Starting From Scratch in Timor-Leste
Establishing a Pharmaceutical and Medical Supplies System in a Post-Conflict Context

Maggie Huff-Rousselle

June 2009
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Health, Nutrition and Population (HNP) Discussion Paper

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**Health, Nutrition and Population (HNP) Discussion Paper**

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Maggie Huff-Rousselle

Funded by the World bank, with Trust Funds from the Netherlands, 2005

**Abstract:** Based on a literature review of nearly 75 documents, interviews with over 50 stakeholders and key informants, direct observation, and analysis of financial and inventory data, this case study analyses the challenges of establishing a pharmaceutical and medical supplies system in a post-conflict context: Timor-Leste. In the aftermath of its separation from Indonesia, the Timor-Leste health infrastructure was in total disarray, with more than a third of health facilities destroyed, and those remaining severely damaged. The crisis in human resources was severe, as more than 80 percent of qualified public-sector staff had returned to Indonesia. The resultant heavy dependence on expatriates was complicated by language incompatibility, and nationals were not well integrated into planning and implementation processes, as an entire public sector infrastructure was being established de novo. Despite the fledgling status of the public sector, a sophisticated organizational framework was envisioned for the establishment of the health sector supply system: an autonomous agency that would be a non-profit wholesaler or revolving drug fund and a public sector monopoly. The case study reviews the development of the policy and legal framework for the pharmaceutical sector, and the key phases of the commodity supply system, including: product selection through an essential drugs list; procurement hampered by use of procedures that were not appropriate for purchasing drugs for an entire country; the establishment of a centralized warehousing and distribution system; projected financing of the supply system through development of a business plan for the autonomous agency. In its exploration of the transition from post-conflict situation to health system development, the case study identifies lessons that are broadly applicable to foreign aid and external assistance in other contexts, including the tendency to “poly-prescribe” overly ambitious and overly sophisticated solutions not pragmatically grounded in the current realities of public sector institutional and human resource constraints and capabilities.

**Keywords:** pharmaceutical supply, Timor-Leste, post-conflict, technical assistance, developing countries

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**Correspondence Details:** Maggie Huff-Rousselle, PhD, MBA, Social Sectors Development Strategies (SSDS), 1411 Washington Street, Suite 6, Boston, Massachusetts, 02118. Telephone: +1-617-421-9644. Fax: +1-617-421-9046. Email: mhuffrousselle@ssds.net. Website: www.ssds.net
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PREFACE

This case study on the development of a pharmaceutical and medical supplies system in Timor-Leste is not meant to showcase a success story. Nor is it meant to document failure. It analyzes interrelated events over the passage of five years, and the interaction of multiple actors and factors at various points in time. It answers how and why questions about the evolution of pharmaceutical and medical supply in the public sector within this very specific post-conflict situation, while offering lessons for those working on similar health sector issues or in similar contexts. What happened when system development started from scratch in Timor-Leste, and what can be learned from the experience?

Almost 50 individuals were contacted during the case study research. A substantial majority were stakeholders in the process which, after five years, was still an on-going struggle in 2005. Many were in the country at the time of the field research. Others, whose input was equally important because of their past involvement, were contacted via e-mail or telephone over a period of several months. Nearly 75 documents were reviewed, including books, articles, scopes of work for contracts, consultant reports, program and project evaluations, legislation, published manuals and guidelines, memorandums, e-mail, and other correspondence. As promised, quotations from personal communication with the case writer, whether during an interview or via e-mail, are not attributed to the interviewee or correspondent—they remain anonymous. Other quotations are attributed and cited in the bibliography.

The variety of data sources—documents, interviews, observation, focus group discussions, as well as quantitative data analysis—were deliberately varied and systematically documented to ensure triangulation, both in the descriptive synthesis and in the analysis of that data. Case study research reflects the real world in its entirety, not easily analyzed fragments of it, and, as in the real world, some data elude definitive analysis because they are contradictory or partially speculative. Such non-conclusive findings, however, present the opportunity for intelligent readers with relevant experience to bring their own judgment to bear on nuanced information in the case.

Maggie Huff-Rousselle
April, 2006
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I am particularly grateful to Rekha Menon, Rui Paolo de Jesus, and Tracey Morgan, who provided me with different introductions to the situation in Timor-Leste, and to Gerrit Weeda, Jim Eberle, Noel Setters, Lyn Lee and Fabian Yuh Shiong Kong, who, from their varied perspectives, provided a careful review of the much more extensive first draft. Last, but certainly far from least, I am grateful to Andreas Seiter for successfully moving the case study through the publication process.
### ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>Aimoruk malai</td>
<td>Western medicine</td>
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<td>AMS</td>
<td>Autonomous Medical Store</td>
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<tr>
<td>ASFARTIL</td>
<td>Associação do Farmacêuticos de Timor Leste</td>
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<tr>
<td>BMI</td>
<td>Body Mass Index</td>
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<tr>
<td>CFET</td>
<td>Consolidated Fund for East Timor</td>
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<td>CIA</td>
<td>Central Intelligence Agency</td>
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<td>Craf</td>
<td>Pharmaceutical Activities Regulation Commission</td>
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<tr>
<td>DHS</td>
<td>Demographic and Health Survey</td>
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<tr>
<td>DHS</td>
<td>Division of Health Services</td>
</tr>
<tr>
<td>DRA</td>
<td>Drug Regulatory Authority</td>
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<td>DRTL</td>
<td>Democratic Republic of Timor-Leste (see RDTL)</td>
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<tr>
<td>EDL</td>
<td>Essential Drugs List (see EML)</td>
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<td>EDP</td>
<td>Essential Drugs Programme</td>
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<td>EHG</td>
<td>Euro Health Group</td>
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<td>EML</td>
<td>Essential Medicines List (see EDL)</td>
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<td>EPI</td>
<td>Expanded Programme on Immunization</td>
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<td>GMP</td>
<td>Good manufacturing practices</td>
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<td>GOAL</td>
<td>Irish International Aid Agency</td>
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<tr>
<td>HSRDP I and II</td>
<td>Health Sector Rehabilitation and Development Project(s)</td>
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<tr>
<td>ICB</td>
<td>International Competitive Bidding</td>
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<tr>
<td>ICR</td>
<td>Implementation Completion Review</td>
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<td>IHA</td>
<td>Interim Health Authority</td>
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<td>JSI</td>
<td>John Snow Inc.</td>
</tr>
<tr>
<td>LOC</td>
<td>Letter of Credit</td>
</tr>
<tr>
<td>Makassae</td>
<td>Local language, spoken by more than 10% of population</td>
</tr>
<tr>
<td>Mambai</td>
<td>Local language, spoken by more than 10% of population</td>
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<tr>
<td>matan dok</td>
<td>Traditional Healer</td>
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<tr>
<td>MDR</td>
<td>multi-drug-resistant</td>
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<td>MOH</td>
<td>Ministerio da Saude (see below)</td>
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<td>MOH</td>
<td>Ministry of Health</td>
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<tr>
<td>MOPF</td>
<td>Ministry of Planning and Finance</td>
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<td>MSF</td>
<td>Médecins sans Frontières</td>
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<tr>
<td>MSH</td>
<td>Management Sciences for Health</td>
</tr>
<tr>
<td>NOL</td>
<td>No Objection Letter</td>
</tr>
<tr>
<td>NRC</td>
<td>National Research Council</td>
</tr>
<tr>
<td>P&amp;L</td>
<td>Profit and Loss (Statement)</td>
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<tr>
<td>PAD</td>
<td>Project Appraisal Document</td>
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<td>PAHO</td>
<td>Pan American Health Organization</td>
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<td>PMU</td>
<td>Project Management Unit</td>
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<td>RDF</td>
<td>Revolving Drug Fund</td>
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<td>RDTL</td>
<td>Republica Democratica de Timor Leste (or DRTL)</td>
</tr>
<tr>
<td>SAMES</td>
<td>Autonomous Drug and Medical Equipment Service (see below)</td>
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<tr>
<td>SAMES</td>
<td>Serviço Autónomo de Medicamentos e Equipamentos de Saúde</td>
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<tr>
<td>Abbreviation</td>
<td>Full Form</td>
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<tr>
<td>sona</td>
<td>Injections</td>
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<tr>
<td>STG</td>
<td>Standard Treatment Guidelines</td>
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<tr>
<td>TA</td>
<td>Technical Assistance</td>
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<tr>
<td>TB</td>
<td>tuberculosis</td>
</tr>
<tr>
<td>Tetum</td>
<td>Local language, spoken by more than 10% of population</td>
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<tr>
<td>TFET</td>
<td>Trust Fund for East Timor</td>
</tr>
<tr>
<td>tidak mampu</td>
<td>primitive (nuanced meaning of shameful)</td>
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<tr>
<td>UNFPA</td>
<td>United Nations Fund for Population Activities</td>
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<tr>
<td>UNICEF</td>
<td>United Nations Children Fund</td>
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<tr>
<td>UNTAET</td>
<td>United Nations Transitional Administration in East Timor</td>
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<tr>
<td>USAID</td>
<td>United States Agency for International Development</td>
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<tr>
<td>VEN</td>
<td>Vital Essential and Necessary</td>
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<td>WHO</td>
<td>World Health Organization</td>
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BACKGROUND ON TIMOR-LESTE

Timor Island, located at the very eastern end of the Indonesian archipelago, takes its name from the Indonesian word for east. Timor-Leste, or East Timor, which calls itself “The World’s Newest Country,” includes the eastern half of Timor, the Oecussi (Ambeno) region on the northwest coast, and the islands of Pulau Atauru and Pulau Jaco. The population is estimated at 925,000 (DRTL 2004c). At 15,007 square kilometers, Timor-Leste has a similar-sized population but is a little smaller than Fiji. (See Annex I.)

In 1859, Portugal, which had colonized Timor in the mid 16th century, settled an on-going dispute by ceding the western portion of the island to Holland. With the exception of the Japanese occupation from 1942 to 1945, Portugal continued its colonial rule over East Timor until November of 1975, when East Timor declared its independence. Nine days later Indonesian forces invaded and occupied it. Over the next two decades, between 100,000 and 250,000 inhabitants lost their lives during the Indonesian pacification campaign in the recently incorporated province. The campaign was ultimately unsuccessful. In the UN-supervised referendum of August, 1999, an overwhelming majority of the population voted for independence from Indonesia. During the ensuing period, prior to the arrival of a multinational peacekeeping force, anti-independence Timorese militias supported by the Indonesian military launched a scorched-earth campaign of retribution, killing approximately 1,300 Timorese, destroying many buildings along with other property, and forcing 300,000 refugees into West Timor. Australian-led peacekeeping troops brought violence to an end in late September of 1999, and the United Nations Transitional Administration in East Timor (UNTAET) set about restoring order and building a government structure in preparation for independence. On May 20, 2002, East Timor was recognized as an independent state, officially called Timor-Leste. (CIA 2005; NRC 2003)

“Think of a very large, very poor country,” said one of the advisors who assisted with plans to develop the health sector in Timor-Leste in early 2000. “Then think of the poorest remotest province in that country declaring its independence.” The struggles the fledgling, post-conflict country would need to successfully engage in to create itself as a new nation are apparent in every aspect of Timor-Leste’s development over the first five years of the twenty-first century. Developing the health sector and establishing a public pharmaceutical supply system were part of those on-going struggles.

THE HEALTH SECTOR AND ITS EVOLUTION

At the time of the Demographic and Health Survey (DHS) in 2003, 52 percent of the population was under 15 years of age, and the fertility rate of 7.8 children per woman was possibly the highest in the world. For both genders, approximately 40 percent of adults could not read the test sentence prepared for the survey. Seven in ten households had earthen floors; 28 percent had electricity, and firewood remained the main source of cooking fuel. The DHS found a decline in infant mortality rates, from 126 deaths per 1,000 live births in 1989-93, to 60 in 1999-2003, with a parallel decline from 165 to 83 for under-five mortality. Acute respiratory infection, malaria, and diarrhea were the major childhood diseases, and only 18 percent of children aged 12-23 months were fully immunized against the six major childhood diseases: tuberculosis, diphtheria, pertussis, polio, tetanus, and measles. The levels of childhood malnutrition were severe: 44 percent
of children under five were underweight and 14 percent were severely underweight; 48 percent were stunted and 27 percent severely stunted. Malnutrition indicators were also high in adults: 38 percent of the non-pregnant women and 26 percent of the men had a low Body Mass Index (MOH 2004). Malaria and tuberculosis (TB) were the major adult diseases, and the TB rate is reported to be the highest in the world (WHO 2004a).

The overview in *Initial Steps to Rebuilding the Health Sector in East Timor* captures highlights from the development of the health sector from early 2000 to the end of 2001:

“The health infrastructure was in total disarray, with more than a third of health facilities totally destroyed and much of the rest substantially damaged. Most equipment and supplies had been looted or damaged beyond use. More than 80 percent of medically qualified staff had returned to Indonesia, and the central health administration was defunct. … UNTAET established the Interim Health Authority (IHA) in February 2000. … The IHA evolved into the Division of Health Services (DHS) in the first transitional government in July 2000 and into the Ministry of Health (MOH) in the second transitional government in September 2001. … In April 2000 a joint donor mission led by the World Bank and the IHA designed the first phase of the Health Sector Rehabilitation and Development Program (HSRDP), which provided the framework for a sector-wide approach to the planning and implementation of activities in the health sector. [HSRDP I was followed by HSRDP II in mid-2001.] In both phases a substantial part of the funding came through the multi-donor Trust Fund for East Timor (TFET), administered by the World Bank.” (NRC 2003)

The dearth of trained human resources was a major constraint to health sector development, but so was the lack of engagement of those nationals who were available: the development planning and implementation process was led by foreigners (NRC 2003). This dominance by foreigners was compounded by communications problems in a country with 16 languages, almost none of them known by the foreigners who came to assist. The language problem extended to the many documents that were drafted and published in English and/or Portuguese (only five per cent of the local population spoke Portuguese) and only occasionally in a local language. Most national staff typically had little or no access to telephone, internet, or e-mail.

Like the rest of the public health care system, pharmaceutical supply was part of the Indonesian government system in 1999. That supply system was fragmented, with multiple budgets, multiple reporting requirements, and multiple delivery systems, including 11 vertical programs that operated independently. Public sector procurement was predominantly through state-owned manufacturers, and prices paid were estimated at approximately 40 percent above world averages. The complex Indonesia supply system, which had never served the remotest province effectively, collapsed along with the rest of the public system in Timor-Leste after the referendum in 1999.

In April of 2000, a plan for establishing a public-sector pharmaceutical supply was completed under the TFET-funded HSRDP I Project (Clark 2000). In the meantime, international NGOs had already begun to provide health care in different districts throughout the country, and they made arrangements through their individual home offices for pharmaceutical supply, or were supplied by UNICEF.
PHARMACEUTICAL POLICY AND LEGAL FRAMEWORK

Policies and legislation provide a framework for regulating the pharmaceutical sector, and formulating and enacting them is commonly seen as a priority for any country that does not have such a framework (WHO 2001). However, a country needs to be equipped to implement and enforce the framework. Between 2000 and 2001 Timor-Leste received highly qualified assistance in this area (EHG 2000 and 2001), but it was not until 2004 that the government issued a related flurry of decrees, laws or statues, and ministerial policies. These covered both private- and public-sector activities1, and were largely incorporated into a single legal document (DRTL 2004b). In a formal and official sense, Timor-Leste had made excellent progress in establishing a soundly constructed legal and policy framework for the pharmaceutical sector. However, this progress was somewhat theoretical for three reasons.

First, the policy and legislative formulation process is complex and time-consuming because many stakeholders must be involved to ensure that there is local ownership of the process and its results. Although efforts were made to establish a consultative process, those truly engaged in the process were expatriates, with many of these only temporarily in country. Second, with the passage of time stakeholder perspectives changed. By 2005, neither local staff nor expatriates were aware of the earlier process and its implications, and no one seemed to have read the final official documents. Third, and most critically, for a variety of reasons—largely springing from human resource and organizational constraints in the public sector—many of the elements of the framework could not be enforced within the foreseeable future. For example, a Pharmaceutical Activities Regulation Commission was mandated, with responsibility for licensing all activities, including importers, products and pharmacies. Establishing such an entity in 2005 was beyond the capabilities of the fledgling governmental sector.

THE AUTONOMOUS DRUG AND MEDICAL EQUIPMENT SERVICE

One decree-law (DRTL 2004a) established the Autonomous Drug and Medical Equipment Service (SAMES) called for in the original plan for the pharmaceutical sector. A contract had been awarded to establish it, but the vision for this autonomous entity was shifting and unclear. In the fall of 2001, as the international NGOs that had been operating at the district level were making their exit, one consultant wrote:

“As of October 2001, the [autonomous medical store] finds itself in a very difficult situation. Not only are its own systems for warehouse management just beginning to take form but its entire distribution system is being revamped to address the imminent departure of various [NGOs] that have been managing distribution below the central pharmacy since 1999. ...until recently the NGOs normally organized re-supply from the AMS and delivered products to clinics…many NGOs developed their own procedures at

1 In 2005, a number of interviewees commented on the recent rapid growth in the retail pharmaceutical sector, observing that shops carried many Chinese drugs, both traditional medicine and pharmaceuticals manufactured in China. This was a worrisome development because a recent study had indicated that half of the drugs being exported from China were substandard or fake, including Artesunate for Malaria.
the clinics for collecting/reporting data and ordering supplies ... All of the existing system is now disappearing. In its place are many question marks.” (Eberle 2001)

According to the original plan, SAMES was envisioned as a non-profit that would apply “commercially sound management practices” and be a “financially self-sustaining revolving fund” ... “fundamentally a wholesaling business” that was responsible for procuring pharmaceuticals and then selling them to MOH facilities, and possibly the private/NGO sector (Clark 2000). It would have monopoly status – at least in the public sector. The original recommendation was presented with an enthusiasm for the organizational approach that suggested it was something of a panacea for avoiding problems that plague traditional central medical stores (CMS). A later evaluation accepted and often repeated the original plan’s recommendations verbatim (Walsh 2002).

But many of those involved in implementation questioned the basic concepts. One described the concept as “a snafu.” A former advisor wrote: “Remember that autonomy for [medical] stores was the buzz-word [with development professionals]. And as usual in the development world, one success story and ... policies change in the hope that this time we have it right…” Another advisor said, “There was this plan to set up an autonomous entity that would be an independent CMS. It was called simply: ‘the entity.’ It was never clear exactly how it would work, how it would become autonomous. The [TFET-funded health project or HSRDPI] was providing both human and financial resources, and it wasn’t clear how it could possibly become financially self-sufficient. What did autonomous mean? It was never clear.”

Given the complexity of the organizational concept and lack of both a clear definition and an analysis of the implications for any of the three concepts—an autonomous agency, a non-profit wholesaler revolving drug fund, and a monopoly—key stakeholders, including MOH personnel, continued to have very different perceptions of what SAMES was or should become five years after the original plans were made and accepted.

Legislation described SAMES as autonomous but made it clear that the reality was semi-autonomy from the MOH. In terms of the four major functional areas of pharmaceutical supply—1) product selection, 2) procurement, 3) warehousing and distribution, and 4) prescribing and compliance —SAMES could only act with relative autonomy in the areas of warehousing and distribution (from the central level) in 2005. (See Annex II.)

The reasons for creating an autonomous or semi-autonomous central pharmaceutical supply agency in other contexts have typically been based on perceived weaknesses within the MOH and a desire to eliminate or minimize those weaknesses by separating the CMS operation from the MOH, and financing pharmaceutical supply through sale to consumers at the facility level. Other basic rationales for autonomy can generally be summarized as: 1) recruitment of better-motivated and skilled staff with salaries higher than MOH government levels; 2) avoiding government bureaucracy and/or corruption, especially in procurement; 3) raising revenues through product sales to support on-going supply of products.

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2 The initial planning document suggested that a second retail-level revolving fund might operate in the public sector, from the MOH facilities to the consumer; the idea was only mentioned as a possibility.
Although potentially appropriate in some contexts, there is little or no reason to see autonomy or semi-autonomy as an alternative that will avoid or minimize problems in pharmaceutical supply. A CMS is still the conventional hub of the commodity supply system in most public-sector health systems in developing countries (WHO 1996; Bennett et al 1997; Quick et al 1997; WHO 1998). Examples of autonomous or semi-autonomous supply agencies in the public sector have been primarily an African experiment, and many of the African experiments have either not been positive or are still too young and receiving too much external financial and technical support to draw conclusions about their potential merits.

“The intention is that an autonomous supply agency will achieve greater value for money and improved drug availability through more efficient management. Three important characteristics that are needed to promote efficiency are flexibility, incentive and competition. The existence of competition will encourage efficiency, but in the majority of situations the monopoly of the CMS continues to apply to the autonomous agency, with no pressure to improve the quality of services and products or aim for the lowest prices. … Countries considering an autonomous supply agency should recognize that this approach will not solve problems related to lack of funding for drugs.” (WHO 1998)

The RDF concept, which was envisioned for SAMES and is an integral component of most experiments with autonomy or semi-autonomy in pharmaceutical supply, is often seen and promoted as a health sector reform that will inspire more efficient and effective management practices and systems. This was an argument made in the ‘how to’ article, “Revolving Drug Funds: Conducting Business in the Public Sector,” published two decades ago (Cross et al 1986), and the business-like behavior and incentives that RDFs are hoped to inspire continue to be one underlying argument for their implementation—although the more common and basic rationale has been raising revenues through pharmaceutical sales to consumers, thus supporting health service delivery, most notably the UNICEF Bamako initiative (Kanji 1989). While the implementation of an RDF can indeed inspire improved supply system performance, this requires that management become more skilled and the systems more sophisticated.

Stakeholders, with their varied perspectives, had not fully understood the complex and sophisticated nature of the role envisioned for SAMES as a fledgling organization among other fledgling organizations in Timor-Leste’s public sector. Indeed, perhaps the most compelling argument for not creating SAMES as an autonomous or semi-autonomous RDF with monopoly status was simply that the proliferation of public institutions in small countries fosters public-sector inefficiency.

Completely rethinking autonomous or semi-autonomous status might only lead to frustration, operational delays and set-backs for those attempting to move health-sector commodity supply forward as Timor-Leste develops, and it is possible that the notion of autonomy, as vaguely conceived as it continued to be, focused warranted attention on commodity supply as a critical element of health service delivery. However, some aspects of SAMES mandate warranted reconsideration, particularly the revolving drug fund or non-profit “wholesaling business” concept, and these aspects of the original plan served to distract attention from the more basic building blocks of establishing a public sector supply system.
HUMAN RESOURCES AND TECHNICAL ASSISTANCE

One unusual (and perhaps short-lived) characteristic of the labor market in Timor-Leste was that workers preferred the public sector, and there was no significant internal brain drain from the public to the private sector. The more overwhelming disadvantage in the health sector was the dearth of skilled human resources in either public or private sector. In November of 2004, the Associação do Farmacêuticos de Timor Leste (ASFARTIL, or Pharmacy Association) had 43 members, all of whom were pharmacy assistants, usually with training from Indonesia. From 2000 through 2005 there was not a single university-trained Timorese-Leste pharmacist in the country. Lack of knowledge of the products carried was a major weakness for SAMES, and this weakness could not easily be rectified with on-the-job training or short courses.

“The level of technical expertise provided by World Bank consultants [under HSRDP I and II] was, with few exceptions, excellent, reflecting an unconstrained access to global expertise not seen in some other institutions limited by regional structures or strict fee-payment policies.” (NRC 2003) The expatriate advisors working on pharmaceutical issues in Timor-Leste were employed or recruited by four firms with well-established world-class expertise in pharmaceutical supply in developing countries: Management Sciences for Health had responsibility for the project design, and Crown Agents, which was awarded the contract to establish SAMES, managed implementation and subcontracted some of this work to EuroHealthGroup (EHG) and John Snow Inc. The World Bank and other agencies hired other short-term and resident advisors.

As with other technical assistance provided in the health sector, the lack of a common language was an almost insurmountable barrier to knowledge and skill transfer, especially for short-term consultants who would be briefly in the country, leaving reports written in English behind. Such reports, whether written by short- or long-term advisors, might provide guidance to other expatriates, but, as with many documents, they were written primarily to fulfill a contractual requirement and their utility was extremely limited for local staff. Few were ever read by any SAMES local staff.

The situation was not helped by long-term SAMES advisors being resident for a relatively short period, and by the gaps between long-term advisors. Given SAMES mandate, the long-term expatriate advisor or general manager was expected to have skills that were never found in one individual. The original plan observed that:

“Fundamentally [SAMES] is a wholesaling business. The fact that it is selling pharmaceuticals is important in determining some of the staffing positions, but not necessarily the General Manager. So, for example, at least one pharmacist will be required… However, it is not essential for the General Manager to be a pharmacist; it is business management and logistics skills that are vital to the job, not pharmacology.” (Clark 2000)

Stakeholders expected more. They complained of the lack of knowledge of pharmaceuticals and medical commodities in one advisor who had a business management background, and the lack of business management background in another advisor with a pharmaceutical supply management background. The SAMES mandate required advisors or managers with both kinds of skills, plus the ability to create a complex new public-sector organization from scratch in a post-conflict environment.
where the division between donor agencies and the fledging government was both unclear and shifting.

Quite apart from the ever-present and distracting administrative demands of working within the foreign aid industry, the resident advisors did not have SAMES counterparts who could quickly and easily learn from them and gradually take over responsibility. The national staff’s lack of basic product knowledge was mentioned in report after report. In addition to not having a single university-trained pharmacist in the country, there was still no trained accountant to work with SAMES when the case-study research was completed in mid-2005.

In June of 2005, there were two university-trained expatriate pharmacists in the country, neither of them assigned to SAMES. Their combined backgrounds – hospital pharmacy and retail pharmacy – were complementary. They introduced themselves to one another and collaborated professionally, but there was no coordination between the agencies that brought them to Timor-Leste regarding their possible roles in public-sector pharmaceutical supply, nor was there coordination with SAMES. The Crown Agents contract had been concluded in mid-2004 and SAMES had no resident advisors. The shift in the management structure—from expatriate to local staff—was a positive transition in that it would help to ensure local ownership. However, it had occurred abruptly and prematurely.

**SELECTION OF PHARMACEUTICAL PRODUCTS**

WHO’s Action Programme on Essential Drugs was instrumental in promoting concepts that were not initially popular, especially with the pharmaceutical industry, in particular the central theme limiting what a government purchased to a list tailored to that country’s most essential health needs and financial resources. Despite the beguiling simplicity of the concept, implementation has been slow and imperfect (Weerasuriya and Brudon 1998), but it has also been steady. Over 120 countries have adopted a national essential drug list (EDL) based on the WHO model list, and Timor-Leste joined that ever-increasing group in 2003. The original Timor-Leste EDL was drafted by one set of advisors in 2001. Based on the latest WHO model list (April 2003), the draft was revised and edited by a different set of advisors, and then published in 2003 (DRTL/MOH 2003). The list included five different levels-of-care classifications for products as well as a designated vital, essential and necessary (VEN) classification for each product.

A national formulary is normally an expansion of the EDL, in that the EDL provides the skeleton and the formulary adds flesh in the form of additional information—the most effective national formularies might more accurately be called formulary and therapeutics manuals. In Timor-Leste, comprehensive technical information was initially included in the formulary, but compromises had to be made later. In 2000 and 2001, short-term consultants assessed the potential audience for the national formulary. In addition to the lack of a common language and literacy issues, basic clinical knowledge and skills varied widely. Physicians providing services had been trained in diverse countries, and the bulk of diagnosis and prescribing was being carried out by nurses or other non-physician health workers. Given the situation, the text of the formulary was simplified so that it could be used by a wide range of health professionals.
The lack of continuity in short-term assignments with the MOH quite often resulted in lack of program continuity (WHO 2004a), and this happened with the national formulary. A seventh draft of the formulary was completed in January of 2002 (EHG 2002), and there had been continuity in the external assistance to achieve the draft, which was considered to be of good quality. Subsequently a different set of consultants began to work on the formulary. For the most part, material was cut and pasted, primarily using the WHO model formulary. The document was poorly edited, with material sometimes pasted into the wrong section. There also seemed to be a lack of clinical knowledge at this stage in the formulary’s development. For example, the pediatric dosage given for amphotericin was apparently twice what the maximum adult dosage should be. Such errors were apparently multiple and potentially very serious in a context where those prescribing were lacking skills and needed clear and dependable guidance. As of mid-2005, although there were rumors of its existence, a national formulary had never been distributed.

The lack of homogeneity in medical background among both expatriates and local staff presented an on-going challenge to the process of establishing an EDL and formulary, and a more daunting challenge in terms of institutionalizing an on-going process and ensuring that ownership of the process was transferred to nationals. Under the circumstances, achieving a substantive degree of local involvement was impossible.

However, unlike aspects of the policy and legal framework, the EDL was used to exert real bureaucratic muscle: it provided consistent and rational guidance for the selection of products procured. This was a major step forward beyond the haphazard selection that took place when multiple NGOs were responsible for health service delivery and the period beyond that. Those working in the country for more than a brief period could remember when products that were excessively expensive and/or inappropriate were in evidence in public-sector facilities. Unless they had come from outside the SAMES system, this was no longer the case in 2005. Interviewees said that before the EDL was established, SAMES was under pressure from any physician working in the country to buy any product that particular physician wanted. SAMES had neither the authority nor the technical knowledge to question such requests. The EDL changed that.

**PROCUREMENT OF SAMES STOCK**

The original plan for the commodities supply system recommended that procurement be contracted out to an agent, and that this arrangement might be continued for some time as responsibilities were gradually transferred to local staff. Procurement has historically been Crown Agent’s organizational strong suit, and, since it had been contracted to establish SAMES, it would seem logical to have included procurement as part of the Crown Agent’s contract. However, this was not the case.

The procurement of pharmaceuticals and medical supplies was carried out by the MOH’s Project Management Unit (PMU) for the HSRDP I and II projects, which adhered to World Bank procurement procedures. “The most important area of constraint in working with the World Bank [was] summarized in one word: procurement.” (NRC 2003) “Representatives of all of the principal agencies—UNTAET, Interim Health Authority, the World Bank—[were] on record identifying this issue as a major obstacle to effective

**FORECASTING, DONATIONS, TENDERING AND ORDERING**

Initially, forecasting of demand was weak because of the lack of good consumption data, which is typical of a post-conflict situation. The departure of the international NGOs, who had been doing their own procurement created what one interviewee described as “a new kind of chaos,” as an incomplete jigsaw puzzle of demand data was assembled from partial data the NGOs had left behind. The weakness in forecasting, combined with limited incentives to exercise financial constraint, was partially responsible for the US$2.66 million in over-stocks and expired drugs at SAMES in early 2004, resulting in finger-pointing about potentially responsible parties. Most stakeholders agreed that most of these drugs could be traced back to donations or procurements from the emergency period, and the MOH developed a policy on donations, based on guidelines developed by WHO and other organizations (WHO 1999).

A limited list of reliable suppliers simplifies the administration (and therefore the cost) of the procurement process as that process is repeated over time. More importantly, it is arguably the most essential aspect of quality assurance in pharmaceutical and medical supply systems, especially in a market where the proportion of substandard and counterfeit products has been constantly on the rise over recent years (Quick et al 1997; WHO 2005). However, the PMU staff used open competition for pharmaceutical procurement rather than pre-qualifying suppliers. Bank procurement regulations normally call for broad specifications that encourage competition, but pharmaceuticals require very clear, tight specifications. The PMU staff did not have expertise in writing specifications for pharmaceuticals and medical products.

The Bank procurement manual also encouraged bundling or consolidating individual items together in order to increase the value of a specific invitation to tender. With some exceptions, this approach, especially as it was applied in Timor-Leste, is not appropriate for pharmaceuticals. The PMU bundled products in “lots” based on form of presentation (e.g. tablets and capsules) which encouraged middle-men rather than manufacturers to bid, and the PMU based decision-making on lowest total price for a single bidder, and not the lowest bids by unit price per item per bidder.

While weak specifications, lack of supplier pre-qualification, and the impracticalities of the “lot” system all tended to exacerbate procurement-system problems, once contracts were awarded, there were many other obstacles that slowed down the placing and arrival of orders. Various documents—no objection letters and letters of credit—had to be obtained from Washington, and these could take months. Another factor that contributed to procurement delays and threatened quality assurance was government customs clearance delays (Weeda 2004c). This is a common problem in developing countries and was to be expected in the world’s newest country.

**QUALITY ASSURANCE**

While the PMU attempted to confirm that manufacturers met WHO’s standards for good manufacturing practices (GMP), this attempt was compromised by the lack of any pre-qualification process and the bundling of items into lots which discouraged direct bidding
by manufacturers. Also, the WHO GMP is limited to the manufacture of pharmaceuticals and therefore does not help to prevent quality problems with medical supplies. Major problems with the quality of a range of medical supplies continued through 2005, some of them dangerous to both patients and providers—gloves with holes in them, leaky syringes without O-rings, cesarean-section catheters that popped out of place during operations, regular catheters that broke inside the patient, and plastic infusion sets for IV solutions that leaked or broke while inserted in the patient.

As a reaction to the apparent lack of quality control in procurement, a number of interviewees and documents pointed to the lack of local testing facilities to assure the quality of pharmaceuticals as a weakness in the supply system. This commonly proposed solution to quality assurance problems is often ill-advised. Particularly in a small country, it is usually beyond the country’s financial means to support an adequately staffed and equipped testing facility. More importantly, a testing facility detects rather than solves quality problems. This is why preventive quality assurance measures are critical to the procurement process—pre-selection of suppliers, carefully sculpted specifications, and exercising informed judgment in making awards for products most vulnerable to quality assurance problems—not always selecting exclusively on price.

ENSURING TRANSPARENCY AND APPROPRIATE LOCALLY CONTROLLED PROCUREMENT

There is no aspect of the health sector that is more vulnerable to less-than-transparent operations than pharmaceutical procurement, and inappropriate arrangements can easily be disguised. There was no suggestion of such arrangements in pharmaceutical procurement in Timor-Leste, and no reason to suspect it. However, while the World Bank procurement procedures were designed to prevent corruption and were laden with guidance about encouraging competition and therefore reducing costs, as applied in Timor-Leste they were susceptible to failing in both these objectives.

The procurement system was not transparent. Even PMU staff intimately involved in the procurement function seemed to be confused about what the Bank’s procedures actually were and/or the logical basis for establishing and following them. The awkwardness and complexity of the policies and procedures encouraged PMU staff to make exceptions to their own rules. Exceptions create loopholes, and loopholes create the temptation for abuse. For example, vague specifications permit offers of substandard or inappropriate products, especially when combined with decision-making that is always based on the lowest price. Emergency orders, which apparently occurred frequently, can provide a particularly large loophole in any context.

Because the PMU handled procurement (except for forecasting), no capacity-building in this function was accomplished within SAMES. Given the procedures that were being followed, this was just as well. A procurement manual conforming to Bank requirements was prepared for SAMES by Crown Agents (SAMES 2004c). Over 100-pages long (excluding the annexes), much of the manual was generic and not tailored to the more limited range of procurement activities in which SAMES should eventually be involved. It consisted of multiple bulleted lists of directives, definitions of terms, and a few graphics, and was inscrutable to local SAMES staff. In 2005, the government had not yet finalized the policies and legislation on government procurements, and it was not clear
whether or not SAMES would need to adhere to these if and when it assumed responsibility for procurement.

Pharmaceuticals should be tendered in one consolidated list, with pre-qualified manufacturers and suppliers allowed to bid on those products they normally carry, and with estimated quantities over the contract period (usually one year). Award decisions should be made item-by-item (or line-by-line), usually on the basis of the best unit price offered for the item, but other factors—delivery lead time or quality assurance issues—can come into play during the decision-making process. At the end of the decision-making process, there will be many items awarded to different suppliers and each supplier will receive a contract for all the items for which it was selected for award. This type of process encourages competition and lower costs, and allows greater control over quality assurance. The decision-making process can be completely transparent, with the reasoning being openly discussed by a tenders committee (Huff-Rousselle and Burnett 1996). Stakeholders disagreed about whether or not this approach would be allowed under the Bank procurement regulations. Several reports on SAMES observed: “It is evident that important savings on supply can be made as soon as line-by-line adjudication is accepted and can be introduced. There seems not to be much interest to engage in this procedure and go for these savings.” (Weeda 2004b) The potential for improving quality assurance was arguably even more important than the potential for cost savings.

WAREHOUSING AND DISTRIBUTION

Warehousing and Transportation were the only functions within the supply system over which SAMES had assumed full responsibility in 2005. Although there was discussion about creating a network of district or regional warehouses around the country, the well-grounded original advice was followed. Given the size of Timor-Leste, one centralized distribution center was most efficient; another tier in the system would only complicate management, increase operating costs, extend the length of the supply pipeline, and therefore foster wastage and increase costs.

The original plan also recommended integrating all supply systems from the beginning, rather than allowing separate parallel systems to be developed in support of vertical programs such as family planning, TB and vaccines. Although integration of all supplies made the scope of SAMES responsibility broader and more complex from the outset, this strategy was good commonsense. Inefficiency and wastage have been created through the proliferation of multiple parallel systems in other countries, and parallel systems are particularly ill-advised in a small country. With minor exceptions, donors were supportive, and even the vaccine cold chain (which has the best rationale for operating in a parallel fashion) was successfully integrated into SAMES’ operations. Some observers felt there was a risk of individual bilateral donors pushing for parallel systems in the future, since they were apparently working toward a more vertical program approach. This would be an unfortunate development.

LOGISTICS INFORMATION SYSTEM

SAMES made solid progress in developing its ability to manage the warehousing and distribution of stock. Operational procedures were developed and documented in a Standard Operating Procedures Manual (SAMES 2004c). Although this document, like
others, was in English, it was primarily composed of multiple simple flow charts for the few steps involved in each of many procedures, allowing the information to be broken down into bite-sized chunks of one page each. Staff members at SAMES were trained in and able to follow most of the procedures.

The degree to which SAMES staff had mastered routine reporting and data input to the information system was still limited in early 2005, and data entry was described by one interviewee as “a bit dodgy.” Multiple forms had been developed and implemented at all levels of the supply system. These supported the ordering and distribution system to individual facilities, and they collected vital information for on-going monitoring and planning. As is typical in most developing countries, forms received from the facility and district level had many inaccuracies. Although more training could diminish this problem, chronic stock-outs inevitably undermine the development of a robust information system. If facility-level workers feel there is a risk of their orders not being filled in the quantities requested, they are motivated to overstate the quantities required and understate the quantities of stock they have on hand. Once this pattern of behavior begins, it is difficult to reverse. Missing or inaccurate data from the facilities distorted the information available for SAMES to use in forecasting quantities for procurement, thus creating a “garbage-in, garbage-out” information flow in the planning and forecasting cycle.

The SAMES information system was also being undermined by the simultaneous development of other information systems. As one resident advisor said, “Too many cooks spoil the broth.” Although the final report on the health information system (Hayes 2003) never mentions pharmaceuticals, in early 2005 forms were being designed by advisors at the MOH to capture data such as stock-out rates; if MOH facilities were trained and motivated to complete the SAMES forms properly, stock-out rates would have been readily available from the SAMES forms.

With the notable exception of weak data coming from the MOH system facilities, the computerized information system at SAMES seemed to be functioning well by 2005. The system was designed and implemented by a company in India, which would appear to have been a good choice given that country’s expertise with software, relative proximity, and reasonable cost. In other contexts, assistance in inventory-software design has come from organizations and individuals in industrialized countries who are both too remote and too expensive to provide on-going support after initial implementation.

**CENTRAL LEVEL WAREHOUSING AND TRANSPORTATION**

The SAMES warehouse, located between the center of Dili and the airport, was the first major building to be constructed after the emergency period. Its attractive, well-ventilated and functional architecture was a source of pride for anyone involved in its design and construction. By 2005 the shelves were full and overflowing, with the aisles so well filled with boxes that it was difficult for a person to walk along some aisles without turning sideways, and impossible for warehouse lift trucks to navigate them. Loading and unloading had to be done manually. Apparently, the projections provided to the architect for the volume of goods to be stored were significantly underestimated, either because planners were only anticipating pharmaceuticals, and not medical supplies along with some equipment, or because such projections are commonly off-target in post-
conflict situations where dependable consumption data is rarely available. The architect was also concerned that the site was swampy and susceptible to flooding, but the site did allow space for expansion of the central warehouse.

The distribution system from the SAMES central level proved less problematic than was originally anticipated. The enclave district of Oecussi, on the Western side of Timor, and the islands of Pulau Atauro and Pulau Jaco, were readily serviced by boat. With several small vans and one 10-ton truck, SAMES could deliver directly to the hospitals and the districts, as well as to the dock for both the Oecussi enclave district and the islands. Staff packed orders for individual facilities, but, with the exception of the hospitals, these were delivered collectively to the district level where the MOH was responsible for facility-level deliveries. This meant that SAMES delivered to: the national hospital, four referral hospitals, and the 13 districts, including the Oecussi enclave district and the islands. Hospitals deliveries were monthly and district deliveries were quarterly.

PRESCRIBING AND COMPLIANCE

Of all the phases in the supply cycle, use—prescribing and compliance—often represents the greatest wastage (Foster 1991). This is also the stage where the products are actually put to some effective use—or not—depending on prescribing choices and patient behavior.

STANDARD TREATMENT GUIDELINES

Inappropriate prescribing is a major problem in almost any context, and it can represent both waste and a threat to patients’ health. Standard treatment guidelines (STG) have proven to be a basic and potentially effective tool to improve prescribing in many contexts. The development of STG in Timor-Leste suffered from the same problems experienced with the formulary development process. As with the formulary, a second set of consultants took over the process from earlier consultants who had completed the STG—over 200 pages long—in March of 2002, and it was two years after the transfer of responsibility before the STG were finalized and published as one volume (DRTL/MOH 2004). The cover letter from the Minister of Health bound into the published STG conveys frustration with a consultative process which had resulted in many delays, and his letter calls for patience in effecting real changes in prescribing:

“An STG really should set a standard and I plead with contributors and programmes to show restraint in changing existing guidelines. This has happened too often and new changes were brought forward before the old change could take hold. It becomes a training and logistics nightmare. This is not to say that the Ministry of Health would not be willing to adjust where science and the situation demand that changes must be made. However, if there is no urgency in the change the proposing agency or doctors should wait until an official revision of the [EDL] and the STG takes place. The next revision will be due in the next two years.

“The new SAMES organization has updated its catalogue and adjusted the buying programme in line with the new medicines proposed and discontinued the old ones. However, since the buying procedures are long and tedious, the new products might not arrive for some time. There is also a considerable amount of money involved in the discontinued items. You are requested to use these supplies before changing your prescribing habits to the new medicines.” (DRTL/MOH 2004)
Quite apart from the chicken-and-egg issues associated with sculpting planned system changes and their practical implementation, there seemed to be a lack of awareness of the STG and related documents at the service-delivery level. Despite working in the country’s second largest hospital and being comparatively close to Dili, most of the Baucau Referral Hospital physicians were only vaguely aware of the existence of these documents, and only single copies of the EDL and the STG were found in the hospital after a twenty-minute search. The SAMES catalogue, because it was needed to place orders, was more readily accessible. The pharmacy department of the National Hospital was not able to produce copies of either the EDL or the STG. The MOH Pharmaceutical Department (whose role in relation to SAMES was unclear) was monitoring the use of the documents through ad hoc questions to health-sector workers. Were MOH staff members aware of the existence of the STG? Most said they were not. The documents had never been translated, and an inadequate number of copies were printed. They were as scarce as the proverbial hen’s teeth. Therefore, distribution was typically limited to one copy per facility, and this copy was apt to end up in the hands of one individual and, most likely, in a desk drawer.

Even with well-translated and well-distributed texts for the STG and national formulary, much training would be required over many years. “Training in rational use of medicines is urgently required,” wrote one SAMES advisor. “To change prescribing habits however takes many years.” (Weeda 2004b) Training should focus on key therapeutic areas. In Timor-Leste where traditional infectious diseases like malaria and tuberculosis (TB) are major killers, the rapid global increase in antimicrobial resistance should be a major concern. Substandard or counterfeit drugs can contribute to increased antimicrobial resistance, along with treatment failure, which again highlights the importance of quality assurance through good procurement, storage and distribution.

**ACCESS AND COMPLIANCE: PATIENT ATTITUDES AND BEHAVIOR**

The attitudes of patients influence prescribing and compliance. As is common in many developing countries, injections (soma) are seen as more powerful than orally administered medicine in Timor-Leste, which may create pressure for inappropriate injections. Suspensions are also often more popular than tablets and capsules. The STG cautioned about the use of both of these, pointing out that injections are three to five times more expensive than tablets and capsules, and suspensions are four to seven times more expensive, and the STG cover letter from the minister reads: “You are also requested not to use suspensions and injections where those are not really required.”

Although complicated by adjustments to the total population estimate, DHS statistics suggested a positive rise in health services utilization, but under-utilization of services was considered a weak link in the Timor-Leste formal health sector. A qualitative study suggested that the DHS may have underestimated the use of traditional healers because people believed there may be something “primitive” (tidak mampu) or shameful about traditional healers and are therefore hesitant to talk to researchers about their use of them. Patients may decide to self-treat, visit a traditional healer (matan dok), or use Western medicine (aimoruk malai) in a varied sequence (Anonymous 2005). Reliance on traditional medicine can make the formal sector a last resort, resulting in higher treatment-failure rates if an illness is in an advanced stage, and causing further erosion of patient confidence in the formal sector—along with unnecessary suffering and death.
Too little is known about patient attitudes and behavior in Timor-Leste. As time and shifting priorities permit, this topic warrants further research. As the last critical link in effective and rational drug use, patient attitudes and behavior determine whether appropriate pharmaceuticals are sought and prescribed regimes are correctly followed.

FINANCING THE COMMODITIES SUPPLY SYSTEM

The supply of health commodities in Timor-Leste’s public sector was entirely financed by donors and international NGOs through 2005, including sector-planning and technical-assistance costs, capital investment, and on-going operating costs for the system. The longer-term plan for financing the supply system appeared to be based on SAMES establishing itself as a self-financing revolving drug fund or non-profit “wholesaling business.” It is useful to analyze the assumptions and underpinnings of this plan.

SAMES BUSINESS PLAN AND THE ISSUE OF CAPITALIZATION

The SAMES “business plan,” prepared by advisors, spanned the years 2003-2008. In terms of establishing a CMS in Timor-Leste, the plan set out reasonable milestones and the equivalent of the “logical framework.” In terms of a business plan for establishing a “wholesaling business,” it included no serious consideration of the financial viability of its “market,” a network of 157 MOH facilities that were expected to represent more than 80 percent of sales, and NGOs projected to represent the remaining 20 percent of sales by fiscal year 2007-08. Beyond including the MOH and NGOs as a revenue line in the projected profit and loss (P&L) statements, the plan simply noted an assumption that there would be no competition and SAMES would have a “captive market” (SAMES 2004a). Potential interest within the NGO market was untested, and as SAMES clients the MOH facilities still had no funds of their own and no budgets in 2005.

The projected P&L statement also assumed a 25-percent mark-up above original product purchase price for all products sold by SAMES, perhaps double what a typical wholesale mark-up might be in other contexts. In the projections, SAMES operating costs were only about 10 percent of total sales in 2007-08, but other costs—donations and obsolete or expired stock to be written off, and bad debt allowances—were to be covered. The mark-up was based on a monopoly’s need to ensure it was covering all of its costs, including system wastage and inefficiency, not on the need to be competitive.

In 2003–04 UNFPA and UNICEF donations represented 51 percent of the value of commodities purchased for SAMES, and in 2004-05 they represented 56 percent of the value. There was discussion of SAMES charging these agencies a service fee for warehousing and distributing commodities, but UN-agency representatives were concerned about any proposed fee, and agreement to a 25 percent service fee was highly unlikely. Finally, according to the legislation that established SAMES, the MOH (also SAMES main potential “captive” client) had the power to “approve the price list and profit margin” (DRTL 2004a). No wholesale business interacts with clients who have the power to approve its prices and profit margins.

3 In April of 2005, the PMU and the MOH were in the initial stages of developing a budget that would allow the central MOH to operate with relative independence.
A bad-debt allowance in the P&L was applied exclusively to the NGO market segment, and was set at one percent throughout the annual projections. This is very low. There was no bad debt allowance for the public sector. Plans called for SAMES to sell exclusively on a cash basis to all clients, but SAMES would naturally be obliged to provide credit to MOH facilities if and when they were unable to pay for commodities. This is the pattern that has been followed in other countries where RDFs established with “cash and carry” policies are inevitably obliged to provide commodities on credit to the MOH facilities; credits mount, and are ultimately transformed to bad debts.

The terms “capital” and “capitalization” were frequently used in relation to SAMES, and by 2005 the concept of needing capital to establish pharmaceutical supply had become tangled with the concept of needing an autonomous agency. The legislation establishing SAMES stated that US$1,635,000 was required to capitalize SAMES and suggested this “capital” would go to SAMES directly. Some stakeholders expected the “capital” to be given to SAMES, primarily for the purchase of commodities to stock the supply pipeline. Other stakeholders thought the “capital” should go to the MOH, so that it could begin to purchase products from SAMES. Donors had already capitalized the SAMES pipeline with stock, and re-stocked it as the expendable commodities moved out through the MOH service delivery system. Conceptually and technically from an accounting perspective, the commodities in the pipeline could be viewed as “working capital” as long as they were an asset on the SAMES balance sheet, and “operating expenses” once they were expended through the MOH system. These two concepts—SAMES capitalization for commodities and the MOH operating costs for commodities—had become muddled for many stakeholders. There seemed to be no common understanding that a source of funding for commodities—whether through SAMES or the MOH—was an on-going need, i.e. the “capital” would soon be de-capitalized without a secure on-going source of financing for commodities. Other RDFs normally “sell” at the facility-level to individual patients, and so it is the public—at least in theory—that provides on-going financing for pharmaceutical supply. Although this idea was mentioned in passing as a possibility in the original plans for the pharmaceutical sector, it was not necessarily recommended then and was never given serious consideration at any later stage.

**OPERATING COSTS, CASH FLOW, AND FINANCIAL PLANNING AND MANAGEMENT**

Apart from commodities, SAMES annual operating costs were estimated at nearly US$200,000 in 2003-04, and were adjusted upward for inflation through fiscal year 2007-08. SAMES operating costs would be relatively fixed, rather than variable, and financing them through a negotiated fixed budget, rather than a margin added to the purchase cost of commodities, would simplify financial planning and management enormously. Quite apart from the complications of setting margins and pricing, planners and stakeholders seemed unaware of the much more sophisticated financial planning and management skills required for management of a flexible budget, based on the value of commodity throughput, as compared with a predictable fixed operating budget.

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4 Stakeholders based in Timor-Leste in 2005 were unsure of the basis for this number, but it was believed to be an estimated annual commodities cost based on the two dollars per capita per year estimate cited in early documents.
SAMES routine operating costs had been covered with external donor funding (through the PMU), and the problems related to lack of access to funds for basic operating costs were repeated over and over in routine reports, including requests for a higher level in the petty cash fund and the establishment of a bank account (Gerrit 2004d, 2004e, etc.). The purchase of a new tire or payment for minor repairs to a vehicle could mean that the vehicle was out of commission for weeks. Sometimes the telephone land lines were cut off for months because the bills had not been paid.

In whatever ways SAMES autonomy may ultimately be defined in a practical sense, it was not necessary—indeed it put the organization’s ultimate success at high risk—to expect SAMES to sell drugs to the MOH facilities and the NGOs. This was an unnecessarily sophisticated undertaking. “Revolving drug funds [through sales to patients] offer an appealing and potentially successful means of supplying basic pharmaceutical needs for many parts of the Third World. The concept seems quite simple, but in practice these funds have proven to be substantially more complicated to plan and implement than systems which simply give drugs away.” (Cross et al 1986) SAMES was still operating on a “petty cash leash” of 150 dollars a month in early 2005; had established a bank account, but with no funds in it yet; had not yet established operative internal financial systems, and only engaged an accountant for the first time after the research for this case study was complete. The new organization had established no capacity in financial planning and management, even the ability to account for, plan and manage a basic fixed budget for its operating costs.

**STOCK-OUTS: THE BOTTOM LINE**

Stock-outs were the most serious problem in the Timor-Leste supply system. Given that financing was more than adequate, the level of stock-outs was more serious than the levels of expired or over-stocked products. In March of 2005, of 486 pharmaceuticals listed in the SAMES annual consumption report, 127 (26%) were out of stock at the central warehouse, including 13 (10%) classified as Vital, 48 (38%) classified as Essential, 30 (24%) classified as Necessary, and 36 (28%) classified as special, i.e. EDL supplementary drugs. (See Annex III.) Interview data indicated that the procurement system was the major cause of stock-outs, and this was reinforced by the comparative rareness of stock-outs in the products procured by UNICEF and UNFPA, which represented roughly half the value of all SAMES commodities.

The problem of stock-outs at the SAMES central level naturally reverberated throughout the system, creating stock-outs in all facilities. Indeed, stock-out problems appeared more severe at the facility level because those products out-of-stock at SAMES were likely to be the products most in demand.

Staff at the 14-ward National Hospital reported no problems with stock-outs when the Red Cross ran the Hospital, from 1999 through 2001, and there had many more stock-outs after the departure of the Red Cross. An analysis of the hospital’s March order in

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5 Past reports raised concerns about SAMES having no credit history with suppliers (Weeda 2004c), which could cause problems when procurement shifted from the World Bank’s PMU to SAMES.
2005 indicated that of the 132 drugs ordered, 67 (51%) were received in the quantities requested, 35 (26%) were received in a reduced quantity, and 30 (23%) were not received at all. Receiving a short-supply was a more serious problem for drugs classified as Vital and Essential, and the stock-outs were most common for drugs classified as Essential. For those items that were short-supplied, 13 (37%) were classified as Vital, 15 (43%) as Essential, and 8 (22%) as Necessary. For those items that were not supplied, only one item was classified Vital, 21 (70%) were classified Essential, and 8 (27%) were classified Necessary. Of the 68 consumables ordered, 27 (40%) were received in the quantities ordered, 19 (28%) were received in a reduced quantity, and 22 (32%) were not supplied. For those items that were not supplied, the largest proportion were classified as Necessary, but five items classified as Vital were received in reduced supply and two items classified as Vital were not supplied at all. (See Annex IV.)

The Hospital pharmacy staff had no access to telephone land lines, internet or e-mail. If they had mobile phones, these phones were personal and they paid for all calls personally. Given this situation, when Hospital staff wanted to communicate with SAMES staff, they had to find a vehicle to take them to the SAMES central warehouse, which, despite being expensive and inconvenient, was their best—often only—alternative. This option was not available to more remote facilities.

In early 2005, the Baucau Referral Hospital, like many other facilities, was still using stock and equipment left over from the period when international NGOs were operating the health services. As with the National Hospital’s experience with the Red Cross, Baucau Hospital staff reported that the supply situation had been better when Médecins Sans Frontière (MSF) was responsible for Baucau. They explained that they hoarded the stock they had, even expired drugs, because they were never sure about supply continuity. One patient with cerebral malaria had recently been given quinine that had expired almost a year before: she recovered, so the stock (left by MSF) was considered effective. There were no intubation sets (essential in emergencies) or defibrillators in the hospital. The hospital was out of stock for a wide range of drugs; some (e.g. dopamine) were life-saving. They had the same problems with faulty plastic equipment (catheters, IV infusion sets, syringes and gloves with holes in them) that were reported by the National Hospital staff.

Interviewees at Baucau were good-natured about the supply-system problems. They joked about never providing the real quantity they needed on order forms, as they knew the quantity might be reduced if the item was in short-stock at SAMES. They also spoke of the Hospital’s “unwritten policy” of stopping in at SAMES whenever anyone made a trip to Dili, just to see what was on the shelves. They explained that SAMES staff often did not know what they had on the shelves. “What he’s never seen,” they said, referring to newer products and medical equipment that one of the pharmacy technicians was not familiar with, “he doesn’t know.”
CONCLUSIONS

“Paradoxically, the availability of quite considerable financial resources in the first two years of reconstruction may not have been entirely positive. Funding in excess of absorptive capacity, and pressure to spend, can lead to approaches that will ultimately be unsustainable.” (NRC 2003) Donors may sometimes have been seduced by new ideas that edged somewhat beyond the established skill areas of the advisors who provided them. “International financial institutes, bilateral and multilateral donors, and UN agencies such as WHO and UNICEF [were] able to put considerable pressure on the Ministry to adopt and implement their pet projects” (ICR 2005). These factors were at play for planned ideas and implementation related to commodity supply in Timor-Leste.

Although these ideas distracted attention from the more basic requirements of establishing a public sector supply system, no major harm was done. Much excellent advice was given, followed and during implementation. Hopefully, one important lesson was learned: given the nature of the operating context, with fledgling organizations in the public sector and severe human resource constraints, developmental strategies should be straight-forward and uncomplicated, rather than based on the experimental or more sophisticated frontiers of external technical assistance know-how.

The development of public-sector pharmaceutical supply in Timor-Leste successfully passed a number of milestones between 2000 and 2005, some that long-established countries have not yet managed to attain. In many other health systems, the Essential Drugs List is often theoretical and lacking in bureaucratic muscle. In Timor-Leste it leveraged a major shift that rationalized the system at that most important first juncture in the supply cycle. A well-constructed central warehousing facility, although in need of expansion, has been established from scratch, and (with the notable exception of stock-outs) the distribution system from the central level is functioning reasonably well. Rather than disparate parallel systems that plague supply in many contexts (including Timor-Leste when it was a province of Indonesia), Timor-Leste has one integrated health-sector supply system.

On the other hand, the development of the legal and regulatory framework was premature or overly-ambitious in terms of what could be understood and implemented by local institutions and their staff; much of it will remain theoretical for some time. Nationals need to gradually assume ownership of and responsibility for the EDL, the national formulary, the standard treatment guidelines and the policy and training interventions that will eventually give these tools some clout in the system. The original ideas about the organizational framework for the supply system—an Autonomous Medical Stores and Revolving Drug Fund—are ideas whose time had not yet come in Timor-Leste. Their time may never come. Although free of corruption, the procurement system is confusingly complex, cumbersome and lacking in good quality-assurance protection, and, as with other supply system functions, far from being under local control.

At this juncture in its development, SAMES should work to improve its performance in those areas where it has assumed responsibility—forecasting, warehousing and distribution—then gradually assume responsibility for procurement. A good working
procurement model should be established before Timorese-Leste nationals assume responsibility. A secure source of financing for future commodity supply must be identified, which may mean more focus on cost containment. Roles and responsibilities between SAMES and the MOH need to be clarified, and nationals need to begin to take ownership and responsibility for all aspects of the pharmaceutical and medical supply system in the world’s newest country. This will take time.
ANNEX I: MAP OF TIMOR-LESTE
ANNEX II: RESPONSIBILITIES OF MOH, SAMES AND PMU

At the time the case study research was conducted, it was unclear whether SAMES or the MOH was responsible for some of the key areas captured in the matrix below. This was partly because both the planning and critical aspects of implementation in these areas were led by expatriates. The expatriates were sometimes recruited to work with SAMES and sometimes with the MOH—depending on where their personal office was located, the functions they carried out were associated with that organization. The listing of “expatriate” or “national” in a column for the MOH and SAMES does not, therefore, imply collaboration and shared responsibility. Although that could be the case, it was as often a matter about it being unclear which organization was responsible for given functions.

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<tr>
<th>ACTIVITIES</th>
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ANNEX III: SAMES MARCH 2005 STOCK LEVELS

486 ITEMS ON INVENTORY
LIST
127 ITEMS OUT OF STOCK
• 13 Vital Items
• 48 Essential Items
• 30 Necessary Items
• 36 Special Items

IN-STOCK (perhaps in short supply) Items Available at SAMES

In-Stock Items: 359
74%

STOCK OUTS Items Not Available at SAMES

Vital: 13 3%
Essential: 48 10%
Necessary: 30 6%
Special: 36 7%

ANNEX IV: NATIONAL HOSPITAL MARCH 2005 ORDER PLACED AND RECEIVED FROM SAMES

486 ITEMS ON INVENTORY LIST
127 ITEMS OUT OF STOCK
• 13 Vital Items
• 48 Essential Items
• 30 Necessary Items
• 36 Special Items

FULL SUPPLY Items Fully Supplied by SAMES

132 ITEMS ON ORDER
• 67 Items Fully Supplied
• 30 Items Partially Supplied
• 35 Items Not Supplied

STOCK OUTS Items Not Supplied by SAMES

Vital: 1 1%
Essential: 21 16%
Necessary: 8 6%
Partial Supply Items Partially Supplied by SAMES

Items Supplied: 67 51%
Necessary: 7 5%
Essential: 15 11%
ANNEX V: INDIVIDUALS CONTACTED

1. H.E. Dr. Rui Maria de Araujo, Minister of Health
2. Dr. Alex Andjaparidze, WHO Representative, Timor-Leste
3. Dr. Aniceto Monsale, Internist, Baucau Referral Hospital
4. Dr. Charles W. Oliver, Senior Program Manager, USAID
5. Dr. Domingos da Silva, Director, SAMES
6. Dr. Graham Dukes, Pharmaceuticals Consultant, EuroHealthGroup (EHG)
7. Dr. Ingrid Bucens, Technical Advisor, Maternal and Neonatal Health Program
8. Dr. Joao Martins, Manager, Project Management Unit (PMU), the World Bank
9. Dr. Joao Pedro daCosta Xavier, General Practitioner, Baucau Referral Hospital
10. Dr. Liborio da Costa Alvez, Director, Baucau Referral Hospital
11. Dr. Rekha Menon, Senior Economist, The World Bank
12. Dr. Rui P. de Jesus, Health Specialist, The World Bank
13. Dr. Sevinj Huseynzada, Reproductive Health and Family Planning Advisor, UNFPA
14. Aida Abreu Duca, Deputy Director, SAMES
15. Alejandro Gonzalez-Richmond, Project Officer, Health & Sanitation, UNICEF
16. Anesia Mascarinha, Pharmacy Technician, National Hospital
17. Antonio Oqui, Quality Assurance Director, SAMES
18. Arnold Calo-oy, EPI Officer, UNICEF
19. Cate Keane, Chief Finance Officer, PMU, the World Bank
20. Cecilia da Silva, National Programme Officer, Reproductive Health, UNFPA
21. Cosme Boavida, Diretor Armazen, SAMES
22. Domingos Babo, SAMES
23. Elizabeth Huybens, Country Manager, The World Bank
24. Fabian Yuh Shiong Kong, Pharmacy Advisor, AusAID/AETCBF
25. Florencio Pereira, Pharmacy Technician, National Hospital
26. Gerrit Weeda, Advisor, EuroHealthGroup/SAMES
27. Guglielmo Columbo, European Commission Representative in East Timor
28. Heather Moran, Programme Support Officer, HealthNet
29. James Rock, Representative, Family Health International (FHI)
30. Janet Nassim, Senior Operations Officer, HNP, The World Bank
31. Jennifer Barak, Health Officer, UNICEF
32. Jette Ramloße, EuroHealthGroup (EHG)
33. Jim Eberle, Logistics Consultant, John Snow Inc. (JSI)
34. Joao Olivio da Silva, Assistant Program Manager, PMU Global Fund, MOH
35. Lech Jankowski, Project Architect, PMU, MOH
36. Luis da Reis, Program Manager, PMU Global Fund, MOH
37. Lyn Lee, Drug Management Advisor, National Hospital
38. Malcolm Clark, Supply System Consultant, Management Sciences for Health (MSH)
39. Marsha Lin, HIS Advisor, PMU, MOH
40. Nagaraju Duthaluri, Procurement Advisor, PMU, the World Bank
41. Noel Setters, Project Manager, Crown Agents
42. Peter Wild, Budget Advisor, MOH/AusAID
43. Rafael da Silva, SAMES
44. Ray Jordan, Head of Operations, GOAL
45. Theodoro de Jesus, Diretor of Procurement, SAMES
46. Wayne Murray, Policy Advisor, MOH
ANNEX VI: BIBLIOGRAPHY

1. Anonymous (2005). Health Service Delivery and Utilization in Timor-Leste: A Qualitative Study. [Received from World Bank, authors unknown.]


La gestión de los hospitales en América Latina

Resultados de una encuesta realizada en cuatro países

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Junio de 2007