confused resource tracking stakeholders and made it difficult for them to use the findings for decision-making.*" With conflicting information, it is understandably difficult to know what information to trust and what information to use for programmatic and policy decision-making.

Figure 8: Part of pre-HRT system map demonstrating challenges caused by divergent findings and a non-holistic approach to health, both of which resulted from the implementation of parallel resource tracking methodologies
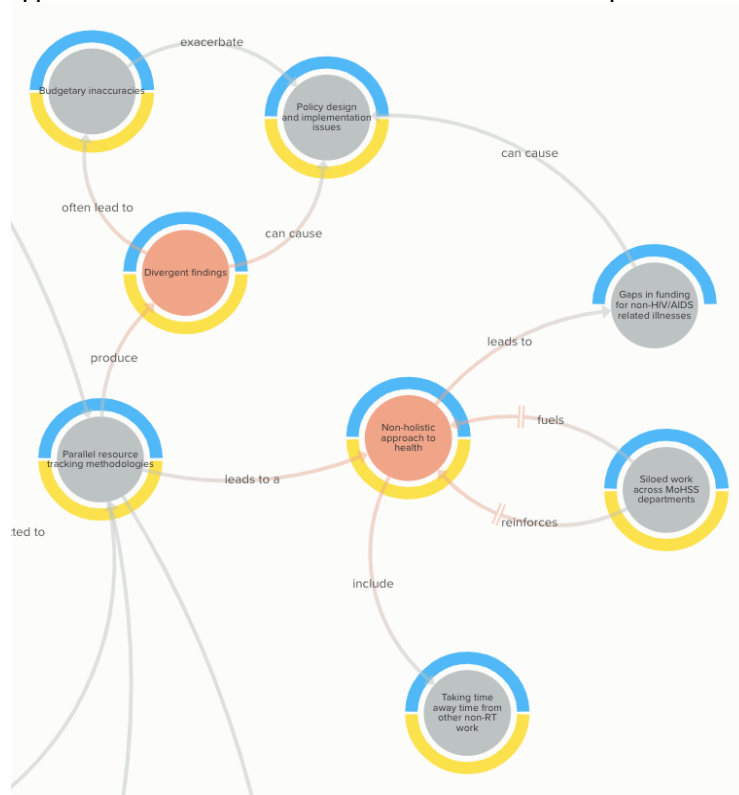
Additionally, ten key informants noted that the parallel resource tracking methodologies hindered the GRN's work toward a holistic approach to public health. One key informant mentioned that "*one of the things the Ministry has been saying for the last four or five years is that they don't want disease responses to be siloed and they don't want a sustainability plan for HIV. They want a sustainability plan for health. They don't want to resource mobilization plan for HIV. They want it for health. We don't want silos of health provision. We want universal health coverage. So having two different methodologies for resource tracking doesn't it doesn't help that situation.*" Thus, this non-integrated, non-holistic approach fueled siloed work across MoHSS departments and led to gaps in funding for non-HIV/AIDS related illnesses.

Capacity Development

Because the HA methodology was conducted, in part, through the HA Technical Working Group (HA-TWG), international consultants (including ACS staff and the Health Financing Group staff) supported the process while also providing training to the HA-TWG around the HA methodology.

Figure 9: Part of pre-HRT system map demonstrating limitations related to capacity development
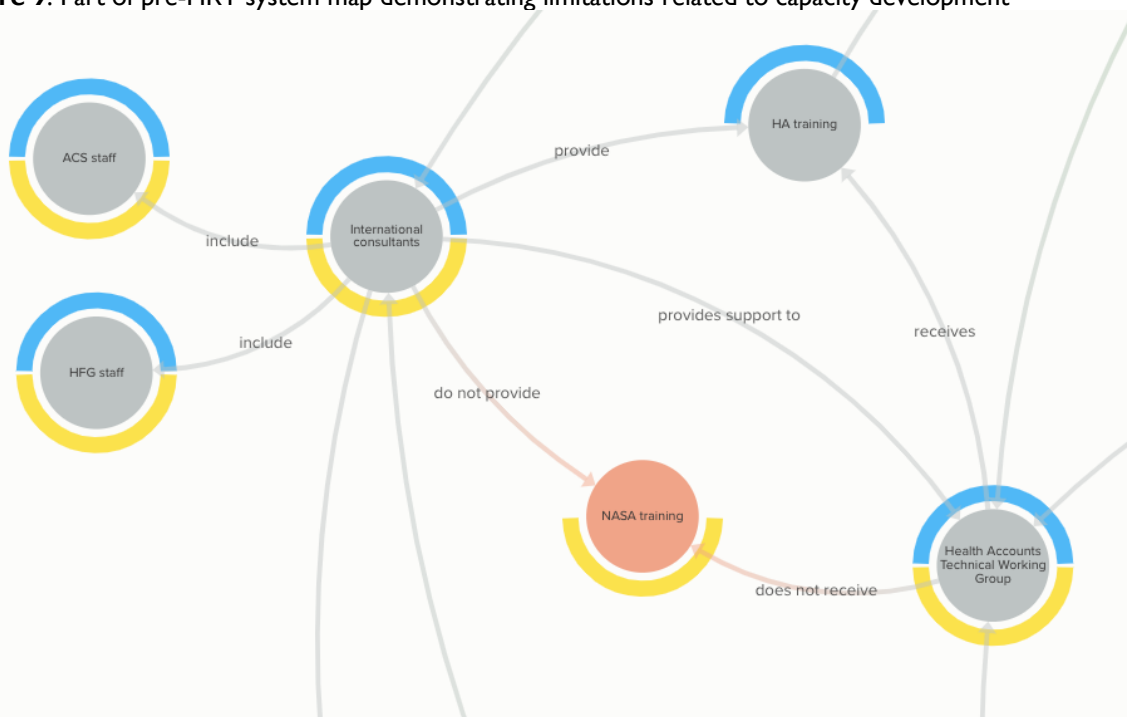
The HA-TWG was led by the MoHSS (with representatives from all directorates) and included the Social Security Commission, the Ministry of Finance, the Chamber of Commerce and Industry, the Namibian Association of Medical Aid Funds, and the PSEMAS. Conversely, the NASA methodology—not under the purview of the HA-TWG—was conducted entirely through the international consultants, which meant that there was no need and/or no incentive to transition the NASA methodology completely to the MoHSS. As such, system stakeholders were fully reliant on external parties for the NASA process while they had a greater role in and greater capacity for leading the HA process. One key informant noted that "*one of the struggles it has had, [these methodologies were] always envisioned as being something to be handed to the Ministry or for the Ministry to do it themselves but until now it has required external help from ACS or others before that from other agencies.*"

Leverage Points

When looking across these various nodes and linkages that comprise the pre-HRT system, several 'leverage points' emerge. These are critical system junctures where a seemingly small shift could have larger ramifications or 'ripple effects' across the rest of the system. The process for identifying these leverage points begins by gathering information on the system through primary research and data analysis and then making sense of that information by visualizing it through systems mapping. Those systems mapping visuals can help identify some of the constraints, structures, rules, etc. that serve as potential leverage points. In this assessment, the HRT

Evaluation team identified leverage points by reviewing the map for nodes that had connections to several important aspects of the system where changes could allow for areas of existing difficulties to be improved. The visual map increases the confidence of suggesting where the potential leverage points are as the viewer is able to see a snapshot of the whole system, its components and their interactions. The following leverage points were identified in the pre-HRT system:

- NASA training: Because consultants led training on the HA methodology but not on the NASA methodology, this is a gap that could be filled. If NASA trainings were conducted, there wouldn't be a greater reliance on and need for external consultants, which could in turn lead to a more sustainable resource tracking approach.
- Stakeholder engagement: The HA and NASA methodologies required significant time and resources engaging the many RT respondents (government, private sector, medical aids funds, donors, civil society organizations, health facilities, etc.) involved in the data collection process. Since those RT respondents had to respond to similar requests for each distinct methodology, they became more reluctant to participate and difficult to get ahold of, which in turn required additional time and human resources to obtain the necessary information for the HA and NASA methodologies. If the stakeholder engagement could have been conducted in a more integrated and streamlined manner, RT respondents would have likely been less reluctant to participate and the HA and NASA processes could have been completed more efficiently and effectively.
- Respondent fatigue: The level of stakeholder engagement required for the HA and NASA data collection processes (described above) produced respondent fatigue. The RT respondents grew tired of engaging in both HA and NASA methodologies to provide similar information. This respondent fatigue limited access to data, as it caused decreased or delayed participation on the part of respondents. Thus, as noted above regarding 'stakeholder engagement', a more streamlined process of data collection could have resulted in less of a time burden for RT respondents, mitigating the respondent fatigue that hinders the data collection process.
- Reports: The HA and NASA findings were presented in two distinct reports that key informants mentioned were too lengthy for uptake and use by key decision-makers. If the findings from the distinct HA and NASA methodologies were presented in a more streamlined and simplified manner, that could have led to increased use of those findings for activities such as spending optimization, advocacy activities, intervention design, and proposal development. Thus, those activities would be more grounded in the latest health expenditure data and potentially more effective.
- Parallel resource tracking methodologies:
  - Divergent findings: Since the HA and NASA methodologies were distinct and conducted through their own processes, they often resulted in divergent findings. When stakeholders observe different expenditure figures presented through these two processes, they are confused, do not know which figures are accurate, and generally develop a distrust in the reliability of one or both processes.
  - Non-holistic approach to health: The implementation of parallel resource tracking methodologies results in a non-holistic approach to health, which in turn means ministry departments are siloed and not working closely with one another, and certain disease areas (i.e., HIV/AIDS) are prioritized over others. By increasing

coordination and cohesive analyses of the health system, there could be opportunities to support a more holistic approach to health.

Post-harmonized resource tracking findings

The following findings describe the post-HRT system, as depicted in **Annex B**.

Reluctance to implement harmonization

Multiple key informants highlighted that some funding partners, "*at least outside Namibia—[were] very opposed to the idea of merging the methodology, but we felt strongly that it was possible*." While this did not ultimately prevent the implementation of the HRT process, stakeholders had to contend with the pushback from some partners, which key informants felt had concern about maintaining the relevance of the specific HIV/AIDS tracking approach.

Data Collection

Efficiencies

Through the implementation of the HRT methodology, the Resource Tracking Technical Working Group (RT-TWG) conducts data collection through discussions with the same set of RT respondents who were engaged through both the HA and NASA methodologies. However, because the HRT methodology employs a single outreach effort that is consolidated, the RT respondents do not have to respond to multiple requests from multiple teams who are conducting separate resource tracking methodologies. As such, RT respondents no longer suffer from the respondent fatigue that they exhibited before the implementation of the HRT approach. One key informant noted, "*I think in the harmonization process, it became easier to collect more complete data. Because you didn't have the situation of people saying, 'I've already spoken to someone about resource tracking*." Seven of the key informants mentioned that the harmonization process removed this duplicative effort, along with its ramifications (in terms of time, money, and human resources) created by the separate methodologies. The key informants mentioned 24 distinct times that the HRT process is a less costly and a more efficient approach to resource tracking as opposed to the previous methodologies being conducted in parallel.

Figure 10: Part of post-HRT system map demonstrating efficiencies caused by collecting data through consolidated outreach to RT respondents
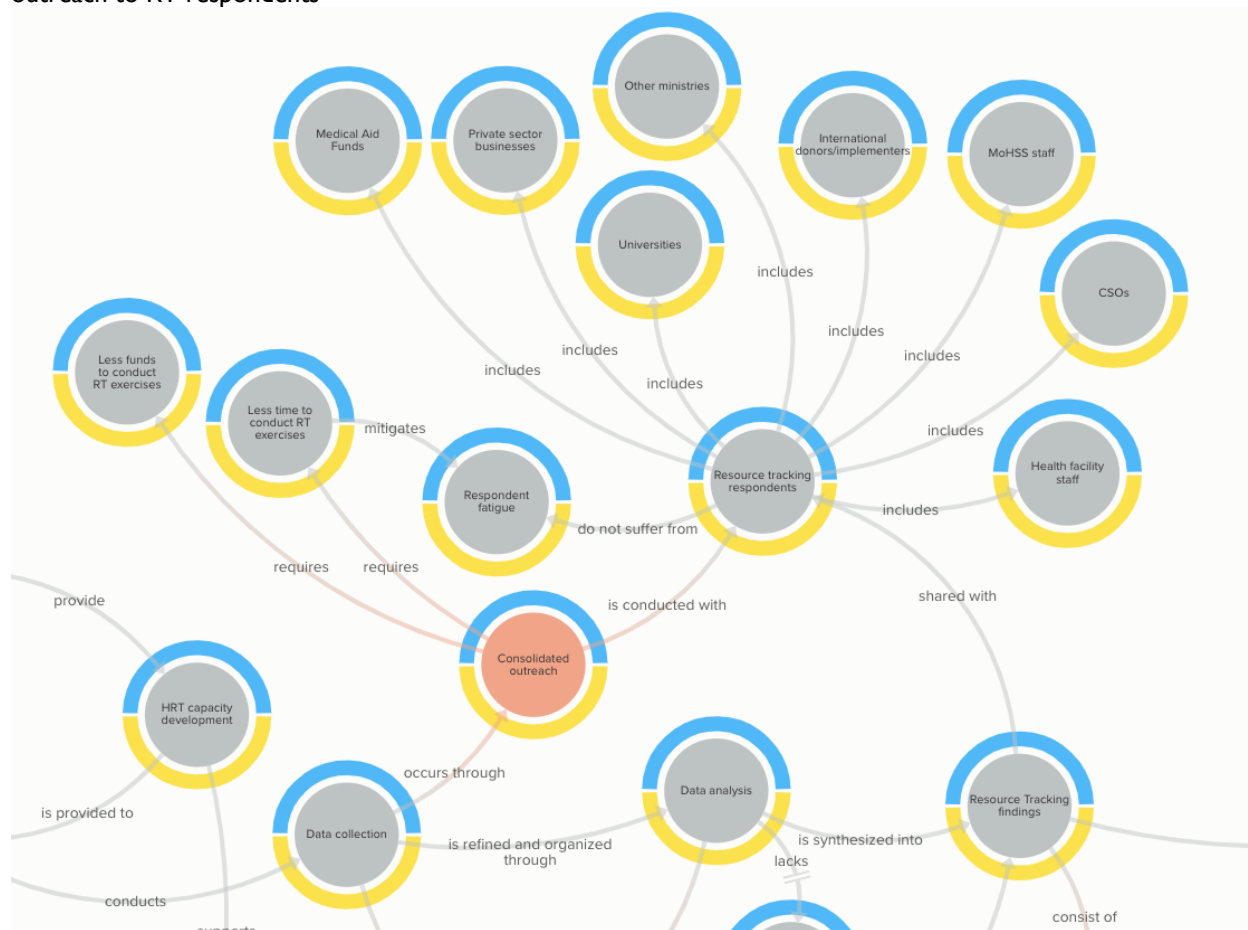
Intermittent Implementation

Key informants noted that while this HRT approach for data collection and analysis is more streamlined, there is currently no consistent process for completing the approach and it has been implemented intermittently. Multiple stakeholders noted that this is due to the COVID-19 pandemic. Four of the respondents noted a lack of consistency to the approach given its intermittent implementation. One key informant explained, "*Last year there was a halt in this process on account of the COVID pandemic…so this year we are likely to do that, covering probably two years because last year was not done on account of the COVID. So there has been a sort of a break… two rounds have taken place since 2017.*" Thus, the ongoing and unpredictable nature of the COVID-19 pandemic means we cannot be certain for how long the approach will be applied intermittently, but we can assume that it is not necessarily a permanent fixture of the HRT approach.

Data analysis and use of findings
Unified and coherent results

One of the most noted benefits of the HRT approach is that it mitigated the issue of divergent findings that was a primary limitation of the two distinct, parallel resource tracking methodologies. Specifically, there were 16 mentions during the key informant interviews of the

HRT approach producing more coherent results. We found that it is greatly beneficial that stakeholders are no longer required to make sense of conflicting findings. Moreover, there were three mentions in the key informant interviews of the fact that the HRT process includes a participatory discussion of results, which can further support their unified interpretation and use. One key informant mentioned, "*this time around, we had more discussion about the policy implications of the results and a series of subsequent analyses and follow up data collection with looking at the equity of the health system and the donor reliance of the health system as well*." These coherent results, combined with increased discussion of their implications, also supports the improved decision-making and movement toward UHC discussed below.

Figure 11: Part of post-HRT system map demonstrating improvements from the pre-HRT system related to unified and reliable information through the single, harmonized approach
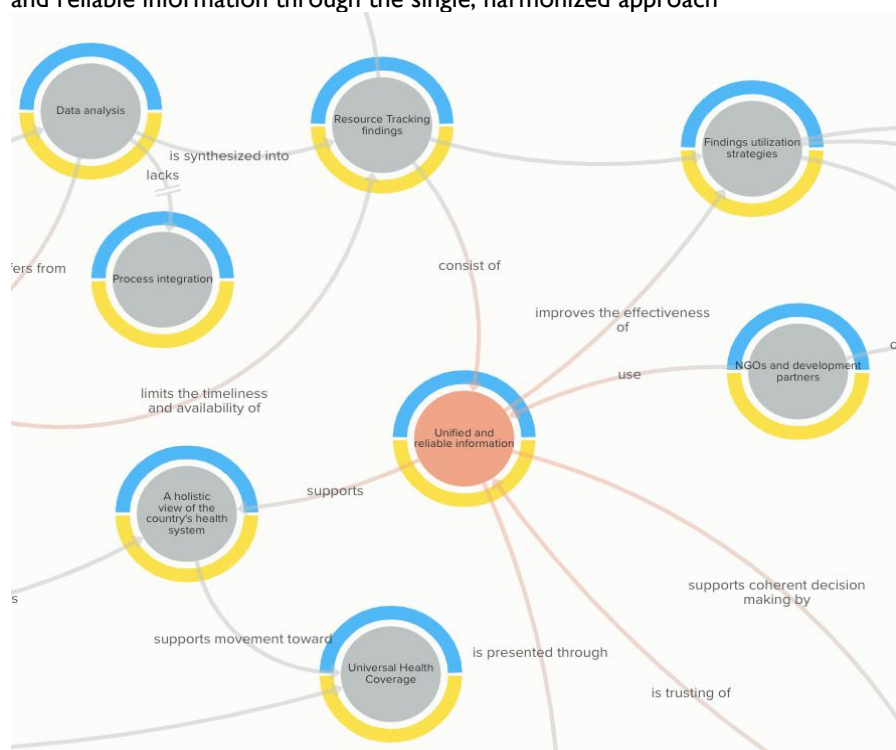
Improved decision-making

The unified and reliable information on health expenditures provided through the HRT approach supports coherent decision-making by the MoHSS and other stakeholders regarding spending optimization and public health intervention design. For non-government organizations and other development actors, the reliable information improves their advocacy efforts, as they have a clear and consistent set of findings to make their case. During the assessment, key informants mentioned 12 distinct times that the HRT approach provides an opportunity for deeper or improved analysis and consideration of policy implications. One stakeholder noted that the findings from the HRT approach are "*being used by policymakers and decision makers to make informed decisions in terms of the funding or even the budgets.*" The individual added that "*government or stakeholders or partners are much clearer now…and convinced in terms of how…their money is being spent, where it's being spent.*"

Supporting universal health coverage

The implementation of a single, and coherent HRT approach allows for a unified and holistic view at the country's health system because stakeholders do not have to reference different (and often conflicting) data points regarding different health areas. This, in turn, allows for a 'whole-system' point of view that supports the type of analysis and decision-making needed to move toward UHC. During the key informant interviews, one key informant explained, "*having the harmonized approach is much more consistent with the country's goals of universal health coverage…and because it's a single document, there won't be confusion, a debate about which set of figures to take. And it will allow for thinking across the scope of infectious and non-communicable diseases. So, I think it's only beneficial in that respect.*"

Capacity development

In the post-HRT system, international consultants are still present, but rather than providing training only on one of the methodologies (HA) and not the other (NASA), they work to develop the capacity of the RT-TWG on the combined HRT approach. This training and support is key to ensuring sustainability of the HRT approach through local expertise and local ownership of the process. During the key informant interviews, there were five mentions of stakeholder capacity being built through the HRT process via trainings and other activities. However, during the systems mapping validation process, some stakeholders mentioned that even though capacity development has increased from the pre-HRT system to the post-HRT system, there are still limitations. Namely, staff turnover and the intermittent nature of HRT implementation in the COVID-19 context have meant that there is still a significant reliance on international consultants and more capacity development is needed. During the key informant interviews, one individual explained, "*at various points there was orientation and there was discussion of the tools, but these are complex tools, so once you give the tools you…need to come back to the tools again to understand. So, there were some efforts to do that, but I think it would need a bit more time and effort to do that.*"

Figure 12: Part of post-HRT system map demonstrating opportunities related to capacity development
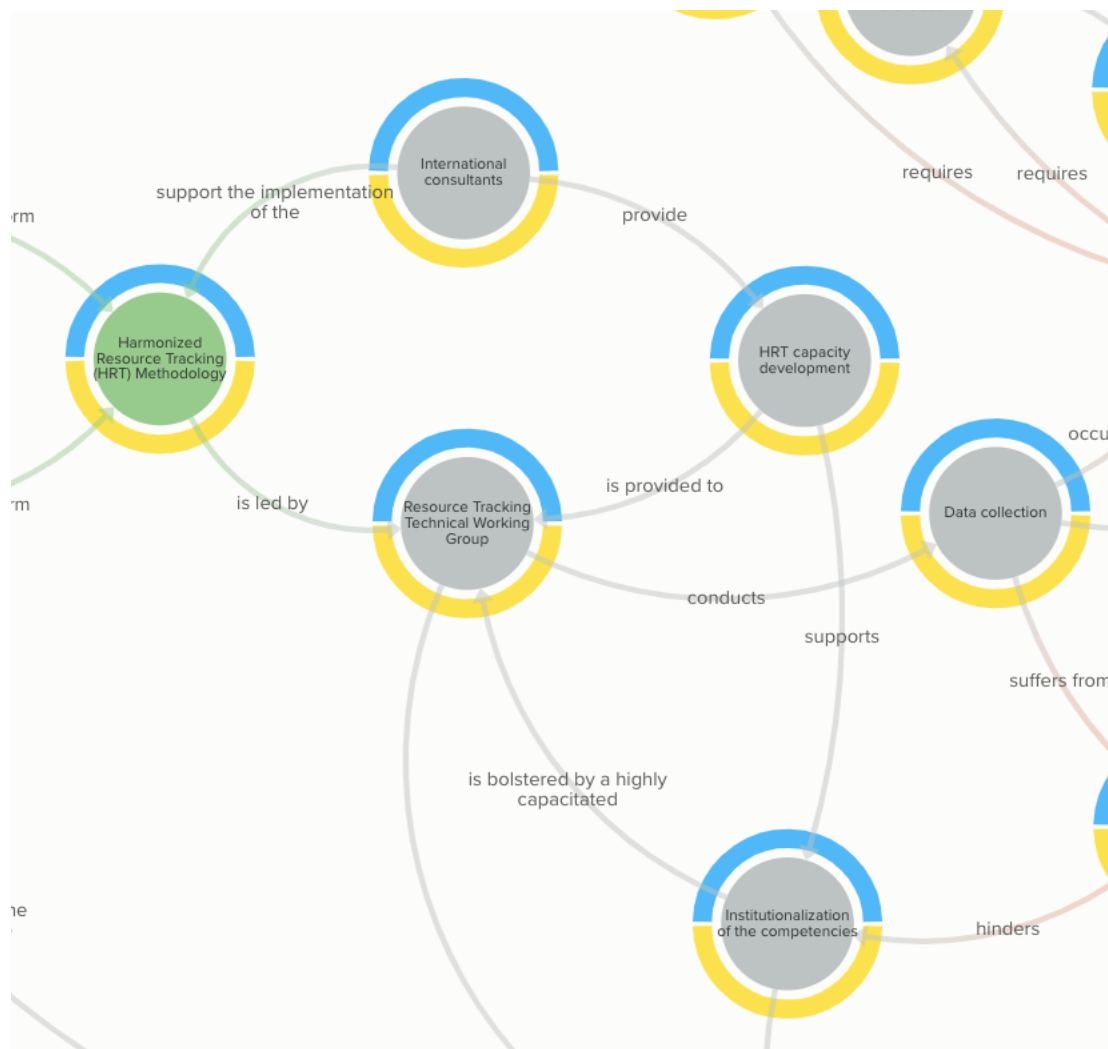
Leverage Points

Just as with the map of the pre-HRT system, a number of 'leverage points' emerge in the map of the post-HRT system as well. Some of these leverage points are those areas where changes were made from the pre-HRT system and it resulted in broad ramifications in the HRT system. In other instances, the leverage points serve as the entry points for future adaptations/innovations that could lead to further improvements across the system. The identified leverage points in the post-HRT system include:

- Consolidated outreach: Having to conduct separate outreach for HA and NASA methodologies in the pre-HRT system led to numerous inefficiencies described earlier in this report (e.g., repeated outreach to the same stakeholders, increased time and resources conducting outreach, respondent fatigue, etc.). Through the HRT approach, the RT-TWG was able to engage with resource tracking respondents a single time through a merged data collection approach. This mitigated the issues of respondent fatigue and inefficiencies that ultimately contributed to imperfect data collection in the pre-HRT system. Thus, consolidated outreach is a leverage point that led to numerous positive

effects across the system and was a key feature of the system improvements that occurred as a result of the HRT approach.

- Intermittent implementation: One challenge with the implementation of the HRT approach is that it has not been applied on a consistent timeline. Respondents from the key informant interviews noted that this was due to the COVID-19 pandemic and might be out of the control of the RT-TWG, at least in the short- to medium-term. The challenge with intermittent implementation of data collection and data analysis is that it limits timeliness and availability of the unified and consolidated HRT findings, which can in turn limit their uptake and use by system stakeholders such as the MoHSS. When the pandemic context shifts and allows for more consistent application of the HRT approach, there will likely be broad ramifications in terms of the availability of HRT findings and in terms of institutionalizing the approach. In order to effectively institutionalize and embed the HRT approach with local system actors, those actors need to have consistent opportunities for implementation. Intermittent implementation limits opportunities for knowledge transfer and capacity development around the HRT approach needed to ensure its sustainability within the health system.
- Unified and reliable information: One of the major leverage points in the pre-HRT system was 'divergent findings', as that was a critical challenge of the two parallel methodologies that led to negative ripple effects across the system. In the post-HRT system, however, the implementation of the HRT approach produces unified and reliable information, addressing the previous barriers caused by divergent findings and leading to positive ripple effects such as increased trust in findings and increased effectiveness of their use for decision-making around spending optimization and public health intervention design.

Concluding Remarks

A complex system exhibits non-linear, organic, and adaptive behavior, making it difficult to predict what will happen in the system. Since complex systems are multi-faceted and ever-changing, they are hard to comprehend without visualizing the many components within the system and their interactions. Systems mapping is a tool for producing those visual representations.

During this assessment, the HRT evaluation team used systems mapping as a retrospective tool to determine system change over time. The assessment used systems mapping to depict the system at two distinct points in time – before and after the implementation of the harmonized resource tracking (HRT) approach. In this way, the HRT evaluation team developed a 'before' map and an 'after' map. Thus, while the systems maps provided a static snapshot of the system in time, this assessment strung together multiple systems maps to demonstrate how the system changed, or evolved, over time.

The basis for developing these systems maps was data gathered from a diverse group of system stakeholders. Diversity across stakeholders was critical because the system may be perceived differently when viewed from the perspective of different stakeholders. Analysis following the data collection identified not only specific actors/components of the system and how they're connected, but also surfaced some of the deeper underpinnings of the system's structure,

including challenges such as delays, duplicated efforts, information gaps, conflicting information, and resource constraints.

By visualizing all of these interrelated characteristics at once, the HRT evaluation team was able to highlight the system's 'leverage points'—those areas of the system in which a change would result in broader ripple effects throughout the system. The ACS HRT intervention harnessed change at some of those leverage points to create the conditions ripe for the system to become more streamlined and more efficient. These system-level shifts can be seen in the physical changes from the 'before' map to the 'after' map. The 'after' map is much more streamlined (with less nodes and linkages) and it also depicts fewer of the challenges described above.

Identifying the leverage points in the system was very useful for this assessment; however, it is particularly useful when it is not only used retrospectively, but when looking forward as well. Prospective use of systems mapping allows the user to determine how best to engage with the ever-changing system moving forward. Therefore, while this application of the systems mapping methodology proved useful in helping to answer the retrospective questions about how the resource tracking system changed over time and to what degree those changes were influenced by the ACS Namibia intervention, there are limitations to this application. With a more comprehensive application, the systems maps would be living documents that are continually updated to reflect the current nature of the system. In this way, they can be used to inform ongoing collaboration and ongoing discussion about where and how to best intervene in the system for optimal performance.

Using the systems mapping methodology not only retrospectively, but prospectively as well, would require ownership of the systems thinking and systems mapping process by system stakeholders themselves (in this case, the resource tracking technical working group, or RT-TWG). If the HRT evaluation team had not dealt with the above limitations imposed by the COVID-19 pandemic and if the team could have been able to work in person instead of virtually, the team could have included a capacity development component to this assessment such that the RT-TWG was more involved in the mapping process, more bought in to the methodology, and more equipped to own and leverage the systems mapping methodology moving forward.

Given that systems mapping helps users make sense of very large, complex questions in an organized and systematic way, it is a useful tool for looking both backward and forward in determining the best course of action within complex systems. While the HRT evaluation team found systems mapping extremely useful for the external team's assessment of the ACS Namibia intervention, the team concluded that systems mapping would ideally become ingrained as a new decision-making support tool for system stakeholders themselves. Used as a 'living document', systems mapping has the ability to ground system stakeholders in a joint understanding of the system and support ongoing adaptation and iteration. In this way, systems mapping could help determine appropriate interventions with the ability to evolve along with the system itself, supporting a journey to the desired system-level change.

Legend
---- Opposite
● Leverage Point
● Start Here
● HA
● NASA
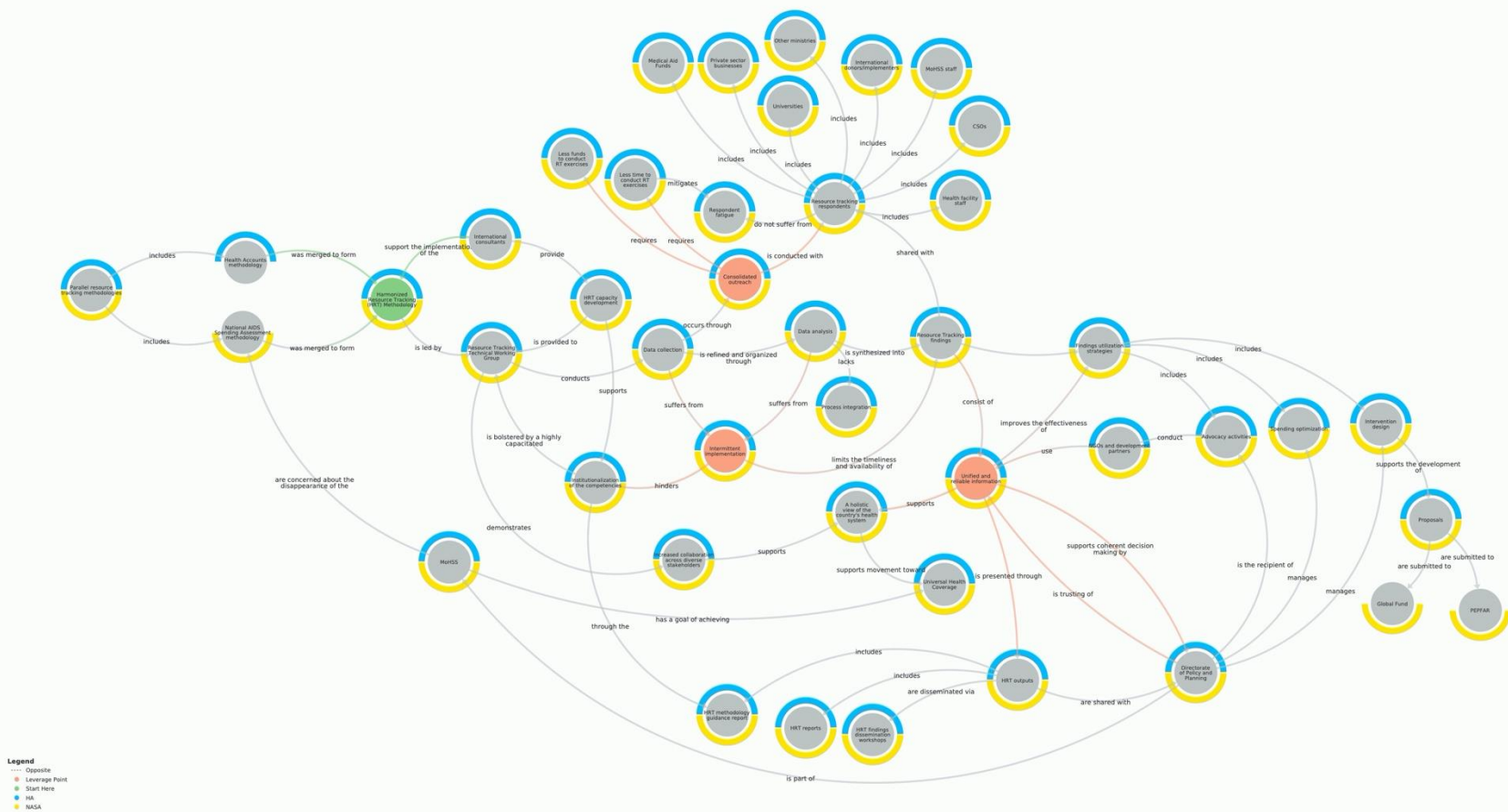
ANNEX C: HRT Assessment Final Protocol
List of Abbreviations

ACS   African Collaborative for Health Financing Solutions

MoHSS   Ministry of Health and Social Services

NASA   National AIDS Spending Assessment

HA   Health Accounts

R4D   Results for Development

RT-TWG   Resource Tracking Technical Working Group

SHA   System of Health Accounts

USAID   United States Agency for International Development

Context

ACS Namibia

The African Collaborative for Health Financing Solutions (ACS) is a USAID-funded project that supports sub-Saharan African countries advance their Universal Health Coverage (UHC) agenda. The project currently supports six countries: Benin, Burkina Faso, Togo, Namibia, Botswana, and Uganda. Specifically, ACS works with these countries to a) Identify operational challenges around health financing policies, b) Bring essential people to the table, then facilitate collaboration to create the best procedures and solutions, and c) Create communication channels to strengthen and support learning, advocacy, and accountability.

Resource Tracking in the Namibian Health System

With a relatively strong economy motivating international funders to pull away from investing into the country's health system, Namibia is facing constant pressure to achieve a number of health outcomes with its narrow budget thus warranting a strong interest on strategic health financing from health actors. Decision makers are aware that those decisions relative to strategic health financing needs to be backed by sound information to minimize the occurrence of failed policies and programmatic interventions. Decision makers also recognize that having access to reliable resource tracking information is essential to making comprehensive strategic investment decisions for the desired health outcomes. In the realm of Health Systems Strengthening (HSS), resource tracking consists of tracking past spending on health, or a specific disease, in a country as well as the flow of funds throughout the entire health system. The obtained information allows for a detailed understanding of where the money comes from, who manages the funds, and how the funds were spent.

As a relatively young country that received its independence in 1990, Namibia conducted its first resource tracking exercises in 2002. Until 2019, the country was tracking its health-related expenditures by simultaneously using two methodologies: Systems of Health Accounts (SHA), more recently referred to as the Health Accounts (HA), and the National AIDS Spending Assessment (NASA). While HA/SHA mainly focus on overall health expenditures in the country with sub-accounts for selected priority diseases, the NASA methodology only focuses on expenditures relative to HIV/AIDS.

National stakeholders recognized that using these methodologies at the same time is not only time consuming but also drains the country's financial resources. This highlights a common HSS problem: fragmented, donor-driven resource tracking methodologies. The application of these siloed methodologies results in inefficient and inconsistent management of limited health resources. It is from that perspective the Ministry of Health and Social Services (MoHSS), in collaboration with the ACS project worked on developing an approach that ensures the needs for both general health and HIV expenditures data can be fulfilled through one efficient and inclusive process that meets the requirements of both the SHA and NASA methodologies.

The hurdle we face now is understanding the processes and decisions that were necessary to support this transition from initial deliberations around the challenges being faced with the dual resource tracking approach, all the way through to the steps to build the capacity and sustainability of country stakeholders to implement a harmonized approach in the future.

Methodology

Approach

The goal of this endeavor is to perform systems mapping, process tracing, and outcome harvesting exercises in an attempt to demonstrate how, via the interventions of the ACS project, structures and processes of the Namibian Health System have shifted over time. This combination of approaches will help us better understand

what changes occurred across the system, why those changes may have occurred, and the positive and negative results of those system changes.
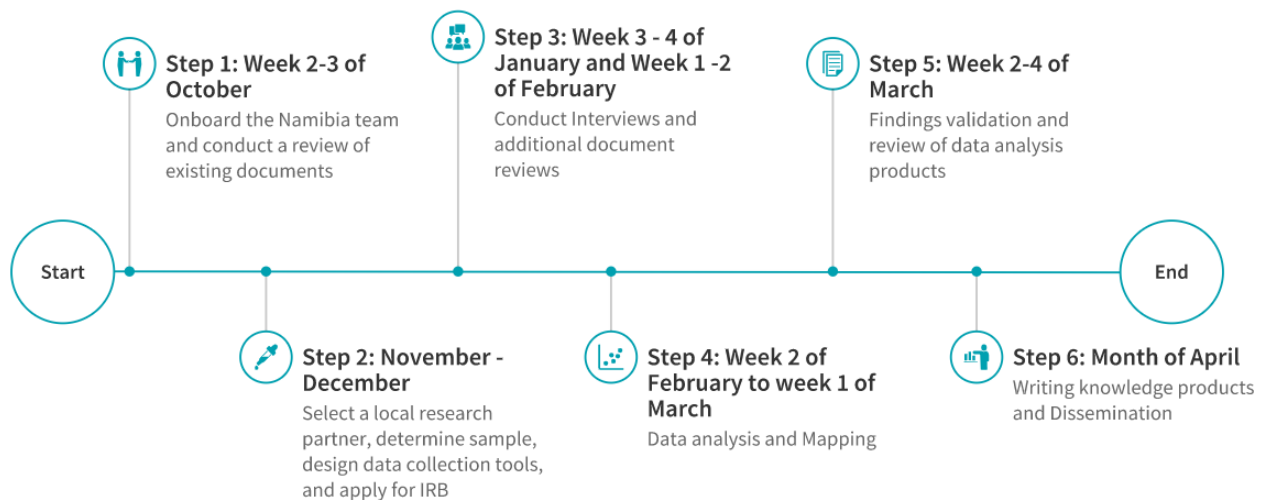
To reach the sought-out goal of the exercise, the Research Team will perform three tasks:
- A system mapping assessment that visualizes snapshots of the system at two points in time: before and after ACS involvement.
- After identifying system changes before and after the launch of the harmonized resource tracking approach, the Research Team will determine how those changes occurred and why.
- Once we identify the "what/who/when/where" of the changes across the sub-system for resource tracking and the 'how' and 'why' behind those changes, the Research Team will conduct an outcome harvesting exercise to better understand the outcomes (positive and negative) that those changes have had on the HIV/AIDS response and health system performance overall.

Timeline

The study is planned to be conducted from October 1st to April 30, 2021. The timeline of the study is structured as shown on the figure below:

Figure 1: Activity Timeline

Step 1: Week 2-3 of October
Onboard the Namibia team and conduct a review of existing documents

Step 3: Week 3 - 4 of January and Week 1 -2 of February
Conduct Interviews and additional document reviews

Step 5: Week 2-4 of March
Findings validation and review of data analysis products

Start

End

Step 2: November - December
Select a local research partner, determine sample, design data collection tools, and apply for IRB

Step 4: Week 2 of February to week 1 of March
Data analysis and Mapping

Step 6: Month of April
Writing knowledge products and Dissemination

Geographical Location

The study is focused on Namibia and the vast majority of the key informants to be interviewed are based in Windhoek, the country's capital city. However, due to the COVID-19 safety restrictions that are currently being enforced, all interviews will be conducted online via the platform that works best for each stakeholder to be interviewed (e.g., Zoom, Skype, etc.).

Data Sources & Collection

In addition to a literature review focused on the reports produced by the ACS project, the ACS Systems Outcome Mapping Research Team, herein referred to as the "Research Team", will work with a set of internal ACS stakeholders, listed in Figure 2, from the Namibia and Regional teams who have been intimately involved with the support to Namibia's resource tracking activities. In addition to those internal stakeholders, a series of 14 semi-structured interviews will be conducted by the team of data collection consultants. All interviews will be recorded and conducted in English. Each interview is anticipated to last 45 minutes.

Ethical Considerations

Protection of human subjects

All study participants will receive a verbal explanation of the purpose of the study and will be given the opportunity to ask any clarifying questions. The interviewer will explain that participation in the interview is completely voluntary and that the participant is not required to answer any question they do not feel comfortable answering. An informed consent statement is included in each interview guide (see Annex) and will be read verbatim by the interviewer before commencing the discussion.

Advantages of participating in the study

Participants of the study will not receive any compensation for their participation in this study. All participation is entirely voluntary, and the Research Team will not provide any cash or in-kind incentives.

Risks of participating in the study

Participants involved in the KIIs might share information that could potentially have negative repercussions on them, personally and professionally. Therefore, all recorded interviews will be secured on Results for Development's online platform accessible only by the Research Team. In addition, personally identifying information (PII) including individuals' names, institutions, and gender will be removed from all data analysis tools and products. All recordings will be deleted from the organization's secure server following the completion of the activity and submission of all final reporting requirements and deliverables.

Data Analysis

Systems Mapping

The team will use primary and secondary data to develop systems maps using a series of nodes and linkages to describe the many components of the system, including but not limited to actors, resources, interactions, dependencies, feedback loops, delays, and aligned/misaligned incentives.

The team will start by reviewing existing ACS program documents and reports to understand the components and processes involved in resource tracking as originally designed. The Research Team will first validate findings from the documentation review with the internal stakeholders listed in Figure 2 and then conduct key informant interviews with the list of stakeholders described in Figure 3 to gather their perspectives on that non-harmonized resource tracking system, what worked well/did not work well, and where there were leverage points that signified an opportunity to move to harmonized resource tracking. The team will then analyze the data using Atlas.ti qualitative coding software to identify key themes. We will use this information to develop the series of nodes and linkages in Kumu that comprise the map of the non-harmonized resource tracking system. These maps will not only depict the components of the system and their interactions, but it will also highlight 'leverage points' (opportunities for innovation or improvement) that could guide future resource tracking adaptations.

The team will repeat this process of data analysis to develop a map of the harmonized resource tracking system. Once the team has developed maps of the resource tracking system before and after the implementation of the harmonized resource tracking approach, we will share these maps with the key stakeholders listed in Figures 2 and 3 in order to validate them. Designed for co-creation and collaboration, Kumu will allow the team to access and edit these maps virtually.

Process Tracing

Once we have developed the systems maps that demonstrate what the resource tracking system looked like before and after the implementation of the harmonized resource tracking approach, we want to determine what might have contributed to those changes in the system.

In order to do this, the team will begin by reviewing all process documentation data from the ACS Namibia project related to the discussions, events, and stakeholders involved in resource tracking. Next, the team will review all quarterly reports from ACS Namibia to identify all activities that were implemented to support the implementation of harmonized resource tracking. Then, the team will interview ACS team members listed in Figure 2 about how and why they implemented resource tracking activities. The ACS Namibia team members will prove useful in determining what circumstances/actions outside of the ACS Namibia project, if any, supported the move to harmonized resource tracking.

Finally, the Research Team will map out key ACS Namibia events or types of support that appear directly linked to changes in the resource tracking system.

Outcome Harvesting

Once the team has identified changes over time in the resource tracking system, and what ACS Namibia activities seem to have contributed to those changes, we will need to better understand the outcomes (positive and negative) that those changes in the system have had on the HIV/AIDS response and health system performance.

To solicit this type of information from internal and external stakeholders, the team will follow the Outcome Harvesting methodology. The team will begin by reviewing documents that already exist at the project level (quarterly and annual reports, donor communications, monthly check-ins) and at the national level (communication about the trainings or the new harmonized resource tracking approach, for example) that report on support the ACS team provided to the HIV/AIDS resource tracking approaches and the results of that support that cover the period of implementation. For this documentation review, the team will create a harvesting tool as seen in Figure 4 that will assist with the organization of the outcome statements and ensure they meet the criteria of a validated outcome.

Figure 4: ACS harvesting tool (based on examples from Wilson-Grau's book *Outcome Harvesting*)

Outcome	Significance of the outcome	Contribution to the outcomes	Sources
*In 1-2 sentences please specify an outcome that affected HIV/AIDS resource tracking activities in Namibia (please specify **who** did **what**, **when** and **where**)*	*In another 1-2 sentences, please describe why the outcome is important for HIV/AIDS resource tracking activities in Namibia*	*Again, briefly describe how and when your activity influenced this outcome. What did you do that contributed (directly or indirectly, in a small or large way, intentionally or not) to this change?*	*Name of person or document who provided the information and the date they did so.*
outcome 1	…	…	…
outcome 2	…	…	…

This will allow the internal evaluation team to start pulling out potential outcome statements (positive and/or negative, intended and/or unintended), their significance as it relates to the resource tracking system, the project's specific contribution to each outcome, as well noting the source of information for each outcome statement. These statements will describe the behavior/process changes that occurred and how the ACS Namibia intervention plausibly influenced those changes. The team will then speak with ACS Namibia and Regional staff as seen in Figure 2 in order to refine the outcome statements captured in these tables. In addition to the example tool shown above, the Research Team will prepare a similar table to ask respondents about any potential outcomes of this work on resource tracking that link to the broader health system, not just the

resource tracking system. This will help the Research Team begin to understand broader health system contributions that this work has produced.

Next, the team will conduct an outcome statement validation exercise through a combination of key informant interviews and an online survey. The key informant interviews will target the same individuals that took part in the systems mapping activity as seen in Figure 3 and will provide an opportunity for human sources to validate what was captured during the first two steps of drafting the outcome statements, complete any information gaps that documentation didn't answer, and then give these stakeholders the opportunity to discuss outcome statements that the internal team didn't capture. Following these discussions, the evaluation team will send an online survey to these stakeholders who are intimately familiar with the interventions and ask them to rate their agreement with the outcome statements on a Likert scale (strongly disagree to strongly agree) and allow an open comment box for each statement in case a respondent would like to provide further detail or clarification. The survey will be created on and distributed through SurveyMonkey. Participants will be given a two-week window to respond, with the Research Team providing periodic follow-ups to ensure a high response rate. The data from this survey will allow the evaluation team to gauge, in a quantitative manner, group consensus on the outcomes of ACS Namibia's support to harmonized resource tracking. Upon completion of the analysis, the survey data will be deleted off of the SurveyMonkey server.

After completing the validation exercise, the team will organize outcome statements so that they are presented in a manageable manner and in a format that is ready for utilization by the intended evaluation stakeholders. Once the findings are finalized and interpreted, the team will determine their applicability to other systems by identifying which factors were linked specifically to aspects of the Namibia context, and which others might be more easily generalized. The team will facilitate the use and uptake of findings in Namibia through dissemination through the technical working groups and the MoHSS.

Assessing Our Pilot of These Methodologies

Given that the use of this particular combination of methodologies is relatively new, the team will track the systems mapping, process tracing, and outcome harvesting processes in order to capture challenges and successes along the way. These findings will support the process of determining possible future applications of this combined methodology to other health systems strengthening research questions. Thus, our internal assessment will be applied to all three activities and will support broader health systems strengthening learning as a result.

Data Management

The data collected by the data collection team will be transcribed and shared with the Research Team for secure storage. The collected data will be coded and analyzed, with Atlas.TI, for the identification of findings. Furthermore, the Research Team will use Kumu systems mapping software to develop maps using a series of nodes and linkages to describe the many components of the system, including but not limited to actors, resources, interactions, dependencies, feedback loops, delays, and aligned/misaligned incentives.

Dissemination of Findings

The Research Team will produce the following to disseminate the findings:
- A system map that depicts the Namibian HIV/AIDS resource tracking system before the intervention of the ACS project (with linkages to the broader health system) and another map depicting the system and the ways it has changed following the two years of ACS project support
- Process diagram(s) that detail the series of ACS activities that contributed to the system changes identified in the above-described systems maps
- Memos presented to USAID and other key stakeholders that summarize the key study findings
- A final report that shares implications of the study findings with regard to resource tracking tools and the value-add of the ACS project's intervention in Namibia's resource tracking efforts. Additionally, the final

report will discuss implications of replicating this methodology (using a combination of systems mapping, process tracing, and Outcome Harvesting) to address similar health systems strengthening questions. This report will be disseminated through multiple channels as appropriate (blogs, webinars, conference presentations, etc.).

All the deliverables listed above will be validated by national stakeholders and distributed via the ACS project's communication channels. Where applicable, some of the deliverables will be disseminated via external publication channels.

Interview Guides

AFRICAN COLLABORATIVE for HEALTH FINANCING SOLUTIONS

ACS Namibia: Resource Tracking Assessment

Protocol for Key Informant Interviews with health system stakeholders to understand the health resource tracking system in Namibia <u>before</u> the development and implementation of the harmonized resource tracking approach.

This document will serve as a guide for telephone interviews with stakeholders connected to resource tracking within Namibia's health system.

Before starting the interview, note the characteristics of the interviewee and the date/time of interview below.

a. Stakeholder ID number_____	e. Date ____/____/_____
f. Time _____	

<u>Call Introduction and Informed Consent</u>

The African Collaborative for Health Financing Solutions (ACS) is a USAID-funded project that supports sub-Saharan African countries advance their universal health coverage agenda. We currently support six countries: Benin, Burkina Faso, Togo, Namibia, Botswana, and Uganda. Specifically, ACS works with these countries to a) Identify operational challenges around health financing policies, b) Bring essential people to the table, then facilitate collaboration to create the best procedures and solutions, c) Create communication channels to strengthen and support learning, advocacy, and accountability. The goal of this endeavor is to determine how ACS's interventions impacted the Namibian health system by focusing on its harmonized resource tracking activities.

Please be aware that participation in this study is completely voluntary. If you decide to participate, you may stop participating at any time and you may decide not to answer any specific question. ACS will maintain the strict confidentiality of the data collected as well as ensuring the anonymity of all participants. The ACS team will share this anonymized data with USAID, but only after removing all personally identifying information. We estimate that this interview will take 45 minutes of your time

Do we have your verbal consent to ask our questions: Yes ☐   ☐ No

To ensure the comprehensibility of the data collected, the Research Team would like to record the interview. Please be advised that only the Research Team will listen to the recording which will be stored in a secure platform and destroyed once analyzed.

Do we have your verbal consent to record this interview: Yes ☐   ☐ No

If you have questions regarding the study or your rights as a participant, please do not hesitate to contact the Research Team Lead, Keith Mangam, via kmangam@r4d.org.
[NB: Share Keith's email with key informant either via Zoom chat box or via email.]

Themes	

CONTEXT *(5 min)*	To start off, I would like to hear a bit about your work and how you are connected to the tracking of health expenditures in Namibia.
	
	1. Could you share with me a bit about your work with [ORGANIZATION]?
	Probe:
	    a. How long have you been in this role?
	    b. How is this role connected to resource tracking of health expenditures across the health system?

OVERVIEW OF HA AND NASA RESOURCE TRACKING PROCESSES *(10 min)*	I understand that there were two parallel health expenditure resource tracking processes in Namibia before the development and implementation of a harmonized (or combined) resource tracking methodology: Health Accounts (HA) and the National AIDS Spending Assessment (NASA).
	
	2. Can you please briefly describe these two distinct resource tracking methodologies?
	Probe:
	    a. How did these two methodologies differ?
	        i. Data sources
	        ii. Level of detail required
	        iii. Type of analysis
	        iv. Time required to complete the process
	
	3. What were the outputs of the HA and NASA processes?
	Probe:
	    a. How were the findings presented and disseminated?
	    b. Who were the recipients of the findings?
	    c. How were the findings used?

RESOURCE TRACKING STAKEHOLDERS *(5 min)*	Now I would like to shift to talking about the key stakeholders involved in resource tracking *before* the implementation of the harmonized methodology. In particular, I'd like to talk about the Health Accounts Technical Working Group (HA-TWG) and its role in this process.
	
	4. How and why was the HA-TWG formed?
	Probe:
	    a. What was the goal of developing the HA-TWG?
	    b. Who was involved?
	        i. Government
	        ii. Bilaterals
	        iii. Other health funders/organizations
	    c. How was it organized?
	    d. How was it led and governed?
	    e. How would you judge the effectiveness of the HA-TWG in achieving its sought-out objectives?

	5. **How did resource tracking stakeholders use the HA/NASA findings?**
	Probe:
	    a. How did the HA/NASA findings inform decision-making?
	        i. Around health financing (e.g. to inform/advocate for changes in resource allocation, or purchasing mechanisms)
	        ii. Around health policy (e.g. were results used to inform decisions or additional analyses around how to allocate resources for improved equity or quality of service provision?)
	    b. Which organizations/groups/agencies were involved in these decision-making processes?

STRENGTHS **AND LIMITATIONS OF THE NON-HARMONIZED RESOURCE TRACKING** *(5 min)*	Now I'd like to shift to discussing some of the strengths and limitations to implementing HA and NASA as two distinct (non-harmonized) methodologies.
	
	6. **(*If the respondent has already mentioned some strengths or limitations, ask "above and beyond what has already been mentioned,"*) What were the biggest strengths and limitations to having two separate resource tracking processes and methodologies?**
	Probe:
	    a. What were the strengths and limitations in practice?
	        i. Human resources (including technical capacity)
	        ii. Financial resources
	        iii. Time
	        iv. Were there information gaps?
	
	7. **How did each of the observed strengths and limitations affect stakeholders' decision-making and actions?**
	Probe:
	    a. Government
	    b. Bilaterals
	    c. Other health funders/organizations

LINKAGES BETWEEN NON-HARMONIZED RESOURCE TRACKING OUTCOMES AND THE LARGER HEALTH SYSTEM *(5mins)*	8. **What effects or influence do you think the distinct resource tracking methodologies have had or are anticipated to have on the larger Namibian health system?**
	Probe:
	    a. Did these non-harmonized, distinct resource tracking processes and methodologies lead to any of the following? If so, how?
	        [Possible probing questions below. Do not feel the need to use all of them.]

	i. For example, did implementing separate methodologies affect the degree of fragmentation or the level of coordination/planning? ii. For example, did implementing separate methodologies positively or negatively impact the efficiency of resource tracking? iii. For example, how did the separate methodologies impact the distribution of resources? iv. Did the implementation of separate methodologies impact other parts of the health system, such as budgeting, human resources, etc.?

OTHER
 (5 min)
	Thank you. Before we close, I would like to see if there is anything else that you would like to share.
	
	 9. Is there anything that we didn't discuss today that you this is important for me to know about resource tracking in Namibia <u>before</u> the implementation of a single, harmonized methodology?
	 <u>*Probe:*</u>
	     a. Is there anything you thought I was going to ask but didn't?
	     b. Is there anything you hoped that I would ask?
	
	 10. Besides individuals who have been involved in the HA-TWG and/or the RT-TWG, is there anyone else you recommend we speak with about resource tracking in Namibia?
	
	 Thank you again for your time today. If you don't have any questions for me, we will now end the interview and stop the recording.
	
	 Please note time interview ended: _____

AFRICAN COLLABORATIVE
FOR HEALTH FINANCING
SOLUTIONS

ACS Namibia: Resource Tracking Assessment

Protocol for Key Informant Interviews with health system stakeholders to understand the <u>harmonized</u> resource tracking system in Namibia.

This document will serve as a guide for telephone interviews with stakeholders connected to resource tracking within Namibia's health system.
Before starting the interview, note the characteristics of the interviewee and the date/time of interview below.

a. Stakeholder identification number_____	e. Date ___/___/_____
f. Time _____	

Call Introduction and Informed Consent

The African Collaborative for Health Financing Solutions (ACS) is a USAID-funded project that supports sub-Saharan African countries advance their universal health coverage agenda. We currently support six countries: Benin, Burkina Faso, Togo, Namibia, Botswana, and Uganda. Specifically, ACS works with these countries to a) Identify operational challenges around health financing policies, b) Bring essential people to the table, then facilitate collaboration to create the best procedures and solutions, c) Create communication channels to strengthen and support learning, advocacy, and accountability. The goal of this endeavor is to determine how ACS's interventions impacted the Namibian health system by focusing on its harmonized resource tracking activities.

Please be aware that participation in this study is completely voluntary. If you decide to participate, you may stop participating at any time and you may decide not to answer any specific question. ACS will maintain the strict confidentiality of the data collected as well as ensuring the anonymity of all participants. The ACS team will share this anonymized data with USAID, but only after removing all personally identifying information. We estimate that this interview will take 45 minutes of your time

Do we have your verbal consent to ask our questions: Yes ☐   ☐ No

To ensure the comprehensibility of the data collected, the Research Team would like to record the interview. Please be advised that only the Research Team will listen to the recording which will be stored in a secure platform and destroyed once analyzed.

Do we have your verbal consent to record this interview: Yes ☐   ☐ No

If you have questions regarding the study or your rights as a participants, please do not hesitate to contact the Research Team Lead, Keith Mangam, via kmangam@r4d.org.
[NB: Share Keith's email with key informant either via Zoom chat box or via email.]

Themes	

CONTEXT
(5 min)
	To start off, I would like to thank you for speaking with me previously about the health resource tracking systems in Namibia **before** the implementation of the harmonized methodology. Today, I'd like to now focus on the harmonized resource tracking process.
	
	1. **Could you please share with me whether and how you were involved in the development of the harmonized resource tracking methodology through your role as [ROLE/TITLE] at [ORGANIZATION]?**
	
	Probe if they were involved:
	    a. For how long did you take on those activities/responsibilities?
	    b. Are these activities/responsibilities ongoing?

OVERVIEW OF HA AND NASA RESOURCE TRACKING PROCESSES
(10 min)
	I understand that there were two parallel health expenditure resource tracking processes in Namibia—Health Accounts (HA) and the National AIDS Spending Assessment (NASA)—that were integrated through a harmonized resource tracking methodology.
	
	2. **Can you please describe for me what this harmonized resource tracking methodology entails?**
	Probe:
	    a. How were these two methodologies integrated?
	        i. Data sources
	        ii. Level of detail required
	        iii. Type of analysis
	        iv. Costs/budget
	        v. Type of audiences reached/accessing the results
	
	3. **How did the results of this harmonized resource tracking methodology differ from those produced through the distinct HA and NASA methodologies?**
	Probe:
	    a. Were the results more or less accurate?
	    b. Were the results more or less thorough?
	    c. Were the results more or less conclusive?
	
	4. **Throughout the harmonization process, what did you see as the biggest limitations (if any) to having two separate resource tracking methodologies?**
	Probe:
	    a. Did this new, harmonized methodology highlight issues that went previously unnoticed?

RESOURCE TRACKING TECHNICAL WORKING GROUP
(5 min)
	Now I would like to shift to talking about the Resource Tracking Technical Working Group (RT-TWG) and its role in the harmonized resource tracking methodology.
	
	5. **How did the RT-TWG evolve as a result of the harmonization process?**
	Probe:
	    a. How was the RT-TWG restructured?
	    b. How did the leadership structure change?
	    c. How did roles and responsibilities shift?

	i. Government
	ii. Bilaterals
	iii. Other health funders/organizations
	
	6. How did the RT-TWG implement the new, harmonized resource tracking methodology?
	Probe:
	    a. Did the RT-TWG outsource the data collection and analysis, or did they conduct it themselves?
	        i. If the RT-TWG implemented the harmonized methodology themselves, how did they develop the capacity to implement that combined methodology?
	
	7. What actions did the RT-TWG take to ensure consistent and effective application of the new, harmonized methodology?
	Probe:
	    a. How did this process become institutionalized?
	    b. How did the RT-TWG ensure shared responsibility of the new approach?

STRENGTHS AND LIMITATIONS OF HARMONIZED RESOURCE TRACKING
(5 min)
	Now I'd like to shift to discussing some of the strengths and limitations to implementing the harmonized resource tracking methodology.
	
	8. (_If respondent has already mentioned some strengths or limitations, ask "above and beyond what has already been mentioned,"_) What are the main strengths or limitations of having a combined resource tracking process and methodology?
	Probe:
	    a. Are there aspects of HA and NASA that, in practice, do not integrate effectively?
	    b. Does the integration of these methodologies require further integration in other areas?
	        i. More integrated opportunities for sensemaking and shared learning
	        ii. More integrated decision-making about health financing and policy
	
	9. Has there been any resistance to the uptake of the new methodology? If so, why?
	Probe:
	    a. Have stakeholders been reluctant to adapt?
	    b. Has there been any conflict among proponents of a single methodology (HA or NASA)?

LINKAGES BETWEEN HARMONIZED RESOURCE TRACKING OUTCOMES AND THE LARGER HEALTH SYSTEM _(5mins)_	**10. What effects or influence do you think the harmonized resource tracking methodology has had or is expected to have on the larger Namibian health system?** _Probe:_ a. What were the effects, both positive and negative, of the harmonized resource tracking methodology?

	[Possible probing questions below. Do not feel the need to use all of them.]
	
	   i. For example, how did the harmonized methodology affect the degree of fragmentation or the level of coordination/planning?
	  ii. For example, how did the harmonized methodology affect the efficiency of resource tracking?
	 iii. For example, how did the harmonized methodology affect the distribution of resources?
	 iv. Did the harmonized methodology impact other parts of the health system, such as budgeting, human resources, etc.?

OTHER
(5 min)
	Thank you. Before we close, I would like to see if there is anything else that you would like to share.
	
	11. Is there anything that we didn't discuss today that you this is important for us to know about resource tracking in Namibia <u>during or following</u> the implementation of the harmonized resource tracking methodology?
	Probe:
	   a. Is there anything you thought I was going to ask but didn't?
	   b. Is there anything you hoped that I would ask?
	
	12. Besides individuals who have been involved in the HA-TWG and/or the RT-TWG, is there anyone else you recommend we speak with about resource tracking in Namibia?
	
	Thank you again for your time today. If you don't have any questions for me, we will now end the interview and stop the recording.
	
	Please note time interview ended: _____