USAID | DELIVER PROJECT

Paraguay : Threshold Program Phase II Progress to Date and Challenges

Final Report






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USAID | DELIVER PROJECT, Task Order 1

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Cover photos: Paraguayan President Fernando Lugo and U.S. Ambassador to Paraguay Liliana Ayalde at a ceremony marking the donation of 11 trucks to the Ministry of Health for the distribution of health commodities. USAID | DELIVER PROJECT 2010.

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Content

Tables

Acronyms and Abbreviations

ABC	(Inventory system based on A=20%, B=30%, and C=50%)
AMC	Average Monthly Consumption
APS	*Atención Primaria en Salud* (Health Primary Attention-Health Program)
BPMS	Business Process Management System
CDP	Certificates of Budgetary Availability
CGR	*Contraloría General de la República* (Controllers Office)
CTN	National Technical Committee
CIRD	*Centro de Información y Recursos para el Desarrollo* (NGO)
DAF	Directorate of Administration and Finance
DGAF	*Dirección General de Administración y Finanzas* (General Directorate of Administration and Finance)
DGGIES	*Dirección General de Gestión de Insumos Estratégicos en Salud* (General Directorate of Strategic Health Supplies Management)
DGIES/SINAIS	*Dirección General de Información Estratégica en Salud* (General Directorate of Strategic Information in Health)
DGPS	*Dirección General de Programas de Salud* (General Directorate of Health Programs)
DNA	*Dirección Nacional de Aduanas* (Customs Office)
DNCP	*Dirección Nacional de Contrataciones Públicas* (National Directorate of Public Procurement)
DOC	*Dirección Operativa de Contrataciones* (Directorate of Contract Operations)
EDL	essential drugs list
EMSL	essential medical supplies list
ESL	essential supplies list
FFAA	*Fuerzas Armadas de la Nación* (Armed Forces)
FTN	National Therapeutic Form
IT	information technology
JSI	John Snow, Inc.
KVA	kilovolt-ampere

LAC	Latin America and the Caribbean
LIAT	Logistics Indicators Assessment Tool
LMIS	logistics management information system
LPN	*Licitación Pública Nacional* (National Competitive Bidding)
MCC	Millennium Challenge Corporation
MEP	Evaluation and Planning Module
MOH	Ministry of Health
NPT	National Public Tender
O&M	Organization and Methods
PBC	*Pliego de Bases y Condiciones* (Bidding Terms and Conditions)
PAHO	Pan American Health Organization
RBB	Results-Based Budgeting
RDU	rational drug use
REA	Reverse Electronic Auction
SDP	service delivery point (hospital, health center, health post, family health unit, dispensary)
SICIAP	*Sistema de Información y Control de Inventarios Automatizado del Paraguay* (Automated Information System and Inventory Control of Paraguay)
SINAIS	*Sistema Nacional de Información en Salud* (National System of Health Information)
sub-UOC	*Sub Unidad Operativa de Contrataciones* (sub-Operational Procurement Unit)
Threshold Program Phase II	MCC Program for the Millennium Challenge Account, which supports emerging countries in reducing corruption and fight against impunity.
TOT	train-the-trainer
UNFPA	United Nations Population Fund
UOC	*Unidad Operativa de Contrataciones* (Operational Procurement Unit)
UPS	uninterrupted power supply
USAID	U.S. Agency for International Development
USAID | DELIVER PROJECT	(USAID's global project to strengthen the availability of health supplies, including contraceptives; implemented by John Snow, Inc.)
UTMAP	*Unidad Técnica de Modernización de la Administración Pública* (Technical Unit for Public Administration Modernization)
VPN	virtual private network

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Executive Summary

The USAID | DELIVER PROJECT responded to a request for proposal that outlined the focal points to strengthen the Ministry of Health (MOH), primarily in procurement and supply management of drugs. The project submitted a proposal, which was approved; the first activity was to carry out a work plan with MOH counterparts to provide the proposed technical assistance. To begin to improve procurements performance, the project conducted a survey with the Directorate of Administration and Finance (DAF); and, to improve logistics management, including the supply of drugs, the project also conducted a survey with the General Directorate of Strategic Health Supplies Management (DGGIES).

Even with the results from the survey, as the activities were being implemented, gaps were noted that had not been initially identified. By being flexible and adjusting to the needs, the Threshold Program adapted the technical assistance to the situation, and they included additional activities that would sustain and support the technical assistance.

Several of the most important activities in the procurement area were (1) training for 400 MOH staff on how to interpret and implement the Procurement, Financial and Public Accountability Law, (2) undertake assessments and proposals to improve the functionality of the Operational Procurement Units (UOCs), (3) model 16 acquisitions and procurements with a Business Process Management System (BPMS), (4) develop a proposal for a corporate procurement agreement along with a market research study, (5) develop the first edition of the essential drug list at the beginning of the program and a second revised edition in 2012, and (6) develop the essential supplies list. Also, program staff collaborated successfully with the Pan-American Health Organization (PAHO) to develop a national therapeutic formulary and implement a rational drug use strategy.

These interventions will ensure procurements meet international quality standards and transparency; they will also reduce the time spent acquiring medicines and supplies that meet the needs of the population of Paraguay—this will ensure that health personnel are using proper prescribing and dispensing procedures.

To improve logistics management, the DGGIES was strengthened by (1) developing an operations manual for staff, (2) providing staff with opportunities for international training, (3) designing an integrated logistic system, and (4) training staff in all service delivery points (SDPs). Also, the project developed an Automated Information System and Inventory Control Software (SICIAP), set up connectivity to enable online access to the new software, trained all users (staff from 67 hospitals, 19 health regions, and the central level), even though the original Threshold Program Phase II workplan included only seven specialized hospitals. Also, the program provided 173 computers to hospitals and health regions, as well as five servers and a power generator to the Data Center to guarantee services 365 days a year.

The program delivered three trucks for distribution of health commodities from the central to the regional level and three from the regional level to the SDP level. The program also conducted an analysis of distribution routes, including mileage-based routes and different types of roads, and developed Standard Operating Procedures (SOP) for the Distribution of Drugs and Supplies for the DGGIES to optimize transport space, time, and fuel costs. In addition, program staff assessed the

equipment needs of regional and hospital warehouses, providing them with equipment and recommending their expansion. Although the MOH followed the technical recommendations by allocating funds to expand the regional warehouses, only six warehouse expansions were completed in time for the program to deliver the equipment before the March 31, 2012 closeout.

The program developed a module that allows planning (using consumption information available through the SICIAP) for the distribution of commodities, considering load volume and location within the truck. Also, the program developed a forecasting module that uses Automated Information System and Inventory Control of Paraguay (SICIAP) consumption data, and extrapolates the data to the national level; taking into consideration the percentage of reporting per type of facility, lead time, and maximum levels. In addition to quantifying financial needs, this module enables the administrator to ration the quantities to be procured when funding is insufficient based on vital, essential, non-essential (VEN) criteria and ABC grouping . Here, A are drugs that represent 20 percent of the total procurement budget, B represents 30 percent, and C represents 50 percent. This tool enables the central level to apply different scenarios to determine where to reduce the percentage of the budget allocated to procure the most expensive and non-vital drugs, until final quantities to be procured are adjusted to the available budget.

These interventions, on one hand, implemented measures to control the drug flow, provided essential data for decisionmaking, and introduced technical criteria for resupply, which was used to lower stockout levels. On the other hand, the MOH has an essential drugs list (EDL) and an essential supplies list (ESL) that provide a reference framework for procurements; personnel are trained to improve procurement processes, and they have the tools to ration the budget for procuring drugs. The drugs can be delivered on time if the trucks are scheduled appropriately; the distribution routes are optimized; and regional warehouse conditions improve, which will ensure that drugs are stored under suitable conditions. And finally, the program has helped build the capacity of local experts to implement a rational use strategy. This strategy enables all prescribers to make the best use of resources to improve patient education and care, emphasize preventive health care and, at the same time, reduces the unnecessary expenditure of funds for incorrectly prescribed drugs.

Although the Threshold Program Phase II met its commitments and laid the foundation to modernize health care in Paraguay, various aspects of the program must be considered if these progresses are to be sustained. It is necessary to (1) provide warehouses and hospital pharmacies with trained staff with computer skills, (2) provide support during SICIAP implementation, and (3) ensure connectivity and continuous maintenance. Also, to ensure the procurement of drugs follows technical guidelines, MOH must officialize the use of SICIAP-MEP, which provides real demand data and prevents stockouts and overstocks. Also, it is important for the MOH to implement and follow up on the supervision strategy to strengthen the skills of trained staff, include logistics indicators as part of the management control indicators, and to regularly monitor their progress as a way to measure overall management improvements.

Background

Threshold Program

The Government of Paraguay, to reduce corruption and the fight against impunity, signed its first agreement for the Threshold Program Phase II [1]of the Millennium Challenge Account on May 8, 2006.

On January 15, 2009, the Millennium Challenge Corporation (MCC) Board approved a second phase of the Threshold Program Phase II assistance for Paraguay to implement the program. On April 13, an agreement was signed and, by July 30 of that year, Congress approved Law 3807, which ratified the program.

The program is based on the first phase and the goal was to improve Paraguay's performance for the MCC Corruption Control and Rule of Law indicators, which would enable the country to qualify for the Main MCC.Account.

At this point, the Minister, Dr. Esperanza Martinez, was able to have the Ministry of Health (MOH) included the in the program for the first time. She justified the inclusion because a significant amount of the national budget goes to procure medicines; therefore, there was a need to increase controls and ensure transparency within the MOH.

The Threshold II Program included the components listed in table 1:

Table 1. Threshold II Program: Components, Beneficiaries, and Allocation

#	Component	Counterpart	Total U.S.$
1	Strengthen the public ministry's research capacity	Public Ministry	US$5,400,000
2	Strengthen the Court for Contentious Administrative Proceedings and Judiciary control and disciplinary systems	Supreme Court of Justice	US$2,500,000
3	Strengthen control systems	Controllers Office (CGR), Ministry of Finance, MOH	US$8,000,000
	3A. Strengthen internal control mechanisms, with the support of the CGR	(CGR)	
	3B. Implement the Integrated Financial Management System	(Ministry of Finance)	
	3C. MOH control and anti-corruption systems	(MOH)	
4	Strengthen the Customs National Directorate	Customs Office (DNA)	US$3,000,000
5	Strengthen the protection of intellectual property rights	Ministry of Industry and Commerce	US$1,900,000
6	Strengthen the National Police	Ministry of Internal Affairs, National Police	US$9,000,000
	Monitoring and evaluation		US$500,000
	Total		US$30,300,000

Source: Law 3807/2009: "That approves the Assistance Agreement between the Republic of Paraguay and the Government of the United States of America, to reduce corruption and impunity, Phase II for $ 30,300,000 and its associated Addendum."

[1] The Threshold Program Phase II will be referred to as the Threshold Program from here to the end of this report.

Since October 2005, John Snow, Inc. (JSI), through the USAID | DELIVER PROJECT, has provided technical assistance in logistics management to the MOH Family Planning Program of Paraguay. After three years of technical assistance, the interventions reduced the contraceptive stockouts from 15 percent in 2005 to 4.74 percent in 2008. Beginning in 2006, the government of Paraguay began to procure contraceptives with its own funds; because, until 2005, the country had received donations from the United Nations Population Fund (UNFPA) and USAID.

Based on this successful experience, USAID | Paraguay asked the project to submit a technical proposal to strengthen the MOH's logistics management by developing an integrated logistics system that emphasizes procurement and distribution of drugs and medical supplies.

This request was made based on the background and experience of JSI and its numerous projects, not only in Paraguay, but globally. The USAID | DELIVER PROJECT and its predecessors, the DELIVER and Family Planning Logistics Management (FPLM) projects, have more than 20 years' experience in building supply chains in developing countries in Latin America, Africa, Asia, and Eastern Europe. As the world leader in public health logistics, the project has supported governments from recipient countries, donor agencies, and nongovernmental organizations (NGOs) to ensure the availability of health products.

The technical assistance included—

- developing local capacity
- designing and implementing information systems
- improving storage conditions
- implementing monitoring and evaluation systems
- assisting institutions with the development of policies to ensure the availability of basic health supplies.

In March 2009, the project presented a proposal which was approved by USAID and the MOH; In order not to delay implementation until the Threshold II Program agreement was signed, and given the short duration of the program (two years from the signing of the agreement), the project was launched using funds from the USAID | DELIVER PROJECT for the family planning program. Thus, technical assistance began in April 2009; but funding was not received until October 2009, at which point the project was able to start the process of procuring equipment and vehicles.

The project's technical assistance tor the MOH was part of Component 3-C: Institutional control and anti-corruption systems, under the following guidelines:

- Provide information technology support to improve the MOH's procurement system.
- Establish a management unit to monitor the MOH's storage and distribution systems.

Financing and Staffing

The USAID | DELIVER PROJECT, originally planned to only provide technical assistance for the MOH family planning program—the project's budget was approximately U.S.$800,000 per year; the Threshold Program received $3.8 million, which was to be used within two years (see table 2).[2]

Table 2. Allocated Budget and Estimated Expenditures (U.S.$)

Activity Total	Total Budget	Spent (Estimated)	Remaining Funds
Country operations	U.S.$.1,147,143	U.S.$.1.147.143	-
Strengthen MOH staff procurement skills (1.1)	U.S.$.107,640	U.S.$.107.640	-
Provide equipment and IT infrastructure for procurement unit (1.2.)	U.S.$.542,020	U.S.$.542.020	-
Establish connectivity within the MOH (1.3.)	U.S.$.358,800	U.S.$.358.800	-
Assist DGGIES in reviewing and updating procedures drug selection (1.4)	U.S.$.78,309	U.S.$.78.309	-
Design and implement an integrated logistic system (2.1.)	U.S.$.44,104	U.S.$.44.104	-
Assist C.U. of M. of essential drugs and medical supplies (2.2)	-	-	-
Develop performance skills at the MOH (2.3)	U.S.$.287,542	U.S.$.287.542	-
Improve storage and transportation and distribution systems (2.4)	U.S.$.935,108	U.S.$.899.704	U.S.$.35.404
Establish an evaluation system (2.5)	U.S.$.184,758	U.S.$.184.758	-
Implement a monitoring and supervision system (2.6)	U.S.$.114,576	U.S.$.114.576	-
TOTAL	U.S.$.3.800.000	U.S.$.3.764.596	U.S.$35.404

Source: USAID | DELIVER PROJECT, based on approved budget and consecutive updates.

Most of the funds received were intended to supply central and regional warehouses, the General Directorate of Strategic Health Supplies Management (DGGIES), and the Operational Procurement Unit (UOCs). See tables 3 and 4 for a list of the equipment that was donated to improve the storage, distribution, transport, and communications.

[2] The estimated budget was calculated based on the funds spent up to January 2012, because the JSI accounting system does not provide quantification of expenditures by cost centers. The financial table cannot be audited. Annex 1 BTS, presents the list of expenses by account categories.

Table 3. Summary of Procurement (U.S.$.)

Description	Cost (U.S.$)
Trucks	U.S.$.336.552,81
Forklift	U.S.$.29.315,00
Warehouse equipment	U.S.$.306.874,85
IT equipment	U.S.$.274.972,80
Office furniture	U.S.$.21.454,76
Air conditioner	U.S.$.84.719,10
Data center equipment (server–estimated)	U.S.$.70.000,00
TOTAL	U.S.$.1.123.889,32

Table 4. Detail of Vehicles, Equipment, and Furniture Donated to the MOH.

#	Item	Quantity
1	Air conditioners	36
2	Cabinets	25
3	File cabinets	35
4	Trucks	6
5	Box cart	33
6	Pallet trucks	2
7	Folding metal ladder	24
8	Scanners	16
9	Desks	1
10	Shelves	387
11	Bookshelves	2
12	Fire extinguisher	68
13	Fax	3
14	Copy machines	6
15	Power generator	1
16	Refrigerator	19
17	Printers	148
18	Kilovolt-ampere (KVA) server	1
19	Barcode readers	140
20	Tables	12
21	Electric forklift	1
22	Pallet	34
23	PC + uninterrupted power supply + licenses	155
24	Racks	138
25	Server racks	1
26	Servers	5
27	Chairs	45
28	Sofa	1
29	Thermo-hygrometer	30
30	Uninterrupted power supply (UPS)	25
	TOTAL DONATED ITEM	1,400

Source: USAID | DELIVER PROJECT, based on donations record file

Initially, the project had a local team of three people (the resident advisor and two technical and administrative staff) who carried out the DELIVER Project, the predecessor to the Threshold Program. When the next project, the USAID | DELIVER PROJECT started, five additional staff were added to assist with technical and administrative tasks (see table 5).

Table 5. Local Personnel, period 2010-2012

Position	Quantity	Main Duties
Project Director	1	Advises on logistic issues and general direction; follows-up on issues and writes feedback technical reports.
Deputy director/acquisition specialist	1	Coordinates and follows-up on the UOC strengthening and development, and implementation, of SICIAP
Medical advisor	1	Coordinates and follows-up on EDL, FT, EMSL, and UR activities
Administrator	1	Provides general office administration, procurements for donations; updates budget
Accountant	1	Records finances; supports administrative for project activities
Network and IT specialist	1	Produces IT technical survey (networking, interconnectivity, IT equipment); provides technical support for SICIAP implementation
Administrative support	2	Provides administrative support (telephone coordination, preparation of materials for workshops and training, copies, etc.)
TOTAL	8	

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In addition to the local personnel, the Threshold Program received administrative support and assistance from the procurement team at the Arlington office supported; technical and managerial assistance from the the regional manager as well as assistance from staff from other Latin America and the the Caribbean (LAC) offices and national and international specialists.

Objectives

The MCC supports the Government of Paraguay in its efforts to reduce corruption in the procurement, storage, and distribution of drugs and supplies, and to improve internal control systems in the MOH.

This component is part of the Threshold Program, and it was approved by the MCC to focus on reducing corruption and strengthening the rule of law in Paraguay.

Main Objective

Strengthen internal control and anti-corruption mechanisms in the MOH.

Objectives

To achieve this goal, USAID proposes that the MCC intervene in three main areas:

1. Provide information technology solutions to improve the procurement system.
2. Establish a management unit to monitor the storage and distribution systems.
3. Improve the supply of drugs.

Lines of Action

The approach, proposed by the USAID | DELIVER PROJECT, Threshold II Program, was to strengthen procurement mechanisms and implement an integrated logistics system for drugs that facilitated standardizing logistics management, based on an information system and an inventory control to improve the supply of essential drugs.

Proposed interventions to strengthen the MOH procurement system

1. *Train staff on legal issues and rules that apply to procurements within the public sector.* To do this, a survey was needed to determine UOC staff knowledge gaps.
2. *Supply the necessary software and hardware to improve efficiency.* The MOH had to be surveyed to determine solutions for their needs and to determine the most efficient and sustainable way to implement the short term solutions.
3. *Establish connectivity within the MOH procurement unit and the National Directorate of Public Contracting.* To streamline response time within procurements, network services had to be provided to all UOCs.
4. *Provide technical assistance in defining a basic list of drugs and supplies and reviewing and updating protocols.* The MOH needed tools to honor its commitments and to establish priorities in public health; at the same time, they had to provide training to service providers on rational drug use.
5. *Provide other equipment needed to promote procurement efficiency.* An information technology (IT) needs survey was needed to develop an equipment procurement and donation plan.

Proposed interventions to strengthen the storage and distribution system

1. *Design and implement an integrated logistics system for drugs and supplies.* The data collection instruments were standardized before the MOH could collect essential data for decisionmaking; decisionmakers had to be involved in the new integrated logistics system design; and staff had to be trained.
2. *Support the newly created General Directorate of Strategic Health Supplies Management (DGGIES) by developing a manual defining job responsibilities, qualifications, and procedures.* Within these new functions, the program provided technical assistance to the DGGIES to strengthen its logistics and drug procurement capabilities.
3. *Provide technical assistance to staff in national and selected general hospitals on the new logistics system principles.* To do this, it was necessary to develop a sustainable training strategy for operational staff, which included regional warehouse managers and providing them with the supportive supervision skills to improve the quality of the data and generate management indicators.
4. *Provide technical support and provide equipment to the central warehouse and regional warehouses.* Program staff assessed current storage conditions and the techniques to improve them; and provide trucks to ensure the timely transport of drugs.
5. *Establish connectivity between the central warehouse and the regional warehouses.* It was necessary to automate the information system that would be used to standardize the implementation of a distribution system based on real consumption; provide the hardware and software, and training on how to use it.

Activities Planned Versus Implemented

Strengthening the MOH Procurement System

Training in Public Procurement Act and Legal Framework

As part of the UOC strengthening activities, the program facilitated a seminar workshop on Government Procurement Act Law 2051/03, its amendment, Law 3439/07, and the implementing regulations. The curriculum covered the current legal framework, including resolutions and circulars; the development of the Annual Procurement Program (PAC) and how to prioritize it; Bidding Terms and Conditions (PBC); types of contracts; process for tenders (from the beginning to the issuance of the procurement code); exceptions; legal opinions; use of the *online* contracting portal, modifications, rescheduling, and extensions of the PAC; existing forms and their completion.

The program held eight workshops for 156 officials—administrators and program, hospital, and health region procurement managers. At the specific request of the Minister of Health, 35 directors also received training. As a side result of these workshops, program staff prepared an assessment report on the main challenges with MOH procurements.

During the two workshops, the program strengthened the ability of review committee members to develop PBCs and evaluate bids; the curriculum was based on an analysis of the MOH procurement disputes. Of the 34 officers who started the training, 28 completed it.

MOH Procurement Management Diagnosis and Baseline Indicators

The program assessed the MOH procurement management to (1) assess if the recommendations made in 2008 and documented in an earlier report by the *Centro de Información y Recursos para el Desarrollo* (CIRD) consultant, Jorge Zarate, had been implemented; (2) have a baseline that would enable the program and the MOH to measure program outcomes; (3) examine the management of the most important UOC—DGGIES (responsible for procuring drugs); and (4) propose a plan to implement the budget for 2010 and 2011.

Some of the first assessment recommendations were to—

- Decrease the number of UOCs and the Sub-Operational Procurement Unit (sub-UOCs), from 84 to at least 42
- create a vice-ministry to manage the administrative and financial area[3]
- unify the central UOC and strengthen it with a sufficient team of skilled technicians, who will process bids faster, as well as make the UOC independent (it remains dependent on the DGAF; and create a direct dependency between this directorate and the minister

[3] The DGAF depends on the vice-ministry; the MOH has only one vice-ministry where too many functions are delegated—medical, technical-administration, and financial; it becomes a bottleneck and does not allow prompt decisionmaking and execution.

- approve a manual of functions with only five requirements for internal approval of the procurement process
- plan additional training for new staff.

A subsequent evaluation by the Threshold Program showed that the DGAF and the Directorate of Contract Operations (DOC) were restructured creating coordinating offices; the number of UOCs decreased to five UOCs and 42 sub-UOCs, distributed in 18 health regions, 18 hospitals, and six programs[4].

At the same time, program staff detected an over-centralized management of the MOH budget. The main complaints referred to the excessive delay in response requests for Certificates of Budgetary Availability (CDP), rulings, difference of opinion about the documentation to be distributed, and the allocation of budget funds to other offices without prior approval.

Despite the decrease of sub-UOCs, the process completion was still too slow, especially the National Competitive Bidding (LPN), which could take up to five months to complete, for various reasons—lack of consolidation of needs, lack of training for process managers, excessive changes, excessive levels of bureaucracy, delay in issuing rulings, etc.

For resource management, there was a staff shortage to implement the processes; this was the result of continuous staff turnover, which led to new, untrained and inexperienced staff and a computer shortage in remote facilities far from the capital. For logistics, complaints were made in areas and services that included distributing consolidated procurements. Other frequent complaints were drug stockouts, and the low quality of drugs and supplies procured. The complaints were noted in reports from the Office of the Comptroller General; workshop participants had access to this consolidated list.

Other weaknesses identified were—

- poor procurement planning (both general PAC and specific processes)
- deficiency in developing terms of reference for all types of processes
- lack of operating manuals, procedures, and flowcharts (work flow)
- lack of coordination and communication between all affected procurement areas.

The poor performance of the PAC in 2009 resulted in increased and oppressive bureaucratic processes in 2010. In addition, the turnover of the DGAF chief, which happened three times in 12 months, affected planned activities under the Threshold Program. For example, tt prevented procurement managers from carrying out tasks scheduled during 2010; as well as proper planning for 2011. In the last months of 2011, the DGAF team worked around the clock in in eight-hour shifts to spend the MOH budget. With this effort, at the end of 2011, they were able to spend 98 percent of the budget.

The recommendations made to the DOC and the minister as well as the action plan included in this second assessment were the following.

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[4] With the creation of DGGIES, a sub-UOC, in charge of the most important procurements (drugs, supplies, equipment), was incorporated in January 2010. A year later, on January 27, 2011, the number of sub-UOCs increased to 48, as a result of Ministerial Resolution SG No. 39.

To finalize FY2010—

1. To cover needs in early 2011, identify staff responsible for moving forward the process of approval of pending contracts from 2010.
2. Develop the processes under the *multi-year* mode.
3. Implement a rule to ensure the budget office does not make changes to any UOC, sub-UOC, or area budget without their prior notification.
4. Draft and approve the *Procedures and Functions Manual.*
5. Because the manual has not been drafted yet, the program recommends issuing an administrative ruling that specifically identifies the documents that must be completed by all sub-UOCs before they can request CDPs, including rulings at the different stages and payments to date.
6. Avoid reassigning staff within the different offices that handle procurements without first verifying applicants' procurement knowledge.
7. Establish sanctions for those who fail to meet deadlines and requirements.
8. Consolidate procurement processes (recommended).
9. Increase regional and service staff training.
10. Conduct a special audit of DGGIES procurement processes to determine if the—
    - designed planning has been followed or, instead, the original PAC still needs many changes
    - drugs procured are part of the essential drugs list (EDL)
    - strategic supplies procured match requested quantities, and they are needed in every appropriate program and service
    - organized logistics enables all the health regions, programs, and services to have access to the needed goods, within a reasonable time.

The second assessment showed that although the UOCs and sub-UOCs were initially reduced to 33 and subsequently increased to 42; the drastic reduction did not solve the problem of time for processing bids (in most cases, three months before notifying the National Director of Public Procurement [DNCP]). Moreover, the restructuring of the UOCs and sub-UOCs caused apprehension among officials, as this meant that they would lose control over their budget and purchases. According to them, when they took care of their own procurement needs, they could complete the orders faster; after the restructuring, even when they submitted their PAC—in some cases—they received the goods or services much later than expected.

Therefore, for the 2011 procurement process, the following were recommended:

1. Promote planning workshops to define the PAC 2011, under the direction of the DGAF. The forecast must be based on historical consumption and demand information, and based on real needs that must be addressed.
2. Define the terms during which requests must be submitted in consolidated procurements.
3. Provide trained staff for the areas that are in charge of consolidating procurements.

4. Anticipate budget balances that will be used to cover processes initiated in the current calendar year and the following year. At that time, the current year was 2009.
5. Finalize the PAC 2011 in December 2010 so it can be validated in January 2011 by all the applicable sites.
6. Increase training for the process in the procurement law and, also, in the internal management of the documentation to be produced.
7. Reduce the number of sub-UOCs in the MOH, because 42 sub-UOCs are still considered excessive. A needs assessment, with coherent consolidation criteria, could help define the ideal number.
8. Create a vice-ministry for administration and finance that is responsible for managing all budget matters.
9. Strengthen online reverse auction processes.

See table 6 for a list of the performance indicators proposed as a baseline.

Table 6. Table of Indicators to Measure Management of Procurement Processes

	Indicator	2009	2011
1	PAC timely submission	No data	Institutional PAC submitted on 02/25/2011 (within the expected timeframe)
2	PAC execution level	Did not reach the strategic objective of 100 percent by the end of the semester	• 95 percent of PAC awarded[5] • 84 percent of PAC in process
3	Average duration of an LPN	5 months	• National Public Tender: 118 calendar days (3.9 months) • Direct Contract: 78 calendar days (2.6 months)
4	Quantity of PAC modifications	385 times	240 times
6	Number of protests	60	• 2010: 47 protests • 2011: 16 protests

Of the recommendations in the report, the Threshold Program was responsible for the training, which is mentioned in the first part of this chapter and in the following chapter.

The DOC created a technical unit to monitor and follow up on the PAC execution of the UOCs and sub-UOCs; they held bimonthly meetings with responsible parties—administrators and directors—to learn about their status. Also, the DOC established internal benchmarks for each quarter, which improved the situation.

The MOH began the process of developing and updating its functions and procedures manual, which was later reviewed by Threshold Program consultants at the request of the DOC.

The second assessment documented the implementation of several multi-year processes; and the increase in the use of Reverse Electronic Auction (REA). Even after consolidating the procurement process, it is still difficult to consolidate MOH needs by sub-unit purchases because they lack a

[5] As of 12/31/2011, the MOH had awarded 1,593 procurements, equivalent to Gs434.246,826,179, or 79% of the total PAC at the MOH.

computer system to perform needed calculations. Although the Threshold Program has supported the calculation needs for procuring drugs and medical supplies, and they have a purchasing programming module based on Automated Information System and Inventory Control of Paraguay (SICIAP) data, even this tool is not sufficient. The SICIAP is not 100 percent upgraded (due to delays in registration and other problems mentioned in the item on the logistics management system. The SICIAP-MEP module has relied on extrapolating national consumption, although the level of reporting is low. The resulting data in these conditions could have an error factor, depending on the level of reporting. Extrapolating 15 percent of missing reports is not the same as extrapolating 70 percent.

Also, this module would only solve the calculations for purchasing drugs and supplies, but not all other procurements that the MOH requires. The suggestion, made by DGGIES, to audit procurements, was not carried out.

Market Research on Drug Procurement

The MOH implemented the REA mechanism for a large number of acquisitions, most related to drugs and medical supplies—this methodology is being used for large quantities of items.

The specialists recommended using REA when few items are procured and for products that are carried by a large number of vendors. To determine the products that could be purchased through the REA, program staff assessed that 244 products (drugs, supplies, and hospital equipment) had only one offeror, while 74 products were declared void.

This market study by consultant Max Rejalaga listed the list of products that should not be purchased under the REA (307 with a single bidder or no bidders). At the same time, the study listed 16 products that could be purchased from various institutions (corporate purchase by mode, as explained below), including two tracer drugs. During the study period (2010–2011), the MOH procured 947 products (both medicines and medical supplies); 624 could have been purchased through other mechanisms, including the REA.

Table 7. Suggested Products that Can Be Procured Using Corporate Procurement (Pooled Procurement by Government Entities)

Product	Comments
Omeprazol capsule	
Domperidone injectable	
Iodopovidone solution	
Adrenaline ampoulle	
Enalapril pill	
Salbutamol – aerosol	
Paracetamol - pill	
Salbutamol - drops	
Acetil Salicilic Acid - pill	
Hydrocortisone injectable	
Dipirone injectable	Tracer drug
Ibuprofen pill	Tracer drug

Product	Comments
Iodoform - Powder	
Diclofenac pill	
Ambroxol syrup	
Ketorolac inyectable	

Also, the research showed that few vendors participated in the bidding because of the—

- very short delivery times, which prevents upstream industries from importing the necessary raw materials to produce the requested quantities, or to import the drug
- extremely high penalties for delivery delays
- requests for unique drugs with worldwide patents, particularly for biotechnology and oncology requests for products with special devices that had to be imported (i.e., pre-filled syringes).

Other reasons included—

- low or no availability of requested products
- products discontinued because of low sales
- products discontinued because the product was manufactured at headquarters
- environmental protection conventions (i.e., free of tetrafluorethane gas [HFA]).

Also, several potential product vendors were disqualified because they did not submit bids.

Study on Corporate (consolidated) Procurement

The current legal framework was analyzed; program staff met with DNCP officials to determine the feasibility of conducting corporate procurements (consolidated purchases between Paraguayan state entities). Although this type of purchase is not stated in Law 2051/03, the law does state that incorporating complementary modalities on legal forms is legal and appropriate.

It was decided that corporate procurement could be implemented; a similar decision was made years ago when, by executive decree, the REA was implemented. In addition, this first corporate procurement was implemented as a pilot test. The institutions involved—Social Security, the National Police through the Ministry of Internal Affairs, the Armed Forces (FFAA) through the Ministry of Defense, and the penitentiary system through the Ministry of Justice and Labor—agreed that the MOH should be in charge of the agreement. The MOH asked that the National University School of Medical Sciences also be included.

The corporate procurement convention has the following advantages:

- The economies of scale enable buying at lower prices; in other words, the manufacturers can produce higher volumes at a reduced price because the production and marketing costs are lower.
- Transaction costs between groups are very low because the groups can easily coordinate their work; this saves both money and time.

In addition to the general advantages mentioned above for the country and the MOH, other advantages of a first corporate procurement include:

- Providing the groundwork for including a new, complementary and cost-efficient modality into the public procurement policy framework.
- Obtaining better prices for procuring drugs because of the economies of scale.
- Improving technical specifications and become the best informed for purchasing drugs, ahead of the Ministry of Justice and Labor, National Police, and the FFAA.
- Reducing and centralizing acquisition procedures and administrative costs.
- Rationalizing resources generated unnecessarily by several acquisition processes executed by each entity (for example, allocate staff to supervise the implementation of every contract).
- Standardizing the types of general goods and services acquired, based on market standards required by some entities; this will ensure that there are specifications in common for all entities, and prevent favoring certain vendors, without justification.
- Developing technical sheets for each drug that can be used by other institutions making the same purchase on a smaller scale.
- Improving quality control when drugs are received, which will improve the quality of drugs purchased by these institutions[6].
- Continuing cooperation efforts between these institutions to ensure mutual support, based on thir accumulated experience (*know how*) with procurements. Cooperation may be specific to a procurement process—for example, when purchasing vehicles to be used in the Chaco region, the Ministry of Defense could assist with improving technical specifications; and for construction, the Ministry of Defense, with its engineering experience, could offer support with information, and so on.

And, the advantages for the private sector would be—

- Help planning the production of goods and services, given that with an assured large volume of sales, private sector entities can schedule, organize, and operate their production process more efficiently, making it sustainable over time.
- Improve conditions for the distribution of goods and services, according to the delivery schedule for supplies.
- Reduce access cost for public procurement, which would promote competitiveness.
- Reduce production costs.

The Corporate Procurement Agreement was drafted with the understanding that each institution would use its own budget and would sign each respective contract with the awarded offerors. To develop the procurement process, the institutions would add up product quantities requested by every institution, which would be marked as *Lot*. Each institution would select a team of UOC

[6] In this particular case, the technical resources (human resources and equipment) to perform the testing are higher for Social Security, compared to the other institutions.

representatives to evaluate and award tenders. Also, each institution would draft an individual contract with a vendor, with delivery times according to the needs of each institution.

The procurement for common institutions was checked, a list of 16 drugs was created, and both the purchase agreement and the PBC were drafted. Both documents were forwarded to the legal offices of each institution for verification. The program provided the MOH with tools and the process descriptions for corporate procurement; they may want to use such a mechanism in the near future.

Strengthen the Evaluation Committee

The program obtained the DNCP database from January 2010 until August 2011 to verify bidder protests against the procurement processes. The information was analyzed and the results are shown in tables 8 and 9.

Table 8. Bidder Protests Registered in 2010

Reason	Number of Protests	Number by Result		
		Rejected	Approved	Order Closure
Against the PBC	6	5	1	0
Against the award	36	24	9	3
Against void declaration	3	3	0	0
Against the re-evaluation and award	2	1	1	0
Total	47	33	11	3

Table 9. Bidder Protests Registered between January and August 2011

Reason	Number of Protests	Quantity by Result		
		Rejected	Approved	Order Closure
Against the PBC	3	0	2	1
Against the award	12	5	6	1
Against the revaluation and award	1	1	0	0
Total	16	6	8	2

In both cases, most of the protests were made against the award, which helped identify weaknesses in the bid evaluation stage. Most of the errors occurred in awards based on the evaluation of items not specified in the PBC and in offerors being disqualified due to insufficient technical reports.

Although it is not completely relevant, deficiencies were found in how the PBC was developed; most were incomplete, which, added to criteria not included in the PBCs, has an effect on the evaluation. Based on these results, program staff trained members of the evaluation committees to ensure they have the knowledge and skills to develop PBCs.

After the protests were verified, members of the evaluation committees were selected for training. The DOC and the legal department of the MOH approved the participant list. Most selected participants were members of evaluation committees that had received protests on procurement processes:

- 10 members from the Procurement Operating Unit

- two members from the MOH legal advisor department
- four members from the General Directorate of Strategic Suppliestwo members from Health Primary Attention-Health Program (APS)
- two members from the National Hospital
- two members from the National Service for Malaria Eradication
- two members from the Medical Emergency Hospital
- two members from P.A.I.
- two members from the Pediatric Hospital
- two members from the Cancer Hospital
- two members from the Institute of Tropical Medicine
- two members from the Barrio Obrero Hospital
- two members from the San Pablo Hospital
- two members from the Luque Hospital
- two members from the Technical Unit of International Affairs.

Of the forty people invited to participate in the training workshop, 34 begun the training and 28 completed it.

Program staff noted that both the strengthening of UOC staff skills in the application of the procurement law, as well as the evaluation committee trainings significantly reduced the number of procurement protests.

UOC's Human Resources and Operations

As mentioned previously, the consultancy found that the DOC did not complete the *Organization and Methods Manual,* which was approved by ministerial resolution. The MOH was the beneficiary of an agreement signed between the DNCP and the Paraguayan Quality Association to obtain ISO 9001 certification along with five other UOCs from different institutions.

The Operations Manual is complete, and in process of being approved; the consultant just had to review and provide a list of recommendations for improvement. To avoid delaying any further its implementation, the DOC decided to leave these recommendations for the second version of the manual. Also as part of this agreement, the consultant provided the MOH with the PBC to contract a systems development entity to monitor and oversee contracts.

The consultant also noted that the DOC's monitoring of their UOCs and sub-UOCs to ensure they achieved their bimonthly benchmarks was a success. In addition, the consultant suggested that this methodology be implemented in other procurement areas—for example, budget execution objectives—because it was observed that the PAC was beign implemented according to these objectives (i.e. the call for bids were being issued), but this was not reflected in financial records.

Annex 2 shows the organizational chart assessed during the consultancy and the version recommended, as well as the reduction of the internal steps in a national public tender and a direct contract (CD) after the organizational chart changes are implemented. If both suggestions are implemented, the average time to complete a call for bid, including the award and obligation, should decrease from 86 to 76 days for the public national tender and from 56 to 44 days for the CD, which would reduce them by 10 and 12 days, respectively.

Also, a profile for every position in the DOC dependencies was delivered: Director, General Coordinator, Head of Legal, Head of Technical Support Unit, Chief of PAC and Budget Department, Purchasing Programming, Head of Department of Minor Purchases, Head of Procurement Department, Head of Awards Department, and Head of Contract Verifications and Guarantees Department.

Improving the Efficiency of Contracting Units through the Implementation of Appropriate Technology

Software to Improve Procurement

At the beginning of implementing the Threshold Program, and during meetings with the vice-minister, the program noticed that several donors were supporting the MOH for similar needs. The program noted that the MOH was collaborating with the Technical Unit for Modernization of Public Administration (UTMAP), a project funded by the European Union and the World Bank. With USAID assistance, the MOH, through the Threshold Program, had acquired a tool, the Business Process Management System (BPMS), which automated administrative and procurement processes.

By identifying duplicate activities, resources could be channeled to other tasks. Thus, after several meetings with experts from the General Directorate of Strategic Information in the Health National System of Health Information (DGIES/SINAIS), DGAF, and cooperating agencies, the MOH decided to automate the procurement process using the software purchased by the MOH (BPMS Aura Portal), and they also decided that other processes related to the automated external transactions would be done using Inventiva-CSIPiemonte Consortium (UTMAP) contractors. The Threshold Program also committed to supporting the implementation of the BPMS acquired by the MOH, meaning implementation of the BPMS through the training of the final users of the system. After months of waiting for a notification to start the implementation, DGIES/SINAIS received a request from BPMS to fund process automation, because the MOH had purchased the software but did not have the funds for this; if the software could not be used, it would be a wasted investment.

Following that request, the Threshold Program had to sign a direct contract with IT Solutions, as the software vendor. Prior to this, program staff verified which processes needed automation and only contracted IT Solutions to automate procurement-related processes. Several months later, the program noted that the MOH had a problem implementing BPMS throughout the institution (as expected, because the MOH owned the software). Its implementation required at least 300 licenses; the package purchased included only 30 licenses. Given the cost of licenses (about U.S.$300,000 total), the MOH dismissed the plan to buy more. One year after starting the process, the MOH decided to only implement the BPMS within the DGGIES; as they had sufficient licenses for users in this unit, and because this unit is responsible for procuring drugs and supplies for the MOH.

Therefore, 16 procurement-related processes were automated in the DGGIES and the BPMS was linked with the SICIAP (integrated logistics information system).

The software is currently being implemented in the DGGIES; and is expected to improve procurement management.

Hardware equipment and networking for internet access

To ensure Internet access in health parks, selected hospitals, UOCs, and sub-UOCs, including the correct computer equipment to improve management (and access to SICIAP in the case of health parks and hospitals), the program conducted a survey in 114 sites. As a result of the survey, the Threshold Program installed 185 network access points, made electrical adjustments to 261 sites (hospitals, pharmacies, UOCs, sub-UOCs, health parks, administration/statistics departments), and provided Internet service through a virtual private network (VPN) for 32 sites for 12 months.

After the contract ends on March 31, 2012, the MOH has agreed to take over paying for the VPN for the 32 sites, originally funded by the Threshold Program. Although the MOH interconnection plan was delayed; in early 2012, they used VPN to link 120 sites out of 200, giving priority to those that are using SICIAP.

For hardware, the program donated 155 personal computers with an uninterrupted power supply (UPS) and Microsoft Office licenses to the regional health parks, hospitals, hospital pharmacies, UOCs/sub-UOCs, and DGGIES. The program also donated 148 laser printers and 140 bar code readers.

For the MOH data center, the program donated five servers and devices, and a 44 kilovolt-ampere (KVA) electric generator —which will improve the administration and management of data traffic, not only for SICIAP but also for other MOH systems and applications to ensure that the system functions correctly.

Providing this equipment will help sustain the SICIAP and will improve the UOCs and sub-UOCs management. See annex 3 for a list of beneficiaries and the type of equipment received.

Improve skills of MOH administrative staff

In addition to the workshops on public procurement, the program facilitated workshops on Results-based Budgeting (RBB) given that planning is a step prior to beginning the procurement process that must be accompanied by an appropriate budget. Also, the Ministry of Finance was beginning to implement RBB and the MOH asked for the program's support to implement this methodology.

Nine RBB workshops were organized and 177 staff participated—administrators, directors of regions, institutions and programs, and budget and technical managers in administration. The average attendance at these workshops was 80 percent. This activity helped strengthen skills in 79 departments and/or MOH sites. The trained staff increased their knowledge by approximately 180 percent, according to the score participants gave in the written evaluations at the end of each training.

Also, there were six accounting seminars to strengthen knowledge and to improve the skills of the staff responsible for preparing the accounting reports, in accordance with the regulations. Almost 150 staff participated, including administrators of general directorates, programs, hospitals, and health regions.

The increased knowledge of staff trained was 160 percent and the attendance was 59 percent.

Support the DGGIES by Reviewing the Essential Drug and Medical Supplies Lists

Develop the Essential Drugs List

The MOH was consistently stocked out of drugs and other commodities because each program managed its own procurement and managed its own distribution system; in some cases, much of the budget was spent on specialized drugs, with the amount arbitrarily calculated. The need for a basic drug list in Paraguay to facilitate the procurement, distribution, and dispensing of drugs in all levels of management and care in the public sector, encouraged the Threshold Program to provide technical assistance. The expert, Dr. Maritza Narvaez, from the USAID | DELIVER PROJECT in Nicaragua, has extensive experience developing basic lists of drugs. The program supported the DGGIES as they started the process of completing and, subsequently, disseminating the list to all levels of care.

Under this guidance, the MOH began selecting experts in the country, with the goal of forming the National Technical Committee (CTN)—participants included public sector professionals, the medical school, and the academy. The CTN develops the criteria for the selection of drugs, inclusion and exclusion protocols, and reviewing terms. The CTN prepared the Basic Drug List 2009 using a continuous, multidisciplinary, and participative process that included clinical prescribers; they defined a list of drugs, based on the country's epidemiological profile and treatment protocols. This process transferred the responsibility for the acquisition and purchase of drugs to the DGGIES and improved the availability of drugs required in public health services in the country; it also helped solve major health problems for the Paraguayan population. The ratification of the EDL was made by ministerial resolution, dated December 14, 2009.

During 2010 and 2011, approximately 8,000 copies of the drug list were distributed to all the prescribers from 18 health regions, specialized hospitals, sanitary warehouses, MOH internal pharmacies, and human resources training institutions; for example the National University of Asunción Schools of Medical Sciences, Chemical Sciences and Pharmacy, and the MOH Department of Nursing.

The EDL contains 441 essential drugs, with generic denomination, organized into 14 therapeutic groups. In 2011, the CTN began updating the list, after the review period established during its first edition. The DGGIES coordinated the CTN work. In March 2012, the program ordered 3,000 copies of the list to be printed; they were delivered to the DGGIES.

Develop an Essential Medical Supplies List

Along with a demonstrated need for a basic drug list; the second phase of program technical assistance was to complement the development of this list with an essential medical supplies list (EMSL).

The EMSL is also a framework for the procurement, distribution, and use of medical supplies at all levels of management in the public sector. Also, it is a tool that can be used to expand the range of prioritized supplies by adding new vendors that can supply the new products and to process local health registration to allow its use and sale to the Paraguayan population.

The MOH officials appointed the CTN to select the essential supplies; the DGGIES coordinate this effort and it is integrated by officials from the MOH technical divisions, national universities, institutes that select medical devices, hospital specialists, and MOH nurses from the central level.

The EMSL was developed following the methodological steps suggested by Dr. Narvaez, who led all the processes. The EMSL was introduced to strengthen the registration, selection, acquisition, distribution, and rational use processes in the MOH health facilities networks that contribute to help solve major health problems.

The EMSL of Paraguay lists 597 devices, including their generic name; it is organized into 16 groups, based on the systems and part of the body where the item is used. The list is also organized by the level of care recommended for that item. This list was printed and it is available for distribution to all health warehouses and people responsible for the areas mentioned earlier.

The two lists are important guides for the control and transparency in procurement and a starting point for the rational use of drugs and medical supplies.

Prepare the National Therapeutic Formulary

The MOH, as the guiding entity for health, updated the EDL, which lists the basic drugs used to treat most health problems affecting the Paraguayan population. This process is supplemented with information from the National Therapeutic Form (FTN), which makes relevant scientific and technical information and updated information on essential drugs for the country available to all prescribers in the health system.

Following up on the MOH policy to ensure and facilitate people's access to quality, safe, and effective drugs, the Threshold Program, in agreement and together with the Pan American Health Organization/World Health Organization (PAHO/WHO), joined efforts, experience, and funds to develop the FTN. Used together, the EDL and FTN are important tools for national drug policy.

Like the EDL and EMSL, the FTN is the framework for prescribing and dispensing information and educational items of interest to prescribers, health personnel, and patients. It is a strategy to promote the rational use of drugs at all levels of care in the public sector; it has become a tool for giving prescribers of health facilities information about patterns of treatment, dosage, side effects, precautions, contraindications, trade names, and costs.

The FTN provides the methodology to develop a systematic review strategy, as a way to ensure the information provided in the formulary meets appropriate criteria and refine the clinical decisions of prescribers.

Rational Drug Use

The Pan American Health Organization (PAHO) and the Threshold Program coordinated efforts to develop a proposal that allowed intensive training for health professionals in rational drug use (RDU), and to produce documents and guides for both training activities and raising awareness of health providers.

This training strategy considered strengthening the skills of a group of experts of health and educational institutions in Paraguay in rational drug use and treatment, as well as in managing information to solve prevalent health challenges. With program assistance, this group of professionals shared their skills in every health region and in 30 hospitals in the country. The objective was to reduce improper use of medications while at the same time strengthening and complementing the achievements of the Threshold Program regarding drug logistics management and decrease of drug stockouts in Paraguay.

During February 2012, a team of skilled and knowledgeable facilitators conducted a five-day workshop to introduce the RDU strategy to a select group of prescribers from all the MOH's levels of care.

As a result of this training and skills transfer process, the DGGIES now has—

- a training-of-trainers (TOT) guide
- a guide for conducting a one-day RDU introductory workshop for prescribers at service delivery points (SDPs)
- a guide for three-hour sensitization lectures for prescribers at the hospital level
- an RDU reference document to be distributed to all MOH prescribers
- an implementation plan to introduce RDU at all levels of the MOH.

Strengthen the MOH Logistics Management System

Design and Implement an Integrated Logistics Information System for Essential Drugs, Contraceptives, and Medical Supplies

By the end of 2008, the USAID | DELIVER PROJECT completed a quantitative assessment of logistics indicators (using the Logistics Indicators Assessment Tool [LIAT]) to measure not only the supply of contraceptives, but also the three health programs: basic health care, essential drugs, and delivery kits. The LIAT produced baseline indicators and an evaluation of the logistics situation of the other products. For the family planning program—its baseline was established in October 2005—it has lowered the level of contraceptive stockouts from 15 percent to 4.5 percent by 2008.

Based on the success of the logistics management information system (LMIS) that USAID | DELIVER PROJECT implemented in 2006 for the family planning program, it was determined that the same logistics model should be replicated for other MOH drugs and supplies, with the goal of having a single drug management system.

In May 2009, the project conducted an integrated LMIS design workshop for officials from different levels of the MOH involved in the logistics process—from quantification to procurement to prescribing drugs in SDPs.

Using the integrated LMIS as a framework, project staff developed a strategy for implementing needed changes such as: redesigning the forms (commodity movement reports and Kardex; setting minimum and maximum stock levels based on SDP consumption and to ensure that every facility has at least emergency stocks; and developing a TOT training strategy and cascade training to all SDPs in the country.

The program supported the MOH by printing 63,750 commodity movement reports for different levels of care, based on an EDL draft; 1,700,000 Kardex, and 2,800,000 prescription/receipt forms. In addition, while the logistics software that later became the SICIAP was being developed, the program developed a temporary automated tool to summarize regional data.

As a result of a TOT strategy, three regional warehouse managers trained more than 1,000 staff on the integrated system during more than 50 training workshops that took place over two months, accompanied by Threshold Program staff.

Also, six central level DGGIES officials traveled to Lima, Peru, to participate in logistics management, forecasting, and monitoring and evaluation workshops l conducted by A.B. PRISMA[7].

The program designed and delivered guides and manuals to the MOH Integrated Logistics and Supportive Supervision. Also, regional warehouse managers were trained during TOTs and practices in the field on the use and techniques of supervision, using the manual and the designed monitoring tools.

Assist DGGIES in defining roles, responsibilities, job descriptions and standard procedures

Since Organization and Methods (O&M) was a new MOH directorate, program staff worked with DGGIES staff to develop an O&M manual. The manual includes a proposed organizational chart as well as a description of the roles and responsibilities for each position.

The manual provided guidance for reorganizing the DGGIES, and was later updated to reflect the new structure.

Develop and Implement a Single, Automated Logistics Information System

In the Threshold Program original proposal, the objective was to automate the logistics information at a regional level and at seven specialized hospitals. Paraguay's SICIAP was initially designed to be a system that began with family planning commodity movement reports and that could be scaled up to gradually include delivery kit supplies; and, subsequently, essential drugs and supplies.

The plan for developing and implementing this application was for 18 months, including time for two pilot tests. However, the plan could not be implemented as intended, because of pressure from high level MOH officials to have inventory data, which they did not have (2008). The Threshold Program had to build on a software that was already being used in some MOH facilities; which served as the starting point for the later development of the SICIAP.

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[7] A.B.PRISMA is a Peruvian non-governmental organization that specializes in drug logistics and has extensive experience assisting the Peru MOH with logistics management. The organization is also a USAID | DELIVER PROJECT subcontractor.

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The software was a simple inventory application—input and output data. It did not provide intermediate levels of summary data; stock adjustments; average monthly consumption (AMC); maximum and minimum levels, facility, regional, and country level summary reports, trace indicator reports; nor any product traceability (tracking) from purchase to the end user.

All these requirements were incorporated into the development of the software, which resulted in a tool that even exceeded original expectations because, product traceability and costing information (purchase, consumption, and adjustments) had not been considered by the Threshold Program in the original agreements.

The improved application was the result of support received from MOH officials but, primarily, from users and decisionmakers who made important contributions to the software. The Threshold Program provided the MOH with computers and saw the need for all hospitals (67) in the country to have this tool, not just the seven hospitals listed in the original proposal. To implement the SICIAP, staff from 100 percent of sites (health regions and hospitals) were trained. The system currently has approximately 500 users, including operators and other management level users. As for the level of implementation, by February 2012, 84 percent of the health regions were entering data into the system; only three out of 19 regions have not entered data into the SICIAP. The SICIAP has also registered 60 percent of commodity movement reports from SDPs.

The system is prepared to add more facilities and users as long as they have access to the Internet. In the future, this will decrease the work of regional operators, as currently they must type in the names of 50 to 200 products for each SDP (health center, family health units, health posts, etc.) that manually completes the commodity movement report. On average, each health region has 69 SDPs (see table 10).

Table 10. Movement of Supplies Reported in SICIAP from all Health Regions, as of January 2012

#	Health Region	Number of SDP According to SICIAP	No. Of monthly reports received/ submitted	Percentage of Reports submitted
1	I Concepción	67	12	18,18
2	II San Pedro Norte	56	0	0,00
3	II San Pedro Sur	76	44	60,27
4	III Cordillera	57	61	91,04
5	IV Guairá	74	36	48,65
6	V Caaguazú	90	79	87,78
7	VI Caazapá	60	58	96,67
8	VII Itapúa	112	103	92,79
9	VIII Misiones	58	54	93,10
10	IX Paraguarí	58	2	3,45
11	X Alto Paraná	131	79	60,31
12	XI Central	165	111	71,61
13	XII Ñeembucú	72	67	93,06
14	XIII Amambay	26	20	76,92
15	XIV Canindeyú	77	33	44,44

#	Health Region	Number of SDP According to SICIAP	No. Of monthly reports received/ submitted	Percentage of Reports submitted
16	XV Pte. Hayes	78	4	5,13
17	XVI Boquerón (*)	20	0	0,00
18	XVII Alto Paraguay (*)	17	0	0,00
19	XVIII Capital	54	40	74,07
20	Virtual region specialized hospitals (**)	24	9	37,50
	Total of services	1.372	812	
	Average of reported commodity movement reports		40,6	
	Average of SDPs per health region	68,6		
	Percentage of monthlyreports submitted		59 percent	

Source: Threshold Program, based on SICIAP monthly reports.

*: # of SDPs in these regions according to the General Directorate of Health Programs (DGPS) data.

**: Virtual region created for SICIAP for data consolidation at specialized hospitals

Develop Forecasting and Vehicle Loading Application

Following the forecasting assessment conducted in 2011, it was discovered that PipeLine, a tool developed by USAID | DELIVER PROJECT for procurement planning, was a suitable system to estimate when there were only a few items in a supply chain; however, its application was not very effective or practical for an extensive list of medications and supplies. Nevertheless, the basic need to hav a tool to forecast, plan product procurements, and set a distribution schedule according to available transport and volume capacity continued to exist. For that reason, the Threshold Program proposed to develop a forecasting application based on the SICIAP.

The forecasting module obtains its data from the SICIAP (stocks, AMC) and it calculates procurement needs based on consumption history. It calculates three scenarios: (1) the first shows a picture at the time the module is executed; where consumption and stock data do not consider stockouts or report deficits, (2) the second extrapolates and calculates commodity movement reports not reported and isolates stockouts to extrapolate consumption under normal supply conditions, and (3) the third allows the technical rationing of procurement needs based on the allocated budget ceiling.

The rationing takes place by combining vital, essential, and non-essential (VEN) product classification and the ABC inventory system. The system provides suggestions using a traffic light technique to first ration (by allowing the selection of a percentage to be reduced) in red, the non-essential items that falling under category A (representing 20 percent of the total purchase cost.) Non-essential, category B items (representing the next 30 percent of the purchase) appear in yellow. Vital products (limited to a 10 percent reduction) appear in green, as well as those essential items that are in category C (50 percent of purchase). This tool allows rationing using criteria that prioritizes solving public health problems.

The application also has a module that calculates the volume of the load to be distributed, according to each vehicle's load capacity. The distribution manager will know how much to fill the truck, using a proposed routing that optimizes space and fuel.

Finally, the application has a Social Security User's Control Module that documents the quantity of products delivered to patients covered by the Paraguayan Social Security system. This allows the MOH to request reimbursement from the Social Security.

Strengthen MOH Staff Skills in Other Aspects of the Logistics Cycle

In addition to the training mentioned above, a group of officials from the central level (DGGIES) were trained in how to use PipeLine for forecasting needs. And, at the health minister's request, at the end of 2010, program staff conducted a drugs and essential supplies forecastins exercise for 2011.

This exercise, conducted jointly with DGGIES officials, used product consumption results from facilities that were piloting the SICIAP; in addition to consumption recoported on the Excel spreadsheets submitted by the health regions. The forecast showed that the MOH needed U.S.$.101,000,000 to cover their commodity needs, taking into account all levels of safety stock and the replenishment period. However, the last bid awarded in 2010 was for U.S.$20,000,000. This introduced the MOH to the concept of drug supply gap analysis as a tool to advocate for increased funding for procuring essential drugs and health commodities.

Strengthen the MOH Warehouse and Distribution Systems

The Threshold Program conducted a regional health warehouse assessment to verify the physical and environmental conditions of drug storage and survey equipment needs to estimate the space required, and confirming if the current space was sufficient or required expansion. Once completed, the assessment report was distributed to each of the health regions.

Among the results reported in this report was insufficient warehouse space, which had an average of three months of consumption. This led the MOH to reprogram budget funds to expand 13 regional warehouses. The Threshold Program provided the necessary equipment for six warehouses, because construction at the remaining seven warehouses was not completed in time for the March 31 end of project. Because of this, the minister requested that instead, the program supply equipment for three of the hospital warehouses that were expanded.

The program also conducted other assessments of hospital warehouses. The MOH has a detailed report for equipping hospitals once they are expanded and they have a routing schedule for every health region.

Indicators

The proposal Threshold Program included indicators for the two main sections: strengthening procurement and the logistics system. In some cases, the indicator's accomplishment was higher than the proposed target. Tables 11, 12, and 13 show the output indicators, outcome indicators for both components, and internal indicators that the USAID | DELIVER PROJECT established to measure the impact of their technical assistance.

Table 11. Output Indicators for Procurement and Logistics System

Procurement	Current Situation
120 people trained in procurement	• 156 people trained in public contracting • 178 people trained in results-based budgeting • 86 people trained in accountability reporting
Central UOC and 81 sub-UOCs reduced to 60 and working with standard procedures	54 central UOCs and 48 sub-UOCs
Central UOC and 60 sub-UOCs interconnected and with the public contracting national office	100 percent of UOCs interconnected
Logistics	**Current Situation**
Drugs and supplies unit created with assigned staff	DGGIES operational and with a manual of organization and methods
50 staff trained in logistics	1,000 staff trained
Central and regional warehouses interconnected	21 out of 24 warehouses interconnected

Table 12. Outcome Indicators for Procurement and Logistics

Procurement	Baseline	Achievements to March 2012
• 61 UOC performing procurements with quality standards • Timely submission of PAC • Percentage of implementation of PAC • # of modifications to PAC • # of protests	• No data available • 100% was not reached (1st 6 months) • 385 times • 60 protests	• PAC submitted on time: 95% of PAC awarded; 84% in process • 240 times • 16 protests
Procurement completed in 51 days	102 days*	• National Public Tender: 86 days • Direct Contract: 56 days
Logistics	**Baseline 2008**	**Achievements to March 2012**
75 percent reduction of drugs stockout	91 percent	NA

*Baseline was established by CIRD for the Threshold Program

Table 13. Internal Indicators USAID | DELIVER PROJECT

Indicator	Baseline September 2008	Goal	Achievements March 2012
% of logistics managers who received order calculation training during the last 3 years	17	90	100
% of SDPs that received supportive supervision in logistics during last year	0	50	38
% of stocked out SDPs with one or more of the 16 tracer drugs in the last 6 months.	95	80	NA
% of SDPs that kept their stocks between the minimum and maximum for all tracers	3	20	NA

Lessons Learned

Harmonizing Efforts with Other Organizations is a Win-Win Experience for Everyone

By coordinating with PAHO to develop the EDS, EMSL, FTN, and RDU strategy, joint objectives were achieved for the MOH's benefit. PAHO provided competent and certified human resources and certified the processes, based on standardized policies in Latin America. The Threshold Program provided funding for developing the instruments listed above; and, together with PAHO, designed a national level training strategy as well as a communications campaign.

Adapting an Existing Software Often Requires More Time and Money to Achieve Expected Results

The need to develop an application to automate the information system and inventory control enabled the Threshold Program to write technical specifications in a Request for Proposal to select the best software options in the local market. Given the magnitude of the application and its functionality, it was agreed that the tool should be developed from the ground up, instead of building on an existing inventory software program.

Program staff submitted a 14-month development schedule to the MOH, but it was rejected by high level officials because they wanted the software in less time than the program proposed. The minister's advisors from the NGO CIRD offered to adapt their inventory software in two months, adjust it, and have it online. Both the minister and the vice-minister, anxious to have an immediate software solution, and believing that adapting a software of this magnitude would be possible in two months, asked the Threshold Program hire CIRD to adapt this software. Unfortunately, the ministers didn't listen to technical advice of Threshold Program staff, who had previous experience developing and implementing quality software solutions, after the testing, piloting, and adjusting phases. For this reason, the program had to adapt an existing software when it should have completed the survey and development plan, to ensure that all the necessary steps were followed.

The Threshold Program had no choice than to hire CIRD to adapt a simple input and output software, developed without considering the inter-dependency of distribution levels. The database was not set up according to database standards. This meant that programming the system required writing many more programming codes, which slowed down the system. For example, SICIAP programming codes have many constant data or hard data in the system. When a change in the system is needed, the programmers must scan the entire system, which adds a degree of difficulty that may require the system to be re-engineered in the future.

In addition, the program structure is designed so that when a query is made, it uses many system resources, and the other users cannot use the system simultaneously. Sometimes, the responses are very slow when other processes are needed; many intertwined features must be created to produce each report. This reduces the components and causes an overload on the computers and servers; eventually, the system crashes because the system does not have the correct hardware support for

processing. The SICIAP is a good computer solution, but for it to function efficiently, it needs to be simplified for queries.

Additionally, the DGGIES asked that purchase orders and bids modules be included in the SICIAP to trace product placement in response to requests from the comptroller and audit departments. Finally, CIRD took more than 18 months to develop the software without a prior assessment to identify ways to avoid the hardware overload. The Threshold Program had to determine why the MOH server constantly crashed, which discredited the SICIAP users. To solve this problem, the program reallocated resources to purchase a server for the MOH data center. They now have sufficient capacity for SICIAP use, another low-capacity server for the database, and an electric generator that prevents electric power outages.

Weakness in the MOH It Unit Poses a Risk to SICIAP Sustainability

The MOH's DGIES should accompany the implementation of SICIAP. However, this office is not involved and the SICIAP is managed instead by the DGGIES, where there is only one person available to resolve user queries. DGIES staff has been focused on implementing other software packages, so DGGIES was left without the IT capabilities to solve inevitable software bottlenecks.

Before developing a software application, the data center and installed equipment capabilities and strengths should been assessed. This assessment should also indicate whether the system can be expanded, and if there is technical staff available and able to provide immediate technical solutions as needed. The infrastructure, physical space for installing equipment, and an adequate budget for equipment maintenance are all equally important when installing a new system that may have electrical outages and no night shift staff to perform backups.

As the SICIAP was being implemented, Threshold Program officials determined that the best solution was a staggered purchase of five servers for the data center and a high capacity generator. Policymakers still need to understand the importance of maintaining and sustaining the IT equipment and to allocate the appropriate budget for this purpose.

Motivation Strategy by Performance Indicators Can be Applied to an Operational System

A continuous assessment of stockout indicators for the family planning program allowed sharing results between regions; this established performance standards to be achieved by each region. The public acknowledgment of regions that attained a zero stockout rate motivated SDPs to increase their level of monitoring. The Project wanted to transfer this experience to the staff in charge of essential drugs management, which would have encouraged timely SICIAP data entry and also achieved an adequate supply of the tracer drugs.

However, the extensive time it took to develop the SICIAP meant that no time was left to assess the regional level performance before the Threshold Program closed out, nor was time left to use a performance-based incentive mechanism to encourage the regional managers to improve.

Necessary Building Extensions, Difficult to Finance and Monitor their Execution

In November 2008, the USAID | DELIVER PROJECT conducted a regional warehouse and equipment needs assessment. This raised awareness among MOH officials of the importance of having adequate space for storing drugs under the appropriate conditions. Assessment

recommendations included that the MOH expand its regional warehouses and determine what equipment would be needed to provide every warehouse with the infrastructure requirements found in the assessment.

The required equipment was procured and installed in the warehouses to ensure optimal use of the limited space. With the DAF sensitized on this issue, the MOH followed the suggestions for expanding the regional warehouses and reallocated the budget to extend 15 out of the 18 regional warehouses. Unfortunately, the physical resources unit at the MOH did see monitoring the expansion as a priority. The extensions were not implemented on schedule, so it was difficult to equip the warehouses to meet acceptable conditions. The program had to set a deadline for starting the procurement process for the equipment. In the end, only six regional warehouses; and, at the request of the Minister of Health, three hospitals, were provided with new equipment.

Central Warehouse Remodeling Necessary, but Inefficient Control

The lack of physical infrastructure does not allow the MOH to have a central warehouse. They have a leasing contract with two private warehouses—a warehouse in the back of the administrative office of the MOH and a property on Venezuela Avenue. Contractually, the Threshold Program cannot fund improvements in physical infrastructure and buildings; therefore, the program supported the design of blueprints to expand the Venezuela Avenue central warehouse; this would provide enough space for all the sub-warehouses to be in one location. The MOH committed to obtaining the funds for the new construction using the submitted blueprints.

By December 2011, the MOH finally began, very slowly, to work on the expansion. This did not provide the program with sufficient time to provide the needed equipment; today, the warehouse comprises four parallel central warehouses that hold separate inventories. The transport team must visit each of the warehouses to collect the commodities for the health regions and hospitals.

In addition to the expansion of the Venezuela Avenue warehouse, the MOH implemented a remodeling plan for the pre-existing storage facilities. These renovations were carried out very slowly and do not comply with program recommendations for operating the forklift donated by the Threshold Program to streamline the handling of supplies. Although the MOH did change the initial flooring because it could not hold the weight of the forklift, the inner doors of the storage facility were not adjusted to allow the forklift to circulate freely.

Today, conditions have improved at this property: it has racks, shelves, pallets, and air conditioning. However, the space is still insufficient and will be until the expansion is complete.

Use of Tools to Contribute to Procurement Control and Transparency Should be Formalized

One main objective of the Threshold Program was to improve procurement processes by implementing control mechanisms. The SICIAP tool, which provides consumption data at the national level, now has a forecasting module. This module can be used to isolate stockout events and missing reports to estimate consumption, under normal supply conditions; it projects security levels, including the time required to receive the purchases, beginning with the bidding process.

This module should be made official via ministerial resolution as a tool to control procurements. This would strengthen the MOH's capacity to conduct procurements based on a technical foundation that takes into account actual demand and avoids diverting resources when drugs and

supplies are ordered in excessive amounts. This practice puts commodities at risk of expiring and also diverts resources to procure drugs identified as needed by the SICIAP.

The procurement mechanism for some drugs must be changed immediately to ensure a more efficient and transparent process; this is particularly true for antiretrovirals (ARVs). The MOH already has an agreement to use PAHO services as a procurement agent for drugs, benefitting from the economy of scale. However, the MOH continues to purchase drugs locally; with proper planning, they could procure through PAHO and avoid paying excessive prices for local emergency purchases. One example is the ARV Abacavir, which costs Guaranies 19.000 (about U.S.$.4.50) per pill purchased locally versus Gs. 1.333 (about U.S.$. 0.31) per pill purchased through PAHO. Procuring through PAHO is clearly better, more efficient, and would save 14 times on the budget, and if estimates are based on the the forecasting tool designed for this purpose, the MOH will have more accurate estimates to do its procurement.

Although the MOH should still have the flexibility to locally procure ARVs, this purchase should not exceed the 10–15 percent of the total budget for procuring ARVs through PAHO.

Constant Turnover Hinders Strengthening the UOC According to Plan

The Threshold Program faced several challenges when expected to work with the DAF to strengthen UOC staff skills. For example, the DAF changed directors three times during the duration of the Threshold Program, which made the identified and planned strategies difficult to coordinate.

The Threshold Program identified the need to implement Business Process Mapping (BPM) software to monitor procurement processes. The MOH was already working with a company; the Threshold Program had to hire the same company to developed the applications identified as needed to implement BPM.

Involving staff in these processes for all the UOCs meant including approximately 300 users. The company hired by the MOH charged $1,000 per license. The minister's decision to use this software solution had to be followed. The final decision was that the MOH could not implement BPMS in all UOCs; DGGIES would receive 30 licenses, because DGGIES has the most important UOC given its level of funding to procure drugs. These processes were finally developed for this directorate.

To Improve Transportation, There is a Need for a Distribution Plan in Addition to Vehicles

Drug distribution was carried out erratically because there was no systematic, dependable transportation. The Threshold Program was allowed to purchase vehicles to transport drugs. The Threshold Program II donated three ten-ton trucks for DGGIES at the central level and three five-ton trucks for regional distribution. The vehicle donation did not solve distribution and transportation challenges; the distribution had to be systematized using a routing plan with an adequate budget.

Although the MOH was anxious to receive the donated vehicles, it did not budget fuel, maintenance, insurance, and other expenses needed to transport the drugs once they were delivered. Therefore, the Threshold Program conducted a distribution and transport assessment from central to regional and from regional to local level. The Threshold Program obtained data on distances in kilometers, roads, and volume of cargo in 15 regions. Based on this information, a routing plan was developed that took into account site location, type of roads, and available space in the trucks. In

many cases, program staff found out that vehicles were being under-used because funding for transportation was insufficient. Lastly, the Threshold Program provided the MOH with a budget for each region that included the cost of fuel, travel, and vehicle maintenance to include in its annual procurement program.

Within the SICIAP, the Threshold Program implemented a feature to enter distribution volume data as a way to facilitate the systematization of the distribution. The MOH proposed 12 routes for the three central level trucks to transport deliveries to the regions. There was also a recommendation that proposed routes for all regions. The DGGIES must now add these routes to the SICIAP, which will validate the module and have it ready for use. This will help the distribution manager know how much truck space is occupied by the assigned distribution, according to the proposed routes. Adjustments to this routing plan can be made by the SICIAP administrator at DGGIES.

Insufficient Staff Prevents Logistics System from Working

The lack of staff for loading and unloading at regional warehouses is critical, as is entering data into SICIAP. In addition to the lack of staff with enough hours devoted to these tasks, the situation is worse when personnel change without prior consultation or notice. Staff who have already been trained on the SICIAP tool are assigned to another function by directors that have not yet identified the SICIAP as a valuable management tool.

Future Challenges

SICIAP follow-up: A software that has been carefully developed and improved will be vital for decisionmakers at the MOH. Staff has already been trained in how to use it, but if it is not monitored and a training plan developed for new users, the institutionalization of the software could be in jeopardy. For example, many users still do not enter data in a timely manner and the SINAIS is not fully involved in including the SICIAP into the MOH official systems. The DGGIES now has hired additional staff to support the implementation of the SICIAP. This requires very close communication with regional warehouses and all hospitals that are implementing the system (67 in all). The MOH should continue hosting national meetings that can help sustain the implementation, especially where hospitals that are successfully implementing the software show progress to date in both drug management and savings because they are using SICIAP. The same is true for regional warehouses. More staff is still needed in DGGIES and the SINAIS to solve technical problems as they arise. The source code was delivered to the MOH; however, it requires that SINAIS, with the DGGIES, assume responsibly the continued use of the tool, assign staff who understand the source code, and make modifications during the system's natural evolution.

Networking stability: After the interconnectivity needs of all points for UOC and SICIAP use were assessed, the DGIES plan was reviewed. The Threshold Program agreed to provide VPN services for 32 sites and DGIES to 200 sites. By April 2012, DGIES must set aside funds to cover costs related to the provision of VPN services contracted by Threshold Program, provide maintenance to the network, and provide support on other issues, as needed. To ensure the stability of the signal, the Threshold Program provided five servers to the DGIES. The DGGIES will configure the servers using IT technical support staff, and must ensure the servers are correctly managed to prevent them from being overloaded.

Expanding regional and hospital warehouses: The recommendation presented was successful and some regional warehouses are being expanded. Once the work is complete, it will be necessary to optimize the expanded space by providing equipment (shelves, racks, pallets, ladders, etc.). In February 2012, the Threshold Program provided the MOH with a warehouse assessment for 44 hospitals that shows that most of these require additional space and new equipment. To comply with Mercosur good warehousing practices adopted by Paraguay, monitoring and supportive supervision must be ensured.

Training and formalizing the use of SICIAP-MEP: Through this module created using information from SICIAP, the MOH can now calculate forecasting and drug and health supply procurement needs. The MOH must find ways to train qualified personnel in how to use this module and must obtain regular funding to maintain and upgrade it. By doing this, it will improve transparency in the procurement process and will help avoid purchases that are not based on analysis or related to actual demand—both of which can lead to stockouts or oversupply.

Piloting the distribution SICIAP-MEP module: This module facilitates distribution by calculating the volume occupied in the truck by each load. The DGGIES must assign the routes proposed by the Threshold Program to SICIAP-MEP and must pilot their use to make any necessary adjustments.

Continuing and institutionalizing continuous training in rational drug use: A TOT, 19 regional workshops, and 30 awareness lectures in hospitals were conducted. It will be a challenge for the MOH to continue with a strategy that reaches all health sector prescribers.

Create the vice-ministry of administration and finance to streamline management, administration, and financial supervision. The UOC should have a corresponding financial management unit (or sub-UAF) to decentralize the government and implement the following, which will improve performance in procurement:

- Change the bidding terms and conditions, especially for delivery lead times and procurement planning. Start the main process earlier to optimize forecasting.
- Purchase drugs exclusive rights by way of exception from one supplier; and drugs with a single bidder but without exclusive rights, by national public tender. Assess whether it is possible to procure drugs through international bidding (if prices offered are higher than regional market prices), as long as they cannot be procured through online reverse auction.
- For drugs with two bidders, use the national public tender in the traditional mode.
- For drugs with three or more bidders, use online reverse auction to procure them.
- For drugs without bidders, conduct a thorough market research and procure via national public tender, competition, or direct purchase.
- The MOH must now lead efforts to ensure the Corporate Procurement Agreement[8] is formally signed. All involved institutions agree, and they are eager to begin using this process, because everyone wins.
- The assessment of the MOH units involved in procurements and their functional and operational relationships revealed that the legal division, currently attached to the DGAF, should instead become part of the DOC. The DOC is already functionally dependent on the DGAF and actively participates in all MOH procurements, whether they are processed in the DOC central or elsewhere in the UOCs.
- The DOC must have an Information Technology (IT) support unit, because at this time, when they need assistance, they must submit requests to the DGAF, which delays the response.

Also, the national public tender and direct contracting processes were evaluated to verify the bottlenecks in completing internal steps and to propose improvements. Among the remaining challenge for the MOH, the following need to be accomplished:

- Merge the PAC and budget department with the procurement programming department, whereby the latter would become a section of the PAC, and reducing the steps between the two departments; because the PAC and the budget unit combines the functions of the Department of Procurement Programming.
- Replace the Department of Contracts and Warranties with a Contracts Verification Department. While this unit's functions include controlling the effective contract enforcement, it has no control over them, because the Contracts Execution Unit is in charge of carrying out contracts,

[8] The MOH has declined to lead the signing event because it is considered very important that it be signed by the President. Although a date has not been set yet, confirmation from the presidency is expected soon.

which falls under the Administrative Directorate, not the DOC. The DOC must have a management team that can monitor contract implementation.

- Develop a web-based contract monitoring and control system, so that each UOC and sub-UOC can enter data and information on contract implementation, track it, and be alerted about contract deadlines. They should be able to verify deadlines (policy-contract) in order to act proactively to protect the interests of the institution. Also, the system should also be able to link features such as progress to date or vendor deliveries with expenditures, given the fact that construction contracts must usually include advance payments.
- The Department of Contracts and Warranties writes contract pro formas, oversees the signature process, and receives and files insurance policies. The Department of Bids and Small Purchases can perform all these functions.
- Approve a resolution to prevent turnover of UOC and sub-UOC officials; as they have a very technical role that requires knowledge of the legal framework, experience, and knowledge across the public procurement process—from designing the technical specifications—to evaluation and award. Staff stability will ensure that Threshold Program trained staff will strenghten the MOH procurement management process and improve institutional performance.

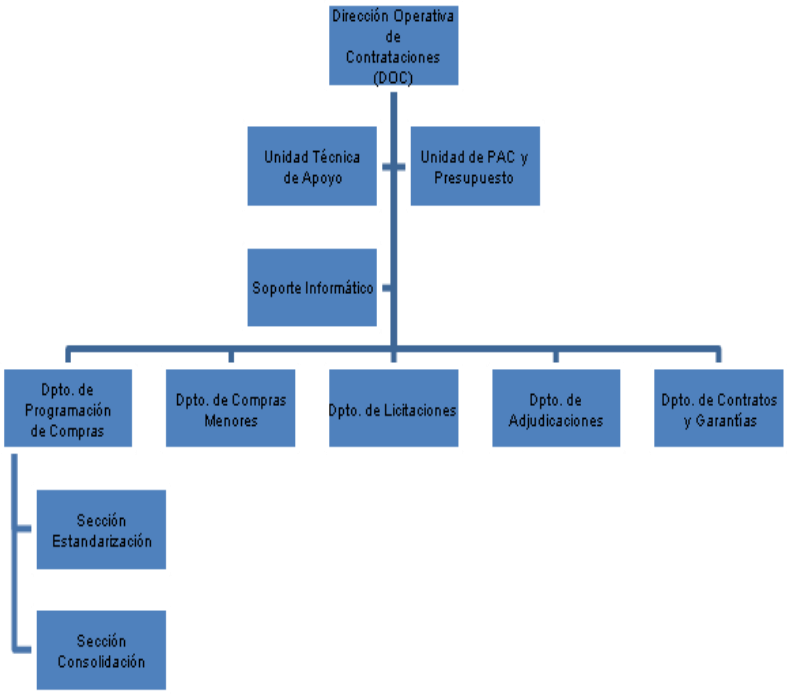
Annexes

Annex A

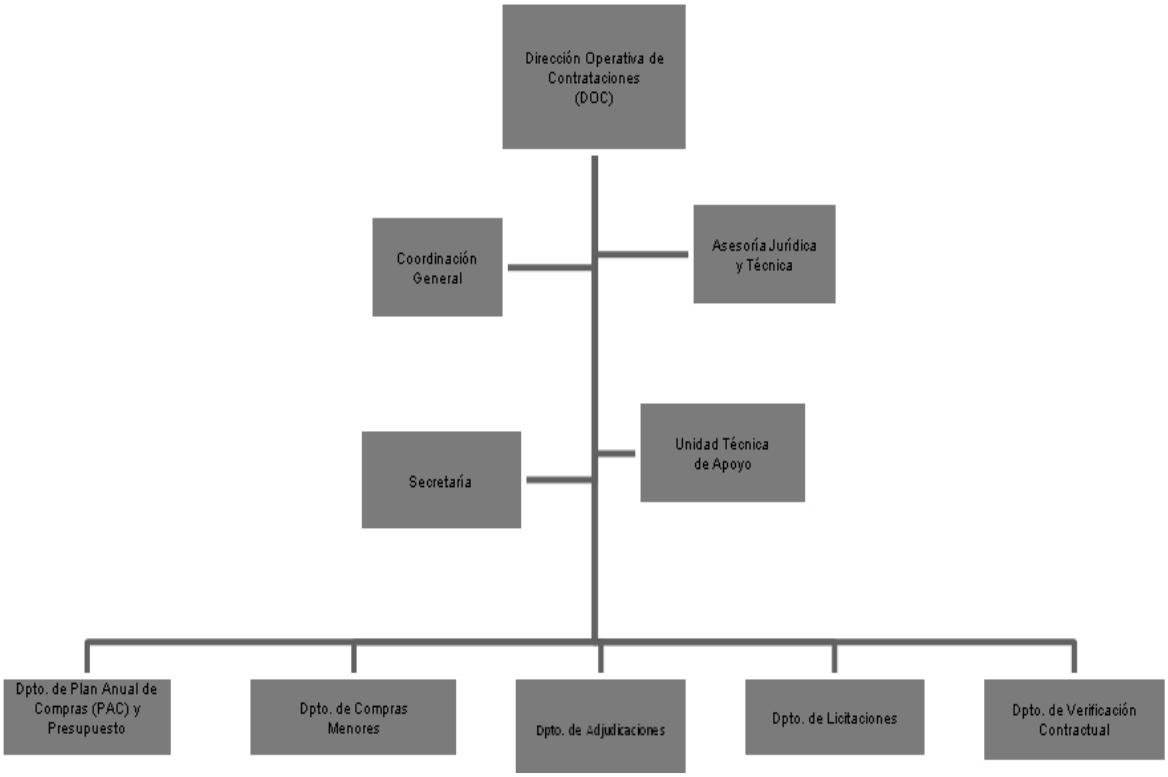
BTS (Budget Tracking Sheet)

LINE ITEMS	USAID Approved Budget A	Actual Espenses Through Feb-12 B	Budget Less Actual Expenses C (A-B)	Total Actual Plus Projections G (B)	Budget Less Expenses & Projections H (A-G)
SALARIES	782.555	699.074	83.481	699.074	83.481
Direct Labor	423.494	368.052	55.442	368.052	55.442
Coop. National Salaries	359.061	331.023	28.038	331.023	28.038
OVERHEAD	327.148	284.204	42.944	284.204	42.944
CONSULTANTS	94.975	105.260	-10.285	105.260	-10.285
TRAVEL & PER DIEM	142.720	153.176	-10.456	153.176	-10.456
ALLOWANCES	72.370	61.856	10.514	61.856	10.514
EQUIPMENT, MATERIALS, SUPPLIES	683.279	914.218	-230.939	914.218	-230.939
OTHER DIRECT COSTS	684.007	512.663	171.344	512.663	171.344
SUBCONTRACTS	456.496	27.678	428.818	27.678	428.818
TOTAL WITHOUT FEE	3.243.550	2.758.130	485.420	2.758.130	485.420
ALLOCABLE	410.377	263.758	146.619	263.758	146.619
FEE	146.073	116.328	29.745	116.328	29.745
TOTAL INCLUDING FEE	3.800.000	3.138.216	661.783	3.138.216	661.783

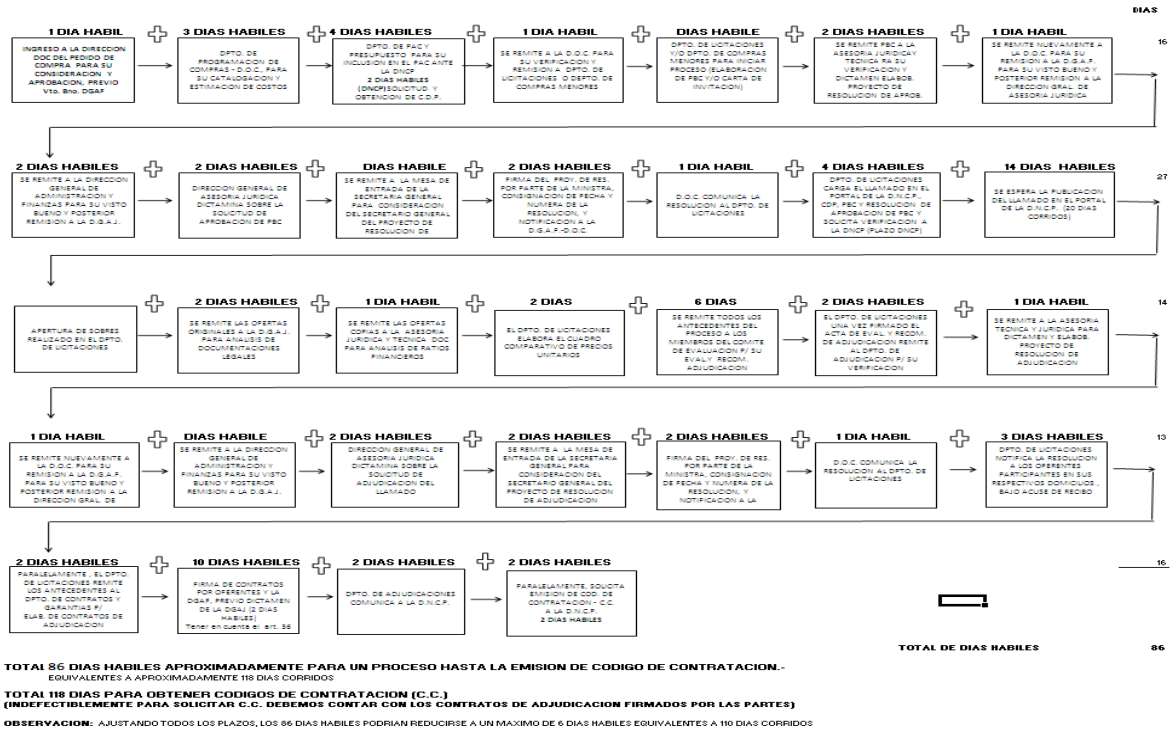
Annex 2. Organizational Chart and Processess Current Organizational Chart



Proposed Organizational Chart



Current National Public Tender (86 days)

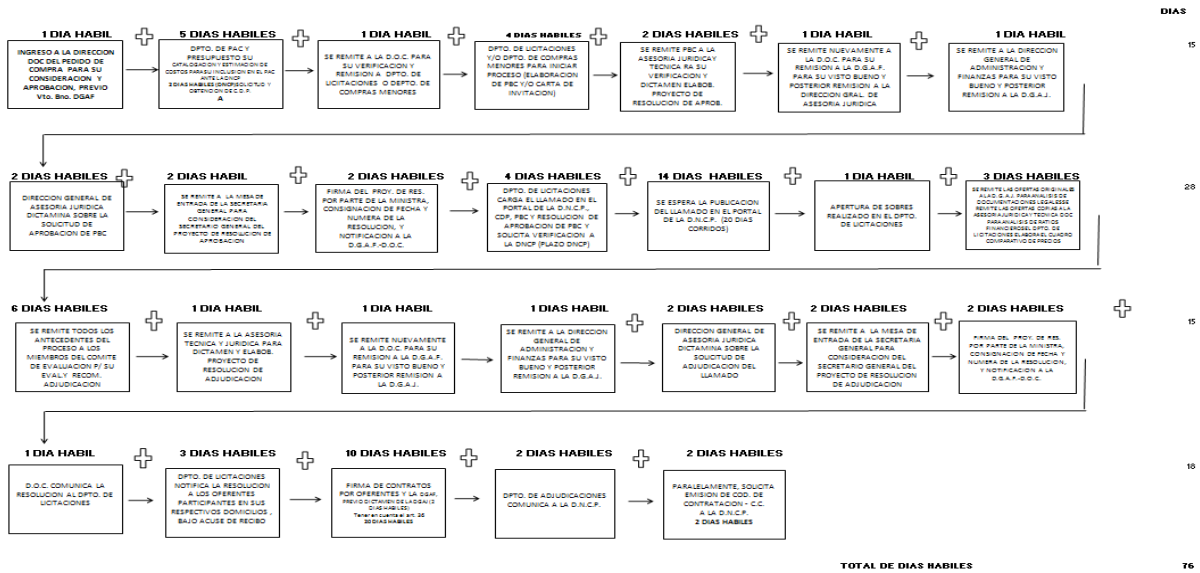


TOTAL 86 DIAS HABILES APROXIMADAMENTE PARA UN PROCESO HASTA LA EMISION DE CODIGO DE CONTRATACION.-
EQUIVALENTES A APROXIMADAMENTE 118 DIAS CORRIDOS

TOTAL 118 DIAS PARA OBTENER CODIGOS DE CONTRATACION (C.C.)
(INDEFECTIBLEMENTE PARA SOLICITAR C.C. DEBEMOS CONTAR CON LOS CONTRATOS DE ADJUDICACION FIRMADOS POR LAS PARTES)

OBSERVACION: AJUSTANDO TODOS LOS PLAZOS, LOS 86 DIAS HABILES PODRIAN REDUCIRSE A UN MAXIMO DE 6 DIAS HABILES EQUIVALENTES A 110 DIAS CORRIDOS

Suggested National Public Tender (74 days)

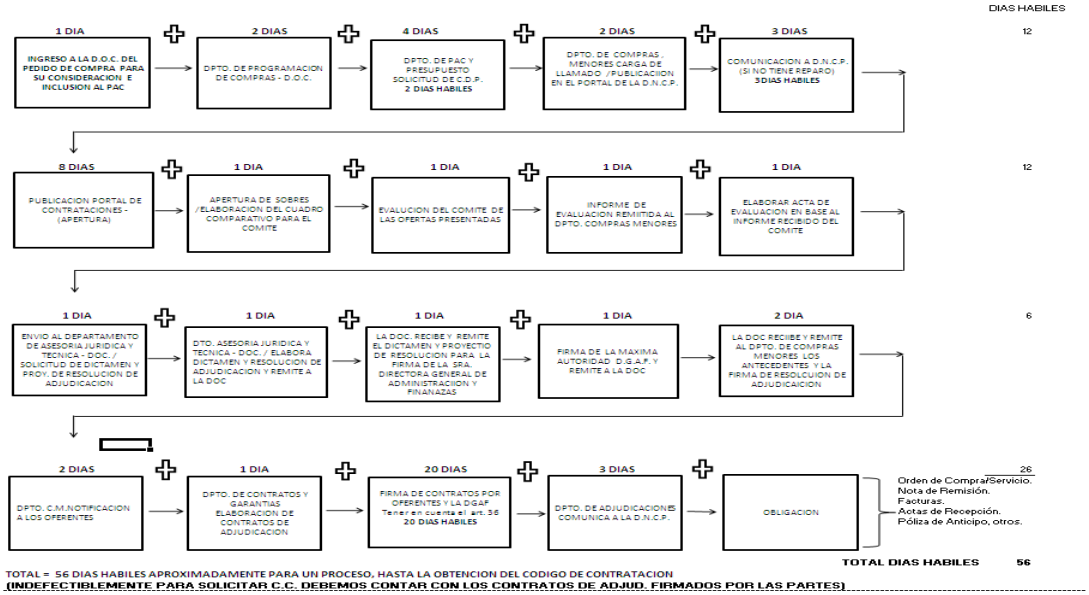


TOTAL 76 DIAS HABILES APROXIMADAMENTE PARA UN PROCESO HASTA LA EMISION DE CODIGO DE CONTRATACION.-
EQUIVALENTES A APROXIMADAMENTE 117 DIAS CORRIDOS

TOTAL 117 DIAS PARA OBTENER CODIGOS DE CONTRATACION (C.C.)
(INDEFECTIBLEMENTE PARA SOLICITAR C.C. DEBEMOS CONTAR CON LOS CONTRATOS DE ADJUDICACION FIRMADOS POR LAS PARTES)

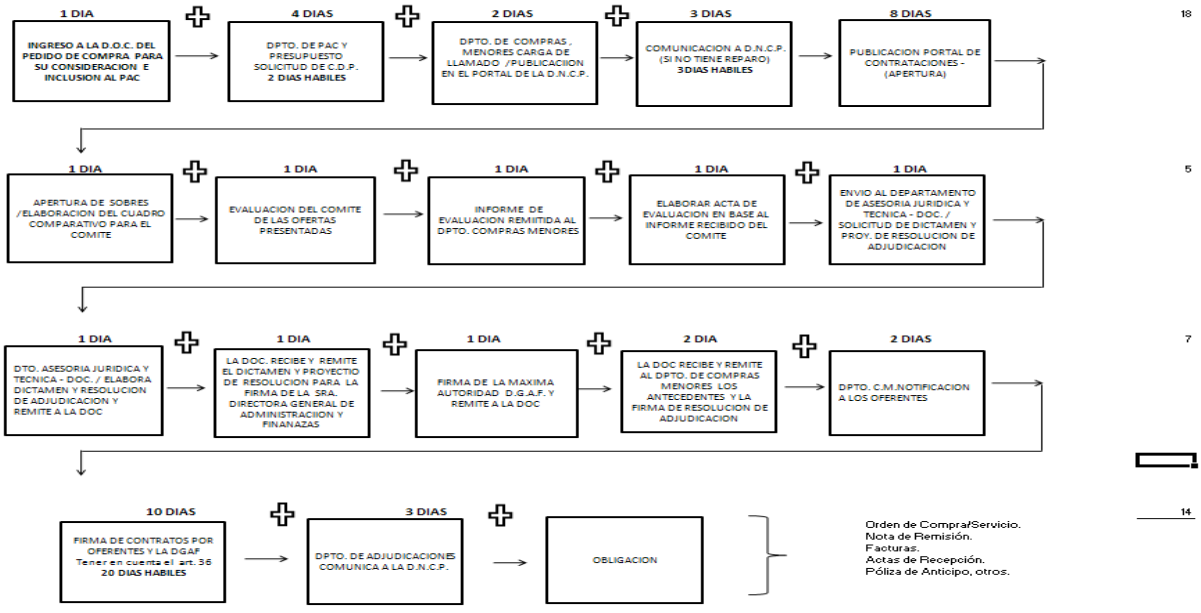
OBSERVACION: AJUSTANDO TODOS LOS PLAZOS, LOS 76 DIAS HABILES PODRIAN REDUCIRSE A UN MAXIMO DE 6 DIAS HABILES EQUIVALENTES A 101 DIAS CORRIDOS, con la salvedad que solo en casos excepcionales considerando que se estaria corriendo contra reloj en esos casos

Current Direct Contract (56 days)



TOTAL = 56 DIAS HABILES APROXIMADAMENTE PARA UN PROCESO, HASTA LA OBTENCION DEL CODIGO DE CONTRATACION
(INDEFECTIBLEMENTE PARA SOLICITAR C.C. DEBEMOS CONTAR CON LOS CONTRATOS DE ADJUD. FIRMADOS POR LAS PARTES)

Suggested Direct Contract (44 days)



TOTAL = 44 DIAS HABILES APROXIMADAMENTE PARA UN PROCESO, HASTA LA OBTENCION DEL CODIGO DE CONTRATACION
(INDEFECTIBLEMENTE PARA SOLICITAR C.C. DEBEMOS CONTAR CON LOS CONTRATOS DE ADJUD. FIRMADOS POR LAS PARTES)
OBSERVACION: AJUSTANDO TODOS LOS PLAZOS, LOS 44 DIAS HABILES PODRIAN REDUCIRSE A UN MAXIMO DE 5 DIAS HABILES EQUIVALENTES A 42 DIAS CORRIDOS, con la salvedad que solo en casos excepcionales considerando que se estaria corriendo contra reloj en esos casos

Annex B

Publications

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THRESHOLD II PROGRAM. SICIAP Rapid Management Guide – Volume III Hospitals and Public Hospital Pharmacies. Ministry of Public Health and Social Welfare of Paraguay. February 2012. (In Spanish).

USAID | DELIVER PROJECT: Towards Rational Drug use, a Policy to Follow. Ministry of Public Health and Social Welfare of Paraguay. March 2012. (In Spanish).

Annex C

Donated Hardware and Recipients

Nº	Beneficiary Site	Type	Pharmacy	UOC	Park.
1	I- Concepción Health Region	R.S.	X	0	1
2	Concepción Regional Hospital	H.R.	1	x	x
3	Horqueta District Hospital	H.D.	1	x	x
4	II- San Pedro Norte Health Region	R.S.	X	1	1
5	II- San Pedro Sur Health Region	R.S.	X	X	1
6	San Pedro Regional Hospital	H.R.	1	X	X
7	General Aquino District Hospital	H.D.	1	X	X
8	San Estanislao District Hospital	H.D.	1	X	X
9	III - Cordillera Health Region	R.S.	X	0	1
10	Caacupé Regional Hospital	H.R.	1	X	X
11	Eusebio Ayala District Hospital	H.D.	1	X	X
12	Tobatí District Hospital	H.D.	1	X	X
13	Arroyos y Esteros District Hospital	H.D.	0	X	X
14	Altos District Hospital	H.D.	1	X	X
15	IV - Guairá Health Region	R.S.	X	1	1
16	Villarrica Regional Hospital	H.R.	1	X	X
17	Independencia District Hospital	H.D.	1	X	X
18	V - Caaguazú Health Region	R.S.	X	0	1
19	Coronel Oviedo Regional Hospital	H.R.	1	X	X
20	Yhu Maternal and Child Health Hospital	H.M.I	1	X	X
21	Juan Manuel Frutos District Hospital	H.D.	1	X	X
22	Caaguzú District Hospital	H.D.	1	X	X
23	Repatriación District Hospital	H.D.	1	X	X
24	VI - Caazapa Health Region	R.S.	X	0	1
25	Caazapá Regional Hospital	H.R.	1	X	X
26	San Juan del Nepomuceno District Hospital	H.D.	1	X	X
27	Yuty District Hospital	H.D.	1	X	X
28	VII - Itapua Health Region	R.S.	X	1	1
29	Encarnación Regional Hospital	H.R.	1	X	X
30	Carmen del Parana District Hospital	H.D.	1	X	X
31	Coronel Bogado District Hospital	H.D.	1	X	X
32	Colonia Fram District Hospital	H.D.	1	X	X
33	Maria Auxiliadora District Hospital	H.D.	1	X	X
34	Natalio District Hospital	H.D.	1	X	X

Nº	Beneficiary Site	Type	Pharmacy	UOC	Park.
35	San Pedro del Parana District Hospital	H.D.	1	X	X
36	VIII - Misiones Health Region	R.S.	X	0	1
37	San Juan Bautista Regional Hospital	H.R.	1	X	X
38	Santa Rosa Maternal and Child Health Hospital	H.M.I	1	X	X
39	San Ignacio District Hospital	H.D.	0	X	X
40	IX - Paraguarí Health Region	R.S.	X	0	1
41	Paraguarí Regional Hospital	H.R.	1	X	X
42	Ybykui District Hospital	H.D.	1	X	X
43	Quiindy District Hospital	H.D.	1	X	X
44	La Colmena District Hospital	H.D.	1	X	X
45	Carapegua District Hospital	H.D.	1	X	X
46	X - Alto Paraná Health Region	R.S.	X	0	1
47	Ciudad del Este Regional Hospital	H.R.	1	X	X
48	Presidente Franco District Hospital	H.D.	0	X	X
49	Hernandarias District Hospital	H.D.	1	X	X
50	Minga Guazú District Hospital	H.D.	1	X	X
51	Santa Rita District Hospital	H.D.	1	X	X
52	XI - Central Health Region	R.S.	X	0	1
53	San Lorenzo Maternal and Child Health Hospital	H.M.I	1	0	1
54	Luque Regional Hospital	H.R.	1	1	1
55	Lambaré District Hospital	H.D.	1	1	X
56	Mariano Roque Alonso District Hospital	H.D.	1	0	1
57	Capiatá Maternal and Child Health Hospital	H.M.I	1	0	X
58	Fernando de la Mora District Hospital	H.D.	1	0	0
59	ITA District Hospital	H.D.	1	1	1
60	Niños de Acosta Ñu Pediatric Hospital	H.E.	1	0	1
61	Villa Elisa District Hospital	H.D.	1	0	X
62	Villeta District Hospital	H.D.	1	0	0
63	Aregua District Hospital	H.D.	1	0	X
64	Aregua Cancer Hospital	H.E.	1	0	X
65	(Limpio) Indigenous Hospital	H.E.	1	0	X
66	(Itagua) National Cancer Hospital	H.E.	0	0	0
67	Ñemby District Hospital	H.D.	1	X	X
68	Limpio District Hospital	H.D.	1	1	X
69	XII - Ñeembucú Health Region	R.S.	X	0	1
70	Pilar Regional Hospital	H.R.	1	X	X
71	Alberdi District Hospital	H.D.	1	X	X
72	XIII - Amambay Health Region	R.S.	X	0	1
73	Pedro Juan Caballero Regional Hospital	H.R.	1	X	X
74	Capitan Bado District Hospital	H.D.	1	X	X
75	Bella Vista District Hospital	H.D.	1	X	X
76	XIV - Canindeyú Health Region	R.S.	X	0	1
77	Salto del Guairá Regional Hospital	H.R.	1	X	X
78	Curuguaty District Hospital	H.D.	1	X	X
79	XV - Presidente Hayes Health Region	R.S.	X	1	1
80	Villa Hayes Regional Hospital	H.R.	1	X	X
81	Benjamín Aceval District Hospital	H.D.	1	X	X
82	XVI - Alto Paraguay Health Region	R.S.	X	0	1

Nº	Beneficiary Site	Type	Pharmacy	UOC	Park.
83	Alto Paraguay (Asunción).Health Region	R.S.	X	0	1
84	Fuerte Olimpo Regional Hospital	H.R.	1	X	X
85	XVII - Boquerón Health Región	R.S.	X	1	1
86	Mariscal Estigarribia Regional Hospital	H.R.	1	X	X
87	XVIII - Asunción Health Region	R.S.	X	0	1
88	Medical Emergencies Hospital	H.E.	1	X	X
89	Trinidad Maternal and Child Health Hospital	H.M.I	1	X	1
90	Loma Pyta Maternal and Child Health Hospital	H.M.I	1	0	X
91	Barrio San Pablo Maternal and Child Health Hospital	H.M.I	1	0	1
92	Barrio Obrero General Hospital	H.G	1	X	X
93	INERAM Specialty Hospital	H.E.	1	0	0
94	Tropical Medicine Hospital	H.E.	1	0	0
95	National Burn Hospital	H.E.	0	0	0
96	Central Level Health Park	P.S.	X	X	1
97	San Vicente Park	P.S.	X	X	1
98	San Antonio (Comfar)Health Park	P.S.	X	X	1
99	Venezuela Health Park	P.S.	X	X	1
100	National Institute of Nephrology	P	1		
101	National Blood Network	P	1	X	X
102	Holistic Care for People with Adictions	P	1	X	X
103	National Anti Rabies Center	P	1	X	X
104	National Prevention and Early Detection Program	P	1		
105	Sexual and Reproductive Health	P	1		
106	National Ablation and Transplant Institute	P	0		
107	National AIDS Control Program	P	0		
108	Birth kit	P	1	X	X
109	National Institute for Cardiovascular Prevention	P	1		
110	National Diabetes Program	P	1		
111	Prevention of Cystic Fibrosis and Mental Retardation	P	0		
112	Mental health	P	1		
113	Central Public Health Laboratory	P	1	1	
114	DGGIES		22(*)		
TOTAL			101	10	31

(*) Number of PCs received

References	
X	Does not apply or require
0	Has equipment
1	Received a PC

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