



PROYECTO DE
POLÍTICAS
EN SALUD Y
EDUCACIÓN

Guatemala's National Social Information System: An Overview

OCTOBER 2015

This publication was prepared by Alvaro Fortin



USAID
DEL PUEBLO DE LOS ESTADOS
UNIDOS DE AMÉRICA

Suggested citation: Fortin, A. 2015. *Guatemala's National Social Information System: An Overview*. Washington, DC: Futures Group, Health Policy Project.

The Health and Education Policies Project (HEPP), is a five-year cooperative agreement funded by U.S. Agency for International Development (USAID) under Agreement No. AID-OAA-A-10-00067, beginning September 30, 2010, implemented by Futures Group, in collaboration with CEDPA, Futures Institute, Partners in Population and Development, Africa Regional Office (PPD ARO), Population Reference Bureau (PRB), Research Triangle Institute (RTI, International), and The White Ribbon Alliance for Safe Motherhood (WRA).

Guatemala's National Information System: An Overview

OCTOBER 2015

The information in this document is not official U.S. Government information and does not necessarily represent the views of the U.S. Agency for International Development.

CONTENTS

- Acknowledgements.....iv
- Abbreviations..... v
- Introduction..... 1
 - Objective 2
 - Methodology..... 2
- HEPP’s Technical Assistance to SNIS..... 3
- Major Findings 4
 - I. Can HEPP’s innovative approach, with a focus on the end user and implementing its four policies, to support the development of SNIS be related to the system’s adoption, use, and sustainability? 4
 - II. What are the future recommendations to strengthen SNIS?..... 6
 - III. Which factors should be observed when applying HEPP’s approach to support the development of information systems in other contexts (at national or international levels)?..... 7
- General Conclusions for the Guatemala Case 8

ACKNOWLEDGEMENTS

The author thanks Lorena Moreira, Juan Dent, Dara Carr, Polly Mott, and Nancy Yinger for their valuable input in preparing this document.

We appreciate the participation and cooperation of the Ministry of Social Development (MIDES), Ministry of Public Health and Social Welfare (MSPAS), Ministry of Education (MINEDUC), National Economic Research Center (CIEN), Research and Social Studies Association (ASIES), National Competitiveness Program (PRONACOM), and Proyecto Leer y Aprender in the case study. We also appreciate efforts of the HEPP team in charge of providing technical assistance (TA) to the National Social Information System (SNIS).

ABBREVIATIONS

CUI	Single Personal Identification Code/Number
ETL	Extraction, transformation, and loading
HEPP	Health and Education Policy Project
MIDES	Ministry of Social Development
MINEDUC	Ministry of Education
MSPAS	Ministry of Public Health and Social Welfare
RENAP	National Registry of Persons
RUU-N	Single National User Register
SIE	Educational Information System
SISO	Social Information System
SNIS	National Social Information System
TA	Technical Assistance
USAID	United States Agency for International Development

INTRODUCTION

The United States Agency for International Development-funded (USAID) Health and Education Policy Project (HEPP) in Guatemala has provided technical assistance to the Ministry of Education (MINEDUC), Ministry of Public Health and Social Welfare (MSPAS), and Ministry of Social Development (MIDES) to develop institutional information systems and a national system that integrates and analyzes data from these. By supporting the government of Guatemala to develop and maintain these systems, HEPP aims to improve governance in the social sector with an emphasis on strengthening accountability and on improving equity. The National Social Information System (SNIS) will allow the government of Guatemala and civil society to monitor the country's social development.

After increasing the number and coverage of social programs in 2008 and ratifying international treaties, including the Millennium Development Goals, the government of Guatemala identified the need to produce data to determine the impact and progress of its social programs. As a result, the government established MIDES in 2012 with a mandate to create and manage a social information system that disseminated indicators associated with both individual benefits and accomplishments by sector. This system, SNIS, collects and disseminates information from 16 institutions about the social benefits from government programs and progress towards social development goals. Its establishment has contributed to efforts to increase the effectiveness of policy and program decisions by responding to administrative needs and calls for transparency. Furthermore, it responds to the need for evidence to evaluate processes and outcomes. The system integrates data from several government agencies that implement social policies and programs in the following way:

- 1) Government agencies have transactional information systems that collect data for their work. These systems are the basis on which we are developing SNIS, using their data to produce cross-sectoral indicators.
- 2) Data consultations with the National Registry of Persons (RENAP) help ensure every individual can be identified using their unique identification code (CUI); this step allows for data integration from different agencies with different information systems.
- 3) Data are transferred to a data warehouse using the extraction (step 1), transformation (step 2), and loading (step 3) (ETL) process. The data warehouse is currently on a virtual server and under the responsibility of MIDES' Social Information System (SISO).
- 4) Once data have been transferred to SNIS, two records are generated: the National Register of Users (RUU-N) and the social indicators. RUU-N compiles the beneficiaries' information from all the social programs, which could eventually be used to provide information about coverage by population type. The social indicators integrate data from participating agencies to provide multisectoral information or complement existing indicators.

Objective

In 2014, HEPP conducted a case study on SNIS to assess the impact of the technical assistance provided, determine the system's strengths, and identify challenges to its sustainability. This summary report draws on the findings presented in existing HEPP reports¹ that answer the following questions:

Can HEPP's innovative approach, with a focus on the end user and implementing its four policies², to support the development of SNIS be related to the system's adoption, use, and sustainability?

What are the future recommendations to strengthen SNIS?

Which factors should be observed when applying HEPP's approach to support the development of information systems in other contexts (at national or international levels)?

Methodology

This study used qualitative and quantitative methods to triangulate the answers for the three research questions. Due to the nature of the data, the implementation status of the technical assistance, and the limited data available to external users, the data presented in this study are not statistically generalizable. However, data triangulation provides an overview of the progress and lessons necessary to transfer these findings to other contexts.

The study draws on 19 key informant interviews and four focus group discussions with 41 stakeholders who had either received HEPP technical assistance or been involved in the design, management or use of the national or ministry-specific information systems. They provided the majority of the qualitative data. All but two interviews were recorded and transcribed. Answers were classified according to pre-determined themes that were in turn used to inform the study questions. Since MINEDUC is the only ministry with an open access policy for its Educational Information System (SIE), 241 staff that had used SIE participated in a quantitative survey on its use.

A desk review of HEPP's reports on technical assistance and government documents on the regulation of these systems provided additional information on the implementation of the technical assistance. The case study used user Google statistics on SIE from January 2013 until October 2014 to further contributed to that analysis. This summary also includes updated statistics from October 2014 through September 2015.

¹December 2014 – *Case Study of Guatemala National Social Information System –SNIS-*. Washington, DC: Futures Group, Health and Education Policies Project.

November 2014 – *Case Study: Use of Guatemala National Social Information System –SNIS-*. Washington, DC: Futures Group, Health and Education Policies Project.

October 2014 – *SNIS Case Studies; Reports on interviews about their processes, data quality and the Technical Assistance provided*. Washington, DC: Futures Group, Health and Education Policies Project.

Fortin, A. (October 2014). *SNIS Case Studies; Reports on interviews about their processes, data quality and Technical Assistance provided*. Washington, DC: Futures Group, Health and Education Policies Project.

² HEPP's four policies: creating a governance framework, establishing an open data environment, advocating for assurance standards and procedures, and setting usability standards and guidelines.

HEPP'S TECHNICAL ASSISTANCE TO SNIS

HEPP provided the government of Guatemala with technical assistance to develop SNIS using a strategy focused on the end user that draws on four approaches:

- A. Creating a **governance framework** in the technical and legal areas that leads to adequate governance of the institutional and national information systems
- B. Establishing an **open data environment**
- C. Advocating for the use of **assurance standards and procedures** to optimize data quality and protect users' identities
- D. Setting **usability standards and guidelines** that facilitate users' use and access to data without the need for technical expertise

HEPP's technical assistance focused heavily on developing the system with the beneficiaries, which established ownership and helped ensure respect for stakeholders' needs. After jointly developing a strategic plan for the development of the information system and the user interface, HEPP provided technical assistance to build the ministries' capacities to administer and use information systems, analyze complex data, and develop information products. HEPP's technical assistance also developed ministries' capacities to use software development methodologies, develop and implement data collection systems with quality standards, and develop institutional strengthening plans.

HEPP also developed two tools; a self-learning platform and a standardized certification process that will ensure MIDES will be capable of continuing to provide technical support to the participating institutions after the HEPP TA comes to an end.

- The self-learning platform is a tool to continue developing the capacity and knowledge of users and developers of information systems.
- The certification process, called the Institutional Strengthening System is a standardized certification that SISO will use to determine if participating institutions meet a minimum set of conditions to develop their information systems and transfer data to SNIS. SISO will offer these institutions guidance on how to address any areas that do not meet these standards.

MAJOR FINDINGS

- 1. Can HEPP's innovative approach, with a focus on the end user and implementing its four policies, to support the development of SNIS be related to the system's adoption, use, and sustainability?*

Overview of Technical Assistance

Overall, participants viewed the technical assistance in a favorable light and agreed that it was effective in developing their capacities manage their information systems, including transferring data to SNIS. Participants remarked on the technical team's knowledge, willingness to engage, and efforts to tailor different trainings according to the ministries' needs. In 2013 and 2014, HEPP staff and consultants provided technical assistance focused on information product development and information system management for a yearly total of level of effort of over 580 days.

Stakeholders from each institution provided accounts of staff using skills from the training to develop products using data from the information systems. While MINEDUC is the only one to have published an information product developed internally, staff from both MSPAS and MIDES described unpublished information products developed within the agencies. In terms of data transfer capacities, all three agencies continue to face some difficulties during the data consultation process with RENAP; however, both MINEDUC and MSPAS are on track to develop the necessary system management capacities by the end of the project. While MIDES, which faces additional financial and human resource limitations, will be able to handle the system's daily management, it may require a limited technical assistance follow-up to help with the transition as the technical assistance ends.

Governance Framework

HEPP supported MIDES in developing a governance framework that describes the roles of participating ministries in supporting and managing the system. Participants described the framework as a tool to ensure SNIS' sustainability and define quality control mechanisms. However, they perceived differences between the way the regulations are written and how they are being implemented. Participants felt that the main challenge was ensuring the ministries were aware of and carrying out their responsibilities, as outlined in the framework.

Open Data

As of 2015, only MINEDUC has the technical capacity and political will to adopt an "open data" policy; its information system, SIE, is the only system open to its entire staff and the public. In MSPAS and MIDES, fear of losing control over information, programs, and administrative processes has kept these ministries from adopting the policy. While MSPAS has the necessary tools to adopt it, individuals only have access to data upon request. MIDES, which has not yet developed the necessary technical tools to adopt the policy, has the most restrictive data access policy of the three ministries, only allowing key staff full access to its information system.

Since MINEDUC has opened access to the public, Google statistics are available for SIE starting in 2013. The number of visits increased from 16,439 in 2013 to 34,911 from January through October 2014. Only a small fraction of these users accessed the system through public university or MINEDUC servers; the

majority of users were using external servers. The number of users from October 2014 through September 2015 further increased to 78,675, with 85% of visitors returning. Of the MINEDUC staff that participated in the internal survey 94% considered SIE's data to be useful, 64% reported they used it directly for work, and 51% reported they shared the information with colleagues.

Data Quality

The study assessed participants' perspectives on data quality throughout two stages: data collection and validation procedures at the ministry level; and the transfer of these data into SNIS through the ETL process and the generation of the RUU-N and cross-sectoral indicators. For the former, which did not fall within HEPP's scope of work, participants expressed concerns over the data collection methods in different ministries, the frequency with which data is updated, and discrepancies in data sources. While ministries have their specific data collection control mechanisms, these are not always known across ministries or departments, which ultimately affect users' confidence in the data. For the data transfer processes, which HEPP did support, participants felt that the transparency mechanisms adequately controlled data quality and accuracy. SISO will have to ensure its institutional capacity-strengthening activities target data control measures in the first stage and reinforce system management capacities in the second.

Usability

Participants believed the usability strategy was successful in facilitating access to information for a large number of users. The development of user-friendly dashboards and ministry-specific user engagement strategies has helped users better understand the data shown, which in turn stimulates the use of these systems. Due to the usability strategy, it was unnecessary to invest in end-user training, even with nearly 80,000 visits between October 2014 and September 2015. While this exceeds the current objectives of the technical assistance, additional strategies will be necessary to target potential users at the community level with little or no formal education.

II. What are the future recommendations to strengthen SNIS?

1) Mission statements

Preparing mission statements that guide the development and use of indicators for each participating institution would help ensure the indicators are linked to concrete actions that improve the country's development. SNIS, as an information system, is responsible for analyzing, generating and distributing information so that it is accessible. However, the link between disseminating data and acting on them is dependent on the State's administrative mechanisms. While these mechanisms are not the responsibility of SNIS, the link between data and concrete actions appears to be the prevailing way in which users understand SNIS' relevance.

A clear mission statement within each institution would also help standardize data access protocols so more users consistently rely on the system rather than individuals/contacts within ministries to access the information. Additionally, by setting specific goals, the statements could make it possible to monitor and assess progress through the indicators.

2) Plan indicator development and release

After establishing a mission statement, agencies should schedule dates for the development and publishing of certain dashboards and indicators. This planning may be gradual, increasing the number and type of published indicators according to improvements in data collection practices to ensure validity and reliability.

3) Standardized indicators:

Ministries should develop strict guidelines for these indicators to further ensure data validity and reliability. These standards, as well as the margin of error for each indicator, should be included in its publication.

4) Expanding access to data

Expanding access to SNIS data to all stakeholders, both within and outside of the government, will also support the system's sustainability by generating demand for the data. While all stakeholders may not immediately understand the dashboards and indicators, stakeholder engagement and distribution strategies, including the development of information products, could ensure stakeholders access and understand data.

5) Interactive features

Participants noted that including interactive features into SNIS, such as opportunities for users to "contact SNIS" or "request help" would further contribute to stakeholder use and understanding of the system. This would also be advisable for the agencies' independent information systems.

6) Continued capacity development

Continuing to support the development of systems for the participating ministries will ensure the government has the technical capacity to fully manage SNIS and the contributing information systems and adequately respond to any issues.

III. Which factors should be observed when applying HEPP's approach³ to support the development of information systems in other contexts (at national or international levels)?

Data Availability

Participants expressed the need to expand stakeholder engagement by: (i) publish all data for general public use; and (ii) increase the number of communication strategies so that the information is accessible to external users with basic levels of education or without formal education.

Setting a Purpose

As mentioned previously, setting the mission statement or purpose of the system and the participating entities is a previous requisite to the creation of indicators and dashboards. In this way, HEPP suggests supplementary actions such as: infrastructure projects for external or internal users that must receive the information from the system, define target populations to model the dashboards or any other communication strategy, set the link between the system and the communication strategies and monitoring state actions for social development.

Linking Accountability

There is a prevailing view that information systems are useful since they trigger or lead to follow-up actions. Therefore, several participants suggested developing processes that link the data to follow-up actions even when this is not part of the SNIS process and it is not included within the parameters of HEPP's technical assistance.

Establish Guidelines

Data quality must be controlled when integrating data from different sources and systems. Participants' concern with data quality highlights the need for setting scientific guidelines of reliability and validity for submitted data and indicators, including aspects of collection and processing. Establishing these guidelines will increase user confidence in data, as well as the system's data integrity.

³ HEPP produced a development methodology that systematizes this process with the aim to facilitate reproducing these efforts in other contexts. Information on this methodology can be found at: <http://iis.hpp-gt.org>

GENERAL CONCLUSIONS FOR THE GUATEMALA CASE

This study made it possible to associate HEPP's development approach of (i) establishing a governance framework, (ii) advocating for open data policies, (iii) ensuring data quality, and (iv) increasing systems' usability to user's increasing adoption of the information systems of MIDES, MSPAS, and MINEDUC. These four approaches are basic and required elements to ensure the proper implementation and operation of an information system. The study also identified actions that could supplement these elements: developing mechanisms that enable user and system manager interactions to address questions, suggestions, and other issues; developing a mission for the system and the participating ministries to have a clearer and better understood purpose and set of responsibilities that will ultimately help engage internal and external users; and countering resistance to use the system among internal users by changing information access procedures and ensuring the adequate technological infrastructure and capacity to use it.

After four years of TA activities, HEPP has effectively supported the ministries and stakeholders involved in the social sector in Guatemala to effectively develop and manage information systems. With a nationwide system that integrates information from 16 institutions implementing social policies and capacity building mechanisms to sustain progress, Guatemala has set a global example on monitoring and transparency practices to ensure accountability and continued social development.