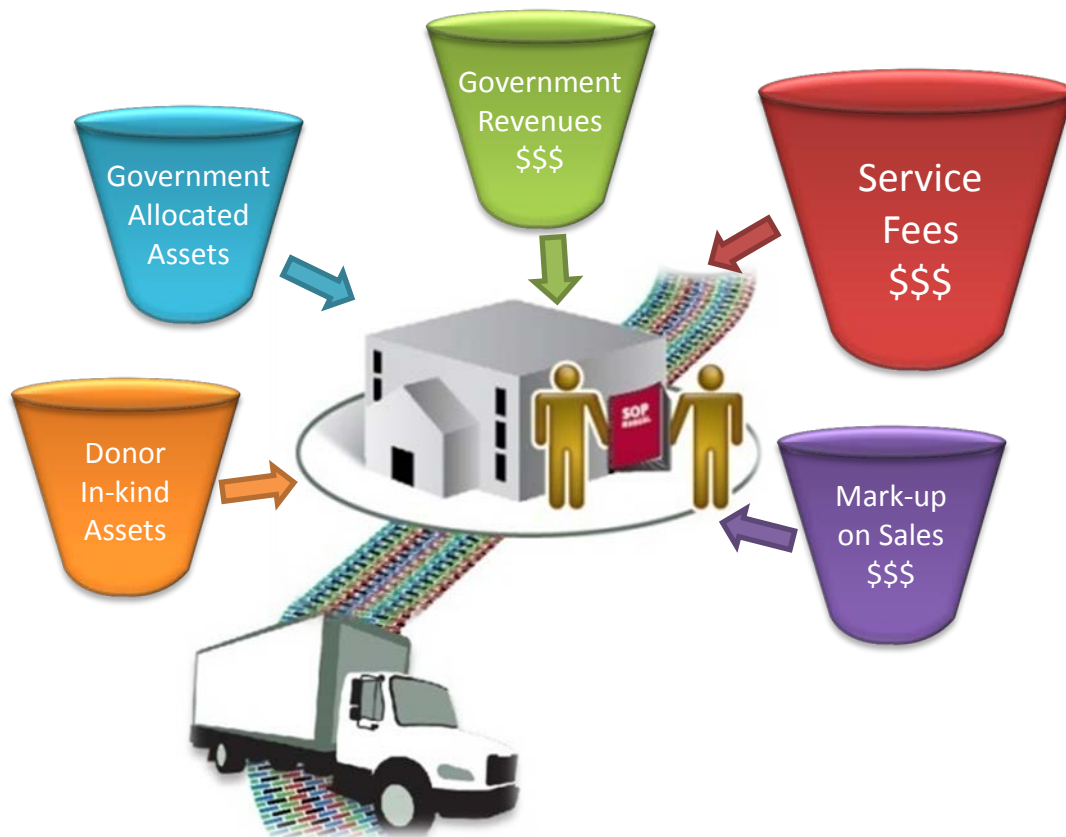




Financing the Health Commodity Supply Chain

The Role of Service Fees

Common Supply Chain Funding Sources



JULY 2014

This publication was produced for review by the U.S. Agency for International Development. It was prepared by the USAID | DELIVER PROJECT, Task Order 4.

Financing the Health Commodity Supply Chain

The Role of Service Fees

USAID | DELIVER PROJECT, Task Order 4

The USAID | DELIVER PROJECT, Task Order 4, is funded by the U.S. Agency for International Development (USAID) under contract number GPO-I-00-06-00007-00, order number AID-OAA-TO-10-00064, beginning September 30, 2010. Task Order 4 is implemented by John Snow, Inc., in collaboration with PATH; Crown Agents Consultancy, Inc.; Eastern and Southern African Management Institute; FHI360; Futures Institute for Development, LLC; LLamasoft, Inc.; The Manoff Group, Inc.; Pharmaceutical Healthcare Distributors (PHD); PRISMA; and VillageReach. The project improves essential health commodity supply chains by strengthening logistics management information systems, streamlining distribution systems, identifying financial resources for procurement and supply chain operation, and enhancing forecasting and procurement planning. The project encourages policymakers and donors to support logistics as a critical factor in the overall success of their healthcare mandates.

Recommended Citation

Sanderson, Jeffrey, Chris Wright, and James Rosen. 2014. *Financing the Health Commodity Supply Chain: The Role of Service Fees*. Arlington, Va.: USAID | DELIVER PROJECT, Task Order 4.

Abstract

This paper provides health commodity supply chain leaders and managers with practical information on developing, justifying, and applying evidence-based service fees. The intended audiences for this paper are people in ministries of health and medical stores agencies who are charged with ensuring access to health commodities—essential medicines and diagnostic supplies, including vertical program commodities for family planning, immunization, HIV, malaria, tuberculosis, etc.—for the citizens they serve.

Cover photo: Common funding sources for public sector supply chains. USAID | DELIVER PROJECT. 2014.

USAID | DELIVER PROJECT

John Snow, Inc.
1616 Fort Myer Drive, 16th Floor
Arlington, VA 22209 USA
Phone: 703-528-7474
Fax: 703-528-7480
Email: askdeliver@jsi.com
Internet: deliver.jsi.com

Contents

Acronyms.....	v
Introduction to Financing the Supply Chain and Service Fees.....	1
Governance and Accountability	4
Learning from the Private Sector.....	5
Good Business Practices: Building Blocks for Service Fees.....	7
Supply Chain Cost Analysis	7
Good Accounting Practices.....	8
Timely and Reliable Commodity Information.....	8
Organizational Performance Management.....	8
Risk Management.....	9
Service Fee Options.....	11
Recommendations	19
Understand the Competition when Setting Fees.....	19
Include All Costs in Service Fee Calculations.....	19
Determine Whether More than One Distribution Fee is Needed	20
Consider Equity When Determining Transport Service Fees.....	20
Calculate Service Fees by Program or Product Group.....	20
Determine Value of Donated Commodities.....	21
Keep it Simple.....	21
Protect Cash Flow (Getting Paid!).....	21
Include the Supply Chain in Health Financing and Sustainability Agenda	22
Advocacy and the Service Fee Business Case.....	23
References.....	25
Sources.....	27
Appendices	
1. Glossary of Supply Chain and Service Fee Terminology.....	29
2. Sample Outline for the Service Fees Business Case	31
Figures	
1. Supply Chain Costs.....	2
2. Common Funding Sources	3
3. Good Business Practices Support the Effective Use of Service Fees	7
4. Setting Service Fees.....	19
5. Impact of Negative Cash Flow.....	21

Tables

I. Service Fee Options	12
------------------------------	----

Acronyms

ART	antiretroviral
ARV	antiretroviral (medicine)
ERP	enterprise resource planning
HIV	human immunodeficiency virus
HR	human resource
ICT	information and communication technology
LMIC	low- and middle-income countries
LMIS	logistics management information system
LOE	level of effort
MOH	Ministry of Health
MSA	Medical Stores Agency
RDT	rapid diagnostic test
SDP	service delivery point
SONAPHARM	Société Nationale d'Approvisionnement Pharmaceutique
SKU	stockkeeping unit
TB	tuberculosis
USAID	U.S. Agency for International Development

Introduction to Financing the Supply Chain and Service Fees

This paper provides health commodity supply chain leaders and managers in low- and middle-income countries (LMICs) with practical information on developing, applying, and justifying evidence-based service fees. The intended audience for this paper are technical and financial personnel in ministries of health (MOHs), or medical stores agencies (MSAs), who are charged with ensuring access to health commodities for the citizens they serve—essential medicines and medical and diagnostic supplies, as well as *program* commodities for family planning, immunization, HIV, malaria, tuberculosis (TB), and others.

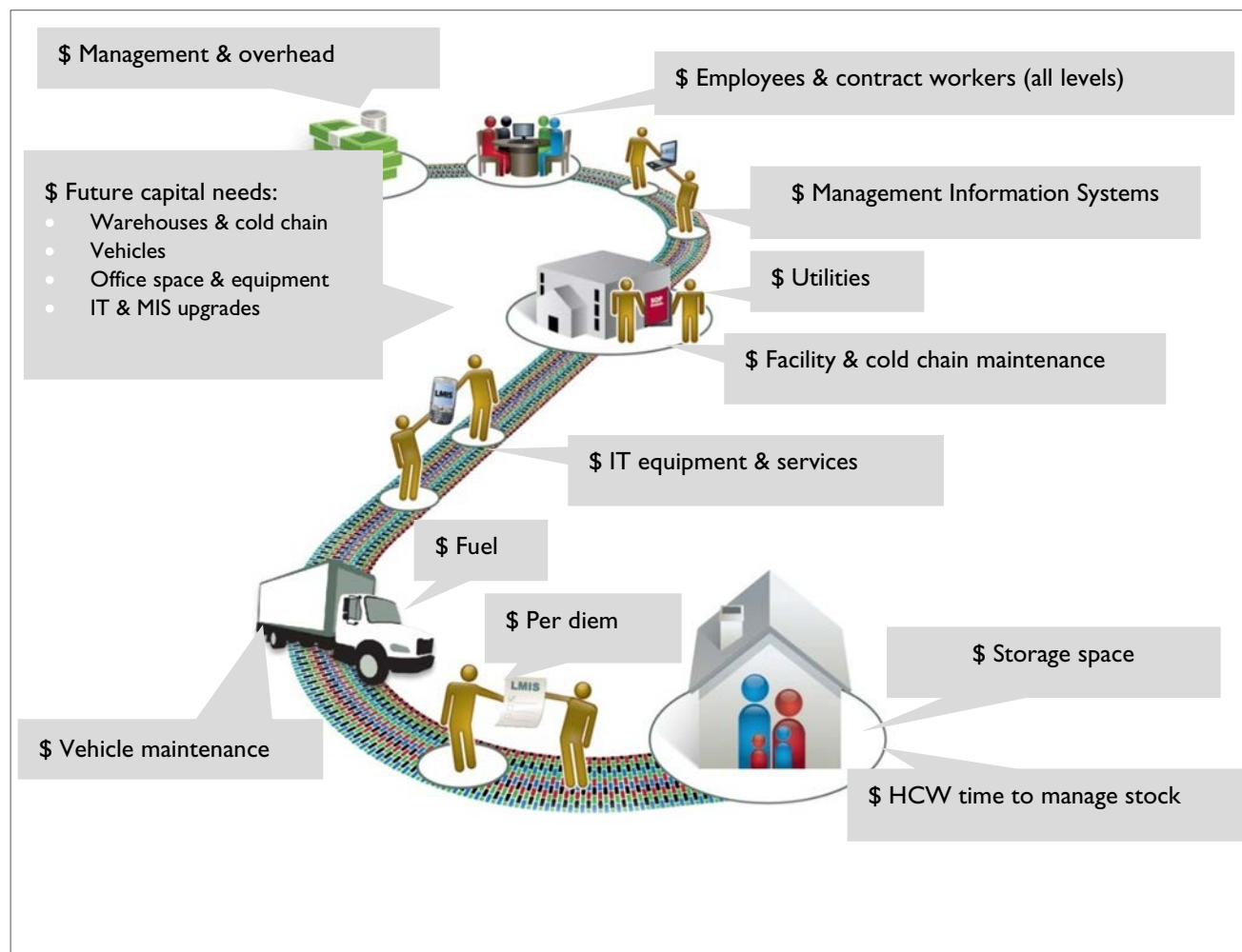
Service fees are charges made by a supply chain organization (public or private) for providing supply chain services; the customer (or an agent) pays these fees after they receive the service. Supply chain services typically include procurement, storage and transportation, and can also include customs clearance or freight forwarding. In the public health context, customers are usually programs, such as family planning and immunization, donors and development partners, and third-party agents representing funders. Customers may also be the clients and patients of the health facilities who pay for their commodities at the service delivery point.

Service fees are an important mechanism for sustaining supply chain operations, and they are the fundamental revenue stream for commercial supply chain service providers. In cost-recovery systems, for commodities like essential medicines, the service fee is usually built into the suggested retail price of the commodity. For commonly donated commodities—such as contraceptives, vaccines, antiretrovirals (ARVs), malaria medicines, test kits, and bed nets, and anti-TB medicines—the service fee is usually charged separately to cover the holding (e.g., storage and handling) and/or transport costs for the commodities.

For a supply chain to perform adequately, sufficient resources must be available to cover the cost of operating the supply chain at an acceptable performance standard (see figure 1); and revenues must be received consistently to meet the expenses. It is also important to recognize that financing the operational costs of the supply chain is typically—but not always—a distinct aspect of financing from the sourcing of the funds needed to procure health commodities¹. All too often, the financial support needed for operating the supply chain is neglected during the budgeting process - as MOH leaders and programs tend to prioritize the purchase of medicines and medical supplies. The revenue stream for operating the supply chain can also be hampered by service fee policies that do not reflect what it actually costs to procure, receive and distribute the commodities to the end users.

¹ Within government budgeting, these two aspects of supply chain related financing are commonly intermingled, with the latter (funds for procurement) getting most of the attention.

Figure 1. Supply Chain Costs



Supply chain costs include recurrent costs, as well as future capital requirements for replacement or growth. Commodity procurement costs are separate.

For example, a country with a U.S.\$100 million annual medicines budget, supply chain costs could vary from 10 to 50 percent of the medicine's purchase price; or an additional U.S.\$10–50 million per year. Ignoring these costs can have severe consequences for supply chain performance: on-time deliveries may decline; commodities may sit in warehouses instead of in health facilities because vehicles and their drivers don't have adequate fuel or per diem; or training programs may be underfunded, resulting in supply chain managers and staff lacking the skills they need to perform their assigned tasks. These are examples of how effectiveness can be undermined by funding gaps or poor financial management. Ensuring a sufficient and steady flow of funds to support supply chain operations is one of the most critical roles of

MSAs can find it difficult to convince customers that their service fee schedule is based on a clear business case—the actual cost of operations, capital investment, growth potential, and the management of risk.

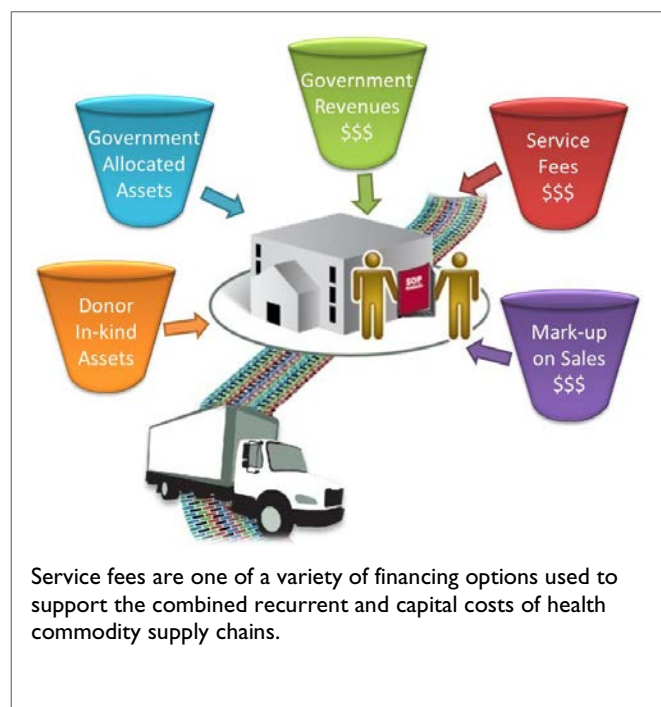
supply chain leaders and managers, as well as for the health sector’s high-level policymakers. Without medicines and medical supplies, health facilities cannot achieve their basic service objectives—preventing and treating illness, disease, and injury.

Many MSAs in LMICs have established service fees to cover at least some of the cost of managing health commodities. However, customers do not always agree with the established fee, even though many donors do recognize the need for revenues to sustain supply chain operations, particularly to support global targets, such as universal access to health services and health commodities. One important reason for customer resistance is that few MSAs can provide comprehensive financial data and analysis of this data to show the true cost of each business unit’s current activities, or in relation to future growth and demand. Without this data, MSAs can find it difficult to convince customers that their service fee schedule is based on a clear business case—the actual cost of operations, capital investment, growth potential, and the management of risk.

Figure 2 illustrates several financing options that are commonly used to support the combined recurrent and capital costs of public health commodity supply chains.

- **Government revenues** from the national budget, and sometimes from regional and/or local government budgets, are typically based on annual budget cycles and are disbursed periodically throughout the year.
- **Government allocated assets** are operational and/or capital assets and services—e.g., buildings, land, vehicles, human resources, information and communication technology (ICT) services, etc.—that the central, regional, and/or local government agencies own or pay for; and that support supply chain operations.
- **Donor in-kind assets** are investments or donations by donors for operational and/or capital requirements: building warehouses/stores, purchasing vehicles, IT systems and equipment, shelving and warehouse equipment, cold chain rooms and equipment, etc. These may include system optimization services, programs to strengthen skills, organizational development, and others.
- **Services fees** are charged for specific supply chain services—e.g., storage, distribution, procurement, or any combination of services—paid either by the user of these services or an agent on behalf of the user.
- **Mark-up on sales** is where the purchase price of a commodity includes all or some of the cost of the supply chain services required to deliver the commodity to the purchaser. Mark-ups are typically

Figure 2. Common Funding Sources



found in private sector supply chains and cost recovery schemes, and they are included in the prices paid by health insurers for commodities dispensed to or used by their members.

As highlighted in Figure 2, service fees are one option in a relatively short list of possible financing alternatives to support the operational and capital costs of a health commodity supply chain. In this paper, we focused on service fees primarily because they are a well-established model for sustaining many types of businesses. Service fees are an evolving model in LMICs; their advantage is that they provide a revenue stream that is independent from, and therefore less dependent on, the annual budget appropriation and funding allocation processes of government - both of which can be unpredictable and unreliable.

Governance and Accountability

MSA Autonomy and an Enabling Policy Environment

The governance structure² of the MSA in a country can influence the feasibility and possible use of each of these financing options. Central medical stores that function as a department or unit within the MOH typically depend almost entirely on annual government budgets and government assets; whereas more autonomous MSAs may use a mix of direct government funding and assets, as well as service fees and/or mark-ups. In general, the more sources of funding, the more financially secure the supply chain is likely to be.

The MSA model is emphasized in this paper because the additional autonomy often allows MSAs to have management and revenue options that MOHs do not have due to political and bureaucratic constraints. MSAs are typically an autonomous or semi-autonomous organization designated by the government, usually through enabling legislation, to provide selected supply chain services—e.g., customs clearance, receiving, issuing and warehousing, transport, etc.—on behalf of the public health sector. MSAs commonly have greater flexibility than government units in terms of salaries and benefits, hiring procedures, financial management, and so forth.

Optimally, the relative autonomy of the MSA will also allow for flexibility in generating and managing revenue. However, this is not always the case, as Ministry of Finance rules sometimes prohibit or restrict government entities, including autonomous MSAs, from retaining internally generated revenues. In some countries, pooled funding guidelines may restrict access to funds that a donor has designated to support the supply chain.

Clearly, the introduction and use of service fees requires that the context framed by government rules and guidelines is well researched and understood, and that the policy environment is conducive to—or can be modified to enable—the adoption of service fees.

² The governance structure are the rules under which an organization operates, including legal status, management oversight, organizational structure; and, often, includes public sector rules on financial management, procurement, human resources, and operations.

MSA Accountability to the Public Health Mandate

If an MSA is authorized to put service fees in place, the government must address how they can ensure that this semi-autonomous entity will remain faithful to its public-sector mandates and roles.³ This challenge was noted in a study of Burkina Faso's experience with privatizing its national pharmaceuticals supply enterprise (Govindaraj and Herbst 2010), in which the newly privatized SONAPHARM increasingly focused on the profitable commercial sector business and neglected the public sector commodity needs, even though it retained a public sector mandate.

Similarly, policymakers will want to ensure that service fees remain reasonable and equitable, and that the MSA meets minimum service expectations. For MSAs, self-sustainability mandates can be expected to conflict with the expectations of key public-sector clients; for example, health facilities (and others) might expect the MSA to provide rapid delivery for emergency orders, whereas the MSA's management may argue that unscheduled, low volume routes are unrealistic because of their limited resources. Another common challenge is the need to balance extending credit to cash-strapped facilities and collecting funds to maintain cash flow. MSAs that overextend on credit to fulfill their public health obligations, or in response to political pressure, risk decapitalization and undermining of their financial stability and/or operational performance.

For MSAs, the balance between their public sector mandate and their business needs is challenging enough, but it is often aggravated by donor requirements that impose additional burdens on financial management and operational efficiency. In every country situation, supply chain managers will need to understand each of these challenges—and be prepared when they arise—to provide the financial case for the supply chain and its needs. Strategic planning can be an important tool for helping stakeholders address some of the key issues related to mandates. Strategic deliberations provide an opportunity for higher levels to state their expectations and requirements and for supply chain managers to provide reasoned and evidence-based responses.

Learning from the Private Sector

In the commercial sector, where the profit motive is a primary driver, "...the ideal price for any product or service is one that is acceptable to both buyer and seller" (BizFilings 2012). The business owner must also be fully aware of competitor's products and prices when they set their own prices.

Price acceptability is important in setting fees in both the commercial- and public-sectors. While notable differences separate the public sector marketplace from the commercial markets, several lessons can be learned from the commercial sector.

³ This question is borrowed from a posting by Roger Miller of LMI Government Consulting on the International Association of Public Health Logisticians (IAPHL) in mid-2012.

- **Focus on efficiency and cost effectiveness to maximize *profits*.**

The main focus of the private sector organization is to maximize profits by generating revenues efficiently and delivering good value to customers. Although public health supply chains are mission-driven, profit accrues to the clients and the society at large through improved health outcomes. In both cases, the focus must be on efficiency and cost effectiveness in an effort to maximize profits in the private sector, or achieve better health outcomes in the public sector.

For the supply chain manager, improving revenue generation and cash flow are critical elements of a sustainable and well-performing supply chain.

- **Supply chain costs are readily accepted in the commercial sector.** Commercial goods are priced to include supply chain costs, either as a mark-up in the final price; or as with on-line retail and e-procurement⁴, as an add-on fee to the purchase price. Sellers and buyers accept these as the cost of doing business. In the public sector, having policymakers recognize the relevance of health supply chain costs, especially when a significant number of commodities are donated (free in terms of the cost of goods sold), can be a challenge. Regardless of who actually purchased the product, the reality is that these commodities still incur various supply chain costs—such as freight and insurance for the trip from the manufacturer to port; customs fees; and distribution costs from customs to the central warehouse and from the central level to the facilities. The public sector supply chain manager must find ways to cover these costs and justify them to funders and customers.
- **Cash flow is fundamental to commercial sector success.** In the commercial sector, sales translate into cash or short-term credit, both of which are received quickly in relation to the date of the transaction. In the public sector, the primary sources of funds are often government and donors, both of whom are often slow decisionmakers and equally slow payers. In addition, donor and recipient governments must often negotiate the government's payment for the in-country supply chain cost to distribute donated goods; often the government does not have the funds to meet this commitment in a reasonable time. For the supply chain manager, improving revenue generation and cash flow are critical elements of a sustainable and well-performing supply chain.
- **Sound business practices are essential.** Successful commercial supply chains rely on a number of common yet essential management and financial practices that can also be applied in the public sector.

The next section provides more detail on five important business practices that are essential building blocks for implementing service fees.

⁴ In Indonesia, the government's e-procurement system for health commodities includes differentiated distribution fees specific to each province, based on distance and available shipping options.

Good Business Practices: Building Blocks for Service Fees

To ensure that managers have the information they need to establish and use service fees effectively, a MSA should use important management and financial practices before implementing service fees (see figure 3). These five practices—cost analysis, good accounting, access to timely and reliable commodity information, use of organizational performance management mechanisms, and anticipating and managing risks—are common in successful private sector organizations, because they support strategic planning and operations. They also provide the financial information needed by supply chain managers to quantify service fees and to justify their fee proposals for their customers.

These practices enable supply chain organizations to plan strategically, build capacity, enhance performance, and prepare for the unexpected.

They give supply chain managers information and knowledge needed to ensure a reliable revenue stream that includes service fees to fund operations and future needs.

Figure 3. Good Business Practices Support the Effective Use of Service Fees



Supply Chain Cost Analysis

Adequate financing is essential to a well-functioning supply chain, but understanding what *adequate* means requires a regular analysis of supply chain costs. Supply chain cost analysis can be used for a variety of purposes⁵, including determining total costs and costs disaggregated across different supply chain functions, commodities, levels, and/or partners. These analyses are essential for determining the operational and capital resources that the organization requires to operate the supply chain effectively on a monthly, quarterly, or annual basis, and in accordance with its mandates and customer expectations.

Cost awareness also informs and significantly enhances managerial decisionmaking for short- and long-term financial planning and for advocacy; assists in identifying inefficiencies and waste (e.g., holding costs for expired commodities); and determines the cost effectiveness of possible structural

⁵ For more information, see the *Guide to Public Health Supply Chain Costing: A Basic Methodology* http://deliver.jsi.com/dlvr_content/resources/allpubs/guidelines/SuppChaiCostMeth.pdf

changes to the supply chain, as well as the implications of policy changes that are expected to impact the supply chain.

Good Accounting Practices

Good accounting practices based on international norms are also important, because they enable MSAs to track costs effectively and to understand the financial health of their organization at any point in time. Good accounting practices include not only operational costs, but long-term depreciation⁶ of capital assets—buildings, vehicles, equipment, etc.—that, eventually, must be replaced, enabling managers to plan and set aside resources for future needs. These practices facilitate effective credit management to protect cash flows, help maintain credibility with customers and funders—particularly through externally audited financial statements—and enable MSAs to seek advantageous payment terms, including advance payment for services.

Timely and Reliable Commodity Information

Having quality information on supply chain transactions, including financial elements like supplier purchase prices, is another building block that supply chain managers can use to improve evidence-based decisionmaking.

Timely and reliable commodity data are fundamental for good accounting practices and for cost analysis. The organization's information system must be able to provide real-time data on commodity transactions and status, including receipts, issues, orders, inventory status, returns, proof of delivery, batch numbers, quality controls, and others. For service fees and other revenue-generating strategies, the information from a well-functioning information system can be used to support the calculation of service fees and enable managers to justify service fee rates and adjustments.

Organizational Performance Management

To sustain a responsive, outcome-oriented supply chain, managers must set and be guided by ambitious, yet realistic, product availability and other service goals. While service fees are primarily a financial tool used to obtain revenues for operating the supply chain, they are also directly linked with organizational performance through the service-level expectations of the funders, customers, and clients. Service-level requirements are often stipulated in contracts for supply chain services, with fees tied to the supply chain organization's ability to meet customer expectations on commodity availability, delivery lead-time, inventory management, data quality, and other key performance indicators. In addition, if an MSA successfully improves the efficiency of its operations—for example, streamlining order fulfillment in its warehouses, resulting in a decrease in the use of temporary laborers and an increase in inventory turnover—the management team might apply the cost savings by reducing the distribution service fee or by rewarding the personnel responsible for improving performance.

⁶ Depreciation is the decline in value of a physical asset resulting from normal usage and from age. For example, a vehicle bought for \$10,000, with a useful life of five years, decreases in value by \$2,000 each year; after five years, it is considered to have a value of zero—even if it could be sold for a positive sum. Buildings also depreciate, but at a much slower rate, generally over decades.

Risk Management

For the supply chain manager, aligning with the policies, rules, and mandates of government and ministry leaders is not only expected, it is a fundamental element of a MSA's role as a service provider for the government. But, sudden policy or other contextual changes—floods, disease outbreaks, fuel shortages—which are outside the MSA's control—can present significant operational and financial risks that must be considered, planned for, and managed proactively. Service fees need to be structured to reasonably accommodate unexpected events and be flexible enough to adjust to changes in operational costs. A crisis can mean a rapid shift in priorities, yet managers can develop risk management plans to mitigate the impact on operations and costs.

Accommodating sudden government policy changes may have a more significant and longer term impact on the supply chain organization's operations, revenues, and expenditures. For example, changes in treatment guidelines that require transitioning from a high-volume medicine to a newly introduced medicine, new subsidies or the offer of free commodities to clients, or a new mandate requiring direct delivery to all health facilities rather than to local government, would all have long-term financial ramifications for supply chain organizations. Managers must have the tools (see above) and be prepared to estimate the potential financial and performance implications of a particular risk. They must also develop and maintain a risk management plan for a range of possible scenarios, so that responses—especially for policy changes—can be evidence-based and timely.

Service Fee Options

Public sector supply chains have two primary service fee options: one for distribution (storage and transport) services and one for procurement services. Within distribution, supply chain organizations can also charge for selected components within the overall distribution function. Procurement and distribution fees can also be combined to create a total supply chain fee for situations when both services are performed for a client. In countries where commodity donations are still common, having separate fees for procurement and distribution is both sensible and practical, because the MOH and/or MSA will not procure all commodities, yet the in-country supply chain is likely to distribute them⁷. Other supply chain services may have fees, such as for quality assurance or customs clearance, which might also be considered if the MOH or MSA is responsible for these functions; however, this paper does not address them.

Table 1 presents an overview of some of the primary options for distribution, procurement, and total supply chain service fees. This table also provides calculation methods, advantages, and limitations for each option, as well as possible variations for some of these options.

⁷ Suppliers may also deliver commodities directly to facilities, in which case the cost of distribution is included in the purchase price. If the MOH/MSA does not offer distribution service, there is no service fee.

Table 1. Service Fee Options

Service Fee Type	Advantages	Limitations	Variations
Distribution (Storage + Transportation)			
1. Distribution—Value-based fee: Percentage based on total commodity value.	Relatively easy to calculate; can be determined from procurement/shipping documents.	Commodity value is not related to supply chain costs: high cost, low-volume goods (e.g. - ARVs) are charged more than low cost, bulky goods (e.g., condoms). Does not adjust for higher costs of managing cold chain items.	Distribution costs can be added to the value calculation of the item, and it can be segmented, based on delivery level (region, district, health facility) or travel distance.
<p><i>Calculation:</i> (Landed cost⁸ per unit) × (Total units received in a consignment) × N%</p> <p>$N = (\text{Annual cost of distribution operations}) \div (\text{Total value of all commodities distributed annually})$</p> <p><i>Example:</i> \$0.34 × 2,000,000 units of rapid diagnostic tests (RDTs) × 11% = \$74,800</p>			
2. Distribution—Volume-based fee (either cubic meters or weight): Flat rate per m ³ or kg. Fee is based on total annual cost of distribution operations ÷ total annual commodity volume received and distributed.	Most direct application of supply chain costs to total commodity throughput ⁹ ; can be determined from receiving and issuing documents.	Must be post-paid: billing requires post-distribution calculation and documentation of volumes/weight per delivery location.	Can be segmented based on average cost of distribution to specific levels or geographic locations. Private sector includes weight and/or volume per kilometer to each unique delivery location.
<p><i>Calculation:</i> (Annual cost of distribution operations) ÷ (Total annual volume [m³ or kg] distributed) × (Volume [m³ or kg] distributed per period)</p> <p><i>Example:</i> \$1,600,000 per year ÷ 9,600 m³ average throughput per year × 32 m³ of ARVs in May = \$5,333 May ARV distribution fee</p>			

⁸ The end cost of an internationally shipped item includes purchase price, freight, insurance, duties, taxes, and other costs.

⁹ Throughput is defined as the average amount entering and exiting the supply chain (e.g., 86,000 cartons received per year + 82,000 cartons issued/delivered ÷ 2 = 84,000 cartons throughput). Can also be applied to value (e.g., throughput of \$35 million worth of antimalarial medications in 2013).

Service Fee Type	Advantages	Limitations	Variations
3. Storage—Per carton fixed fee: Fee per carton managed per month. Fee is based on stores operational cost ¹⁰ ÷ average volume of cartons stored.	Each customer's volumes are accurately counted and cost of handling—receiving, put-away, picking/packing/issuing—are captured in operational costs.	Does not distinguish between static storage costs and handling costs. Special transaction records must be kept for all receipts/issues by customer.	Agreement can stipulate value to be billed for each carton handled and a standard storage rate.
<p><i>Calculation:</i> (Average stores operational cost per month) ÷ (average total # cartons stored per mo.) × (# of customer cartons stored this month)</p> <p><i>Example:</i> \$86,400 per month ÷ 12,200 cartons average stored per month × 150 cartons of ARVs stored in June = \$1,062 June fee</p>			
4. Storage—Per pallet fixed fee: Fee per pallet managed per month. Fee is based on total operational cost ÷ average total pallet positions used. Can include part of a month: e.g., \$54 for 16 to 30 days of storage and \$27 for 1 to 15 days.	Simpler and more rational for storage alone, because every stockkeeping unit (SKU ¹¹) should be associated with a pallet and unique bin. The bin can contain more or less cartons, but the storage cost is no different.	Does not distinguish between static storage costs and handling costs. Customer must keep records for all bins.	Agreement can stipulate per carton handling fee in addition to per pallet position used per month.
<p><i>Calculation:</i> (Average stores operational cost per month) ÷ (average total # pallet positions used per month) × (# of pallet positions used this month)</p> <p><i>Example:</i> \$86,400 per month ÷ 1,200 pallet positions × 15 pallet positions used for ARVs in June = \$1,080 June fee</p>			
5. Storage—Combined storage per pallet fixed fee and handling per carton fixed fee	Captures cost of static storage and carton movement; commonly used in the private sector.	Requires automation that can track movements by carton (barcodes, hand-held scanners, etc.).	Agreement can stipulate value to be billed for different types of handling (e.g., \$1.00 for receiving, \$2.00 for picking/packing/issuing).
<p><i>Calculation:</i> [(Average storage operational cost per month) ÷ (average total # pallet positions used per mo.) × (# of pallet positions used this mo.)]</p> <p>+ [(average cost of handling 12 per month) ÷ (average # cartons handled per month) × (# of cartons handled)]</p>			

¹⁰ Stores operational costs include management, labor, utilities, services (ICT, security), equipment costs (including depreciation) and building depreciation or rent, transport (between central and peripheral stores managed within the same MSA), as well as a percentage of overhead (administrative support, including HR, finance, cleaners, etc.).

¹¹ Stockkeeping unit; each formulation/presentation of each commodity is a unique SKU. See appendix I for more detail.

¹² Cost of handling includes staff level of effort (LOE; salary and benefits, calculated at hourly or daily rate) for receiving, put-away, picking/packing/issuing; material handling equipment operating costs and depreciation; and a percentage of overhead. To avoid double counting, these costs are not factored into the operational costs for storage.

Service Fee Type	Advantages	Limitations	Variations
<p><i>Example:</i> [(\$69,800 per month ÷ 1,600 pallet positions x 34 pallet positions used for ARVs this month)] + [(16,600 average cost of handling per mo. ÷ 6,200 average cartons handled per month x 120 cartons of ARVs handled in June)] = \$1,804 June fee</p>			
6. Transport—Per carton or per site fixed fee: based on cartons transported per period or sites served per period, regardless of distance.	Relatively easy to calculate because billing is based on volumes transported per customer, or on the total number of sites served. Perceived as equitable because distance is not a cost factor.	Requires accurate and timely proof of delivery records (volume and location) to complete billing.	Can also include minimum volume (minimum payment guaranteed to transporter), different values, based on levels (e.g., \$8.00 for transport from center to district and \$15.00 for transport to facility).
<p><i>Calculation:</i> (average annual transport costs¹³) ÷ (annual number of cartons delivered or sites served) x (# cartons delivered or sites served).</p> <p><i>Example A:</i> (\$1,200,000 annual transportation cost) ÷ (80,000 annual cartons delivered to service delivery points) x 4,525 cartons = \$67,875</p> <p><i>Example B:</i> (\$1,200,000 annual transportation cost) ÷ (4,800 total sites served) ÷ (4 delivery periods) x 1,660 sites served in May = \$103,750</p>			
7. Transport—Volume-distance fixed fee: based on carton (or kilogram) transported per kilometer	Connects billing to actual cost of services performed.	Requires detailed financial tracking and analysis, accurate and timely proof of delivery, and mileage records to invoice. Per-location mileage cost is not equitable for more distant facilities.	May have different rates for center to district and for district to facility due to variations in road conditions and distances.
<p><i>Calculation:</i> (total cost per route) ÷ (total km per route) = cost per km. (total cost per route) ÷ (total # cartons delivered) = cost per carton</p> <p>[(cost per km) x (# km to next site)] + [(cost per carton) x (# cartons delivered to site)] ÷ 2 = cost per carton per km per site</p> <p><i>Example:</i> \$1,800 total route cost, 300 km route, 45 cartons on route in April. Cost per km: 1,800/300 = \$6. Cost per carton: \$1,800/45 = \$40</p> <p>5 cartons to Sengeti Health Center, which is 26 km from previous site: (5 x \$40) + (6 x 26) ÷ 2 = \$178 April delivery charge for Sengeti HC</p>			

¹³ Cost of transport includes drivers' LOE and per diem, fuel, vehicle maintenance, vehicle depreciation, and a percentage of overhead.

8. Transport—Standard trips fixed fee: for delivery based on standard number of trips per period to a fixed number of sites.	Easy to administer after joint experience establishes volume and delivery route cost history for both sides (service provider and customer).	Volumes and routes may not be easily estimated, and variations may be too common for this method to be used. Customer may pay more than necessary if volumes are lower than expected (vehicles travel below capacity).	May also include rate for additional trip/route within the period, based on higher than expected volumes (for volumes above maximum quantity per vehicle—e.g., \$1,000 per additional trip, with documentation of total volume delivered).
--	--	--	--

Calculation: (\$ fee per delivery route) x (# of delivery routes served per period)

Example: Route fee = \$1,000 for 1 delivery route serving 8 sites.

In May, Warehouse A completes 4 routes (32 sites) + Warehouse B completes 3 routes (24 sites)

Total fee = (4 x \$1,000) + (3 x \$1,000) = \$7,000 (for serving 56 sites)

9. Transport—Minimum volume fixed fee: for delivery based on minimum volume (cartons, pallets, weight) per period to fixed number of sites	For transporter, minimum payment is received whether volumes meet expected levels or not. Easy to administer; transporter only records and reports total volume delivered per period.	For customer, payments may be higher than necessary if/when volume falls below minimum expected levels.	May also have contingency for volumes above minimum quantity (e.g., for each carton above the minimum, transporter receives additional \$5.00).
--	---	---	---

(\$ fee per minimum delivery volume for # sites) x (# periods)

Example: (\$4,000 per 250 cartons per month to 5 districts) x (3 months) = \$12,000 per quarter

Procurement

10. Fixed fee per value of procurement action.	Connects fee to actual cost of services performed. Fees charged are specific to customer.	Requires historical information to estimate total procurement activity costs. Fee may change if number of procurements varies significantly from year to year.	May want to separate international tenders from domestic tenders because of differences in level of effort (LOE) and other costs.
--	---	--	---

Calculation: (Annual operational cost of procurements¹⁴) ÷ (annual value of all procurements) × (value of specific procurement action)
Example: (\$300,000 annual procurement operations) ÷ (\$15 million annual procurement value) × (\$1.2 million procurement) = \$24,000

11. Average cost fee—total cost of procurement services ÷ number of procurement actions.	Relatively easy to calculate. Can be segmented into specific fees for different procurement services (pipeline monitoring, customs clearance, etc.).	Must be based on historical data; important to update costs regularly to ensure that fee covers all costs.	May want to separate international tenders from domestic because of differences in LOE and other costs.
--	--	--	---

Calculation: (Annual operational cost of procurements) ÷ (annual # of procurement actions) × (# customer procurement actions)
Example: (\$300,000 annual procurement operations) ÷ (75 procurement actions annually) × (2 customer procurements) = \$8,000

12. Fixed fee based on procurement type (international, domestic, sole source).	Simpler to use; doesn't require new calculations for each new procurement.	Important to update costs regularly to ensure that fee covers all costs.	
---	--	--	--

Calculation: Total operational cost of each type of procurement (\$/day LOE by position + other direct costs + % overhead)
Example: Local tender: (15 days procurement officer × \$120) + (2 days procurement manager × \$150) + (\$500 adverts, materials, other direct costs) + (\$100 tender board fee × 5 members) * (10% overhead) = \$3,410

Total Supply Chain (or combined) Service Fee

13. Integrated services fee, per unit—combines all service fees into single fixed fee per unit (carton, pallet, kg) delivered	Allows the supply chain organization to use one service fee for end-to-end support of a customer, similar to setting mark-up on sales.	One-size fits all, so may not be applicable to all customers. Must use average cost of delivery rather than site-specific transport cost.	Can include variations, based on geographic zone to accommodate differences in transport costs, but this requires tracking volume by zone.
---	--	---	--

¹⁴ Procurement operational costs include staff time spent on procurement and pipeline monitoring processes, direct costs of tender (advertising, communication services), and a percentage of overhead for housing and for supporting the procurement team. Depending on country practice, other costs of the procurement process may include freight and insurance from manufacturer to port, customs fees (if paid), and transport costs from port to central or other warehouse. It does *not* include the value of commodities procured.

Calculation: Combines fees for procurement services and distribution services; depends on calculation methods for each service

Example: \$45 per carton procured and distributed x 4,800 cartons (for one customer) = \$216,000

14. Integrated services fee, per period—combines all service fees into single fixed fee per period (month, quarter, year), based on minimum volumes and defined number of sites.

Simple for the customer, one fee per period (month, quarter, year).

One-size fits all, so may not be applicable to all customers. Must be recalculated each time there is a new volume or another change in the agreed-to parameters.

Similar to standard trips method (transport) above. May require additional terms for volume above minimum.

Calculation: Based on negotiated level of service (fixed number of trips based on agreed-to number of sites and minimum or agreed-to volumes)

Example: Annual procurement of 25 million doses of three specified ARV regimens, four shipments to receive, store and transport to 600 antiretroviral (ART) sites. Annual fee excluding purchase price of commodities = \$250,000, paid quarterly (\$67,500 per quarter).

Recommendations

The following recommendations are intended to assist supply chain organization executives in establishing realistic and data-driven service fees that show funders and customers, who will be asked to pay them, the value-for-money (see figure 4). For supply chain organizations that support the public sector, if service fees are going to be a viable revenue option, they must be acceptable to users of supply chain services (or their agents), and they cannot contribute disproportionately to pricing health commodities beyond the reach of clients in facilities and communities.

Understand the Competition when Setting Fees

In some countries, the public sector supply chain organization competes with commercial suppliers, particularly for supplying essential medicines in a cost recovery (revolving drug fund) system. Thus, supply chain organizations must also know what pricing and level of service local private sector suppliers (commercial and non-for-profit) are offering to facilities. For example, local suppliers may include rapid delivery directly to the facility within their total price, which can be a valuable service for these facilities. Availability is another area where local suppliers might have a competitive advantage; if the MSA routinely stocks out of fast moving items, local suppliers are usually the only viable alternative. After a facility establishes a relationship with a reliable local supplier, the MSA will have a difficult time winning that customer back. Although policies are commonly in place to make the MSA the supplier of first choice, enforcing these policies in the face of a poor performing MSA is difficult to justify.

Figure 4. Setting Service Fees



Include All Costs in Service Fee Calculations

In the commercial sector, one of the most common errors is to price commodities or services based only on the cost to produce and deliver them (BizFilings 2012). In reality, correct product or service pricing in the commercial sector must also support profit objectives, afford distribution margin discounts and sales commissions, and be competitive. For a public sector organization, this list should include financing capital requirements, anticipating growth of the supply chain throughput (volumes), supporting contingencies (risks), financing payment delays, and staying competitive with private sector suppliers. Supply chain organizations must recognize and seek to incorporate these additional costs into their service fee calculations.

Determine Whether More than One Distribution Fee is Needed

In many cases, more than one distribution fee will be needed, especially if the supply chain organization delivers commodities to more than one level of the public sector health network, or if it does not distribute all commodities. For example, if one group of commodities is delivered all the way to the facilities (last mile distribution), while others are delivered to the district level, and still others are not delivered at all—lower levels must collect commodities from the central level. Three different fees are needed because of the different levels of service.¹⁵ Service fees should reflect distinct differences in the service being provided to the customer or program.

Consider Equity When Determining Transport Service Fees

In budget-decentralized countries, landed cost plus a distribution fee—a *mark-up* of the incoming price that is charged for storage and transport services—may be paid by the next lower level (region/province, district, or health facility), which also adds a *mark-up* to establish a new price for the level below it. In this situation, the supply chain organization might consider developing a transport fee that is based on distance: vehicle time/distance for the delivery to, and return from, a delivery site. The greater the distance from the warehouse to the receiving site, the higher the fee; this is a standard model in the private sector. However, in the public health setting, equity (i.e., the sharing of all costs for the collective good) and perceived equity are the guiding principles. Therefore, a transport fee based on *average transport costs per carton or per site* (transport fee #6 in table 1) provides a more equitable cost sharing that does not penalize distant facilities, districts, or regions, based on distance.

Calculate Service Fees by Program or Product Group

In some countries, the program departments of the MOH—e.g., AIDS control program, family planning program, immunization program—are designated as payers for their share of service fees charged by a supply chain organization. The programs are allocated funds to pay for supply chain services they expect to receive in the coming year and/or budget period, particularly for those commodities that are provided free to clients or patients. In other situations, donors (or their agents¹⁶) will use the supply chain organization's services and pay for these services directly. In either case, each customer should pay their fair share; the supply chain organization should develop program-specific fees based on the commodity volumes of each program, donor, or product group; and on the associated handling costs.

For example, the cost of handling high-value antiretroviral medicines might include additional security and approval processes. Cold chain-dependent commodities, like vaccines, require cold rooms, refrigerators, freezers, and cold boxes, as well as temperature monitoring and reporting. In most cases, the primary customer should pay for these value-added services instead of averaging

¹⁵ Recognizing that one of the primary goals of a supply chain is reliable and predictable delivery of commodities to facilities and other end-use sites, over time, improved performance of the supply chain would be expected to result in more demand for direct delivery to facilities—and, therefore, a reduction in the number of different fees.

¹⁶ For example, the USAID | DELIVER PROJECT is the procurement agent for contraceptives, antimalarial medicines and diagnostics, and other health commodities funded by USAID.

them across all product groups, although there may also be circumstances when policymakers will choose equity over actual cost methods.

Determine Value of Donated Commodities

Because commodity value is unrelated to most supply chain costs, a value-based service fee is not recommended unless the MSA does not have adequate data for determining volumes and capturing relevant supply chain costs. However, to secure insurance for the commodities in case of loss or damage while they are within the supply chain, the value of donated commodities must be determined. The supply chain organization will need to select a methodology for valuing the purchase price (landed cost) for donated goods. In most cases, the donor or their agent can provide information on the landed cost of each donated item. However, if this information is not provided because of donor policies, other options could include market price research for an equal item at similar quantities (typically done through the Internet¹⁷ or other means), or acquiring a vendor quotation for the same product at equal or similar quantities. Governments and MOHs may already have their own methodologies for valuing donated commodities.

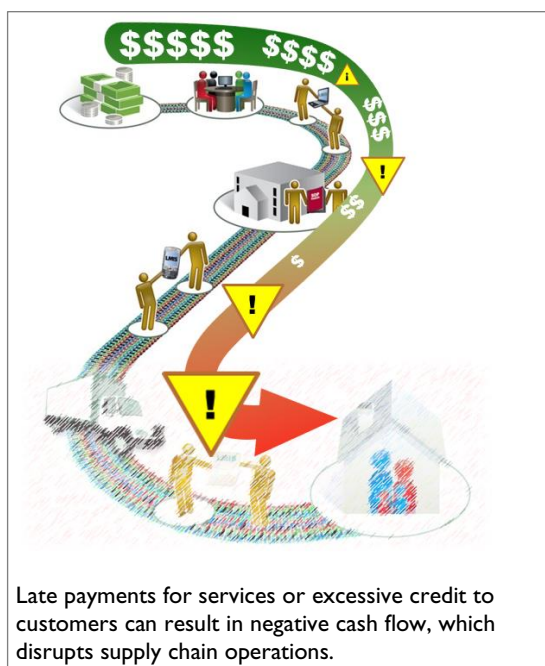
Keep it Simple

A number of service fee options were presented in table 1; there are other variations within each option. However, the goal in setting service fees should be two-fold: fully cover the cost of different supply chain services, and make the fee structure simple to use and easy to explain to the customers and funders who will be asked to pay them. Service fees should be set so that others can easily understand and accept the methods being used; if the rationale offered for service fees is straightforward, it is more likely that they will be accepted. Therefore, when developing a service fees business case to present to government, donors, and other stakeholders—very few will be skilled in financial analysis and good accounting practices—simplicity is strongly encouraged.

Protect Cash Flow (Getting Paid!)

Supply chain organizations adopting one or more service fees will have to negotiate payment terms with each customer to ensure that the payment of service fees is timely. Because supply chain expenditures are, for the most part, continuous,

Figure 5. Impact of Negative Cash Flow



¹⁷ A good source for pricing data on HIV commodities purchased for LMICs is the World Health Organization's global price reporting mechanism: <http://apps.who.int/hiv/amds/price/hdd/>. The Global Fund to Fight AIDS, Tuberculosis and Malaria also has data for commodities they fund in the Price Reference Report: <http://www.theglobalfund.org/en/procurement/pqr/>.

receipts must also be predictable. Wherever possible, the supply chain organization should seek to receive funds in advance rather than in arrears, because the combination of funding, billing, and payment cycles can result in funding delays of six months or more, causing disruptions in operations (see figure 5). Cash flow requirements must be recognized as a key component of any decision related to service fees as a supply chain financing mechanism; negotiations on this issue must be recognized as an important input into these decisions. The supply chain organization's service fee business case should include strategies for addressing payment and cash flow issues, while also recognizing that the solutions will vary, based on the type of customer/payer.

Include the Supply Chain in Health Financing and Sustainability Agenda

In many LMICs, donors actively support the procurement and distribution of health commodities, most often for program items. Over time, proponents of financial sustainability seek a steady reduction in donor contributions and a corresponding increase in country ownership and self-financing. For health commodities, sustainability applies both to the commodities themselves and to the costs of operating and sustaining the supply chain. Therefore, the supply chain, generally, and service fees, specifically, should be included in all conversations related to shifts in health and health commodity financing, country ownership, and financial sustainability. To be sustainable, local revenue sources must be capable of replacing the contributions of donors; a multi-year cost analysis and forecast of supply chain operations should be undertaken to identify the true financial requirements under different scenarios and to reveal possible funding gaps. More generally, policymakers must recognize the importance of funding the supply chain, in addition to procuring the commodities, and the consequences of inadequate funding. Supply chain organizations need to actively engage with policymakers and other stakeholder during health sector, supply chain, and health commodity financing discussions.

Advocacy and the Service Fee Business Case

A supply chain organization seeking to introduce service fees as a financing strategy should anticipate that a well-organized business case will be required to explain the proposed fees to funders and customers. The business case is intended to build support for service fees as a revenue-generating strategy—first with internal stakeholders (within government), and later with donors and other stakeholders. To be effective, the business case must be based on as much real data—financial and technical—as possible, while also presenting the argument for service fees in a simple, easy-to-understand way. Appendix 2 provides a sample outline for a service fees business case.

Supply chain organizations should also expect that it may take some time for the government and donors to accept—and formally support—the service fee option. In most situations, they cannot be expected to make decisions to support service fees and to start paying them in a few weeks or months. Funders may propose a pilot or trial period before agreeing to a broader program; they may also look for evidence from service fee models from other countries. While the situation in each country will be different, presenting a well-developed, data-driven business case can be the difference between success and failure.

A supply chain organization seeking to introduce service fees as a financing strategy should anticipate that a well-organized business case will be required to explain the proposed fees to funders and customers.

Looking back to the introduction of this paper, we offer a reminder—service fees are only one of the options for financing the health commodity supply chain. Optimally, MSAs should seek a diversified financing plan in which service fees are only one source of funding. If the business case fails to gain acceptance (at first), the MSA should revisit its business case, as well as other financing options that might be available to it.

References

- BizFilings. 2012. *Product Pricing Can Spell Difference Between Success and Failure*. Business Owner's Toolkit. <http://www.bizfilings.com/toolkit> (accessed February 2014)
- Govindaraj, Ramesh and Christopher H. Herbst. 2010. *Applying Market Mechanisms to Central Medical Stores: Experiences from Burkina Faso, Cameroon, and Senegal*. Washington, DC: Health Nutrition and Population Division, the World Bank. Miller, Roger. LMI Government Consulting on the International Association of Public Health Logisticians (IAPHL). 2012.

Sources

- Aronsson, Håkan, Mats Abrahamsson and Karen Spens. 2011. *Developing lean and agile health care supply chains*. Supply Chain Management: An International Journal, Vol. 16 Iss: 3, pp. 176-183.
- Canadian Grocery Retail Guide, Section 9: Costing Programs and Pricing Strategies. 2010. Saskatchewan Grocery Retail & Foodservice Value Chain Initiative. pp. 2-29.
- DKT Ethiopia. 2011. *DKT Ethiopia Product Pricing*. DKT Ethiopia.
- Ebel, Thomas, Katy George, Erik Larsen and Ketan Shah. 2012. *Building Strengths in Healthcare Supply Chain*. Illinois: Pharma Manufacturing Magazine, 2004.
- Govindaraj, Ramesh, and Christopher H. Herbst. 2010. *Applying Market Mechanisms to Central Medical Stores: Experiences from Burkina Faso, Cameroon, and Senegal*. Washington, DC: The International Bank for Reconstruction and Development/The World Bank.
- Independent Grocery Stores. 2001. *The Road to the Consumer*. Chapter 3, Pricing. Montana Department of Agriculture. pp. 21-25.
- Jack, Andrew. 2013. *Healthcare that comes in a Coke crate*. Financial Times, UK available at <http://www.ft.com/cms/s/0/ae192ad0-868c-11e2-b907-00144feabdc0.html#axzz35ZYiVruJ>
- Johns, Benjamin, Spy Munthali, Damin G. Walker, Winford Masanjala, and David Bishai. 2013. *A cost function analysis of child health services in four districts in Malawi*. Cost Effectiveness and Resource Allocation, BioMed Central.
- LaLonde, Bernard J., Terrance L. Pohlen. 1996. *Issues in Supply Chain Costing*. International Journal of Logistics Management, Vol. 7 Issue: 1, pp. 1-12.
- Lummus, Rhonda R., Robert J. Vokurka. 1999. *Defining supply chain management: a historical perspective and practical guidelines*. Industrial Management & Data Systems, Vol. 99 Iss: 1, pp. 11-17.
- Randall, Wesley S and M. Theodore Farris II. 2009. *Supply chain financing: using cash-to-cash variables to strengthen the supply chain*. International Journal of Physical Distribution & Logistics Management, Vol. 39 Issue: 8, pp. 669-689.
- Sahni, Nikhil R., Maxwell Wessel, and Clayton M. Christensen. 2013. *Unleashing Breakthrough Innovation in Government*. Stanford Social Innovation Review, pp. 27-31.
- “Management accounting in supply chains.” Wikipedia. Available at http://en.wikipedia.org/w/index.php?title=Management_accounting_in_supply_chains&oldid=527705999 (accessed December 2012)
- Yadav, Prashant, Orla Stapleton, and Luk Van Wassenhove. 2013. *Learning from Coca-Cola*. Stanford Social Innovation Review, pp. 51-55.
- USAID | DELIVER PROJECT. 2012. *Case Study: Mozambique and Nigeria: Using Results from Supply Chain Costing*. Arlington, VA: USAID | DELIVER PROJECT, Task Order 4.
- USAID | DELIVER PROJECT. 2013. *Guide to Public Health Supply Chain Costing: A Basic Methodology*. Arlington, VA: USAID | DELIVER PROJECT, Task Order 4.
- USAID | DELIVER PROJECT. 2012. *Improving the Financial Sustainability of Rwanda’s Public Health Supply Chain through Cost Analysis*. Arlington, VA: USAID | DELIVER PROJECT, Task Order 4.

- USAID | DELIVER PROJECT. 2013. *Logistics Brief: The Right Price: Analyzing Costs of Public Health Supply Chains for Sustainability*. Arlington, VA: USAID | DELIVER PROJECT, Task Order 4.
- USAID | DELIVER PROJECT. 2010. *Measuring Supply Chain Performance: Guide to Key Performance Indicators for Public Health Managers*. Arlington, VA: USAID | DELIVER PROJECT, Task Order 1.
- USAID | DELIVER PROJECT. 2012. *Policy Brief: Measuring Supply Chain Costs: Collecting Essential Information for Public Health Decisionmaking*. Arlington, VA: USAID | DELIVER PROJECT, Task Order 4.
- USAID | DELIVER PROJECT. 2013. *Rwanda Public Health Supply Chain Costing: Executive Summary*. Arlington, VA: USAID | DELIVER PROJECT, Task Order 4.
- USAID | DELIVER PROJECT. 2013. *Supply Chain Costing Tool User's Manual*. Arlington, VA: USAID | DELIVER PROJECT, Task Order 4.

Appendix I

Glossary of Supply Chain and Service Fee Terminology

Current operational costs	Fixed costs + variable costs + capital/investment costs for the year or period.
Depreciation	The decline in value of a physical asset (building, vehicle, warehouse equipment, cold room, etc.) resulting from normal use and from age.
Governance structure	The rules under which an organization operates, including legal status, management oversight, organizational structure; often includes regulations on financial management, human resources, and operations.
Handling costs	Costs associated with handling commodities, including personnel costs for receiving, put-away, picking/packing/issuing; material handling equipment operating costs and depreciation; and a percentage of overhead.
Landed cost	The end cost of an internationally shipped item; includes purchase price, freight, insurance, duties, taxes, and other costs up to receiving.
Level of effort (LOE)	The direct cost of personnel, including salaries and benefits—pension contribution, health insurance, leave time, etc.—calculated at an average hourly or daily rate for each type of position—driver, lift fork operator, data entry clerk, warehouse officer, manager, etc.; used to calculate personnel costs for specific processes.
Medical Stores Agency (MSA)	An autonomous or semi-autonomous organization designated by government (usually the MOH) to provide selected supply chain services—e.g., customs clearance, receiving, storing and issuing, transport, etc.—at the central or national level and, in many countries, at the peripheral levels of the supply chain.
Overhead costs	An accounting term that refers to all ongoing business expenses that do not include or are not related to direct labor, direct materials, or third-party expenses that are billed directly to customers. Includes rent or mortgage payments; office supplies and equipment; support services, such as finance and administration; utilities and other services; insurance, etc.
Procurement operational costs	Cost of staff LOE spent on procurement and pipeline monitoring processes, direct costs of tender (advertising, communication services), and a percentage of overhead for housing and for supporting the procurement team. Depending on country practice, other costs of the procurement process may include freight and insurance from manufacturer to port, customs fees (if paid), and transport costs from port to central or other warehouse. Does <i>not</i> include the value of commodities procured.
Public health commodity supply chain	The systems and mechanisms for procuring, receiving, storing, issuing, distributing medicines and medical and laboratory supplies (health commodities), as well as the forecasting and quality control for these commodities, to support public health objectives.

	One or numerous organizations or entities may be involved in completing these various roles, although our prevailing assumption is that the MOH or a MSA, or a combination of the two, is the primary organization mandated with these responsibilities by the government.
Stockkeeping unit (SKU)	A distinct item of inventory with unique attributes that distinguish it from all other items, and which must be stored and accounted for separately from other items. Attributes include manufacturer, product description, material, size, packaging, and batch number. For pharmaceuticals, this includes distinct formulations and presentations.
Stores operational costs	Cost of management, labor, utilities, services (information and communication technology (ICT), security), equipment costs (including depreciation) and building depreciation or rent, transport (between central and peripheral stores managed within the same MSA), as well as a percentage of overhead (administrative support including human resource (HR), finance, cleaners, etc.).
Transport operational costs	The cost of drivers' LOE and per diem, fuel, vehicle maintenance, vehicle depreciation, and a percentage of overhead.
Throughput	Total distributed volume, weight, or value. The average amount of quantities entering and exiting the supply chain (e.g., 86,000 cartons received per year + 82,000 cartons issued/delivered ÷ 2 = 84,000 cartons throughput).

Appendix 2

Sample Outline for the Service Fees Business Case

1. **Executive Summary:**

Should follow the same flow as the following sections.

2. **Problem Statement:**

How current fee structure, or lack thereof, hinders performance, sustainability, agility, etc.; this section should clearly indicate that action needs to be taken.

Example: The MSA) has been using a flat value-based service fee for distributing free commodities to the client: ARV drugs, HIV test kits, antimalarial medicines, TB medicines, contraceptives and condoms, vaccines, and related supplies. The fee has not been adjusted in 12 years and it does not reflect the true cost of distribution for these commodities, each of which has unique characteristics and/or supply chain service requirements that result in substantially different management costs. Because the commodity value does not reflect the cost of the supply chain services provided for each commodity, some programs are being overcharged, while others are being undercharged. Furthermore, MSA has not been able to recover the full costs associated with distributing some of these commodities, which has hindered MSA's performance. Therefore, MSA proposes revising the service fee schedule to better reflect the actual costs of managing these different program commodities, and to differentiate the service fees, based on the actual level of service—procurement, storage, and transport—provided to each program or partner.

3. **Analysis of the situation:**

Specific details of MSA's current financial structure, customer requirements, demands and expectations, and how other analogous organizations have addressed similar challenges—if examples are available.

Example: MSA's annual operating costs for 2013, including capital depreciation of warehouses, transport fleet, and material handling equipment, was \$3.1 million, with an annual 4.5 percent increase in costs from the previous year. MSA currently has a deficit of \$5.6 million in payment arrears from the MOH, accrued over six years. Under the terms of its mandate from the MOH, MSA is required to offer credit to facilities for essential medicines, even when facilities have not paid for prior consignments from their drug revolving funds or other sources; the MOH is the guarantor of this credit. However, the MOH has been unable to meet its financial obligations to MSA. In addition, the MOH has committed to covering the cost of distribution for donated program commodities, but the program units have not fully funded the supply chain costs under the existing value-based fee structure.

Demand for supply chain services from MSA has been growing by 11 percent per year (by volume) for the last ten years, driven largely by the success of many programs in reaching more clients and patients. Throughput, by value, has increased 320 percent, driven largely by an increased number of ARV drugs managed. However, MSA has not been able to keep pace with demand because of a negative cash flow of about 34 percent per year over the last five years. In 2013, MSA had an operating deficit of \$1.3 million. As a result, it cannot meet its performance targets or service-level agreements. MSA has a stockout rate of 43 percent for essential medicines and a delivery lead time of 5–6 weeks, instead of its benchmark of 2 weeks. The transport fleet, an average of eight years old, is increasingly expensive to maintain; three existing warehouses are over their capacity and require significant upgrading/expansion or replacement. MSA is renting additional warehouses for the central stores to accommodate the increased throughput, but they cannot fully staff these additional locations due to the negative cash flow. This, with the transport constraints, has resulted in an over-reliance on unskilled temporary labor and use of poor-quality (but low cost) outsourced transport resources.

4. **Solution options:**

Present different options and their relative impact on MSA's operations and sustainability.

Example: MSA has conducted an in-depth analysis of its operational costs, undertaken a network optimization study, estimated the cost of attaining its strategic objectives—including infrastructure upgrades—from its current five-year strategic plan, and reviewed a number of service fee options. These include—

- a. an updated value-based fee—percentage of landed cost—for all services combined
- b. a simple volume based fee for distribution—flat rate per carton—combined with a value-based fee for procurement services (percentage of landed cost)
- c. function-based fees calculated on the level of services required/provided.

Option a, the value-based fee, requires a significant increase over the current fee to capture the cost of last mile delivery for the commodities delivered to the facility level. Although simple to implement, this fee cannot be applied equitably to all program commodities or to the different service-level expectations of each program.

Option b, the simple volume-based fee for distribution, plus value-based procurement fee, can be implemented using the existing data from MSAs current financial, procurement, and warehouse management software. This approach is appropriate for similar commodities with similar service levels; it would require all programs to pay a similar fee for distribution, regardless of the service level required. However, programs are funded at different levels, with family planning as a key example of underfunding. Because these are relatively low-cost, easy-to-handle commodities compared to ARV drugs and vaccines, it is not equitable or feasible for the family planning program to cost-share any added expense from the other commodity groups. Furthermore, the TB program operates a separate supply chain from the district level and it objects to paying the same fee as programs that take advantage of MSA's integrated delivery service to facilities.

Option c is the most complex fee structure and will require additional data extraction from the management information systems, but these systems are currently being upgraded to an enterprise resource planning (ERP) system, which should provide the functionality required. Because MSA provides a range of different services to different programs, depending on commodity attributes and program supply chain requirements, MSA believes that option c is

viable and equitable. MSA will be able to provide differentiated levels of service based on the needs of each program and the unique requirements of each product group, with fees corresponding to the services provided.

5. **Proposed solution(s):**

Fee(s) are to be proposed for each type of service required—procurement, storage, transport, etc.—plus a percentage fee (on direct costs) for overhead.

Example: MSA proposes to introduce new service fees that more directly reflect the cost of services and the value of the services provided to each program or customer. The fees fall into three service categories: (1) procurement, (2) storage, and (3) transport. Each category will also include fee structures that capture variations in cost and service level. A summary of the cost analyses that were used to calculate each fee should be included in your business case.

- Procurement fees (for routine planned procurement):
 - Local tender service fee: \$_____ flat fee based on average cost of local tender for procurements over \$_____. For procurements less than \$_____, a flat rate of ____ percent of value will be charged.
 - International tender service: \$_____ flat fee based on average cost of international procurements.
- Storage fees (includes receiving, put-away, picking, packing, issuing):
 - Palletized storage, temperature controlled to 25°C: \$____ per pallet per month, pro-rated for partial (half) months
 - High security, controlled access storage: \$____ per carton per month
 - Cold storage, temperature 2°–8° C: \$____ per carton per month
- Transport fees:
 - Transport to district store: \$_____ per consignment up to _____ cartons, \$_____ per additional carton
 - Cold truck to district store: \$ _____per consignment up to _____ cartons, \$_____ per additional carton
 - Transport to facility: \$_____ per route based on _____ facilities per route, and _____ cartons per facility, \$_____ per additional carton
 - Cold box surcharge for transport to facility: \$_____ per cold box
- Overhead fee (indirect costs) is included in the fee calculations as ____ percent mark-up of direct costs.

6. **Cost-benefit analysis:**

Cost considerations for each of the different options presented, and the benefits derived, clearly support the proposed solution.

Example: Based on current operations, the estimated annual cost to each primary program of each fee option is presented in the table below. The arrow indicates cost increase ↑ or decrease ↓.

Program	Option A	Option B	Option C
Family planning	↑ \$XX,XXX	↑ \$XX,XXX	↓ \$XX,XXX
HIV/AIDS control	↑ \$XXX,XXX	↑ \$XX,XXX	↑ \$XXX,XXX
Immunization	↑ \$XX,XXX	\$XX,XXX	↑ \$XX,XXX
Malaria control	↑ \$XX,XXX	↑ \$XX,XXX	↓ \$XX,XXX
Tuberculosis control	↑ \$XX,XXX	↑ \$XX,XXX	↓ \$X,XXX

The cost-benefit of option C is estimated at a ratio of 3:1, in which the increased overall cost to select programs results in benefits that are three times the value of the cost, etc.

Note: The actual details will depend on a costing and financial analysis of each option.

7. **Recommendations:**

Clearly state the new fee structures and outline the actions required to implement them—governance approval and operationalization within the agency—and have them accepted by the supply chain customers (advocacy plan for each customer).

Example: The MSA’s Board of Governors has reviewed and endorsed the proposed fee structure and respectfully recommends approval and implementation for the next fiscal year. Formal approval is required from the MOH, the Ministry of Finance, and the Ministry of Local Government. Other endorsements or acknowledgements are required from the following stakeholders: the Health Insurance Fund, the Global Fund Country Coordinating Mechanism, the Development Partners Technical Working Group, the Global Drug Facility, and the GAVI Alliance.

For more information, please visit deliver.jsi.com.

USAID | DELIVER PROJECT

John Snow, Inc.

1616 Fort Myer Drive, 16th Floor

Arlington, VA 22209 USA

Phone: 703-528-7474

Fax: 703-528-7480

Email: askdeliver@jsi.com

Internet: deliver.jsi.com