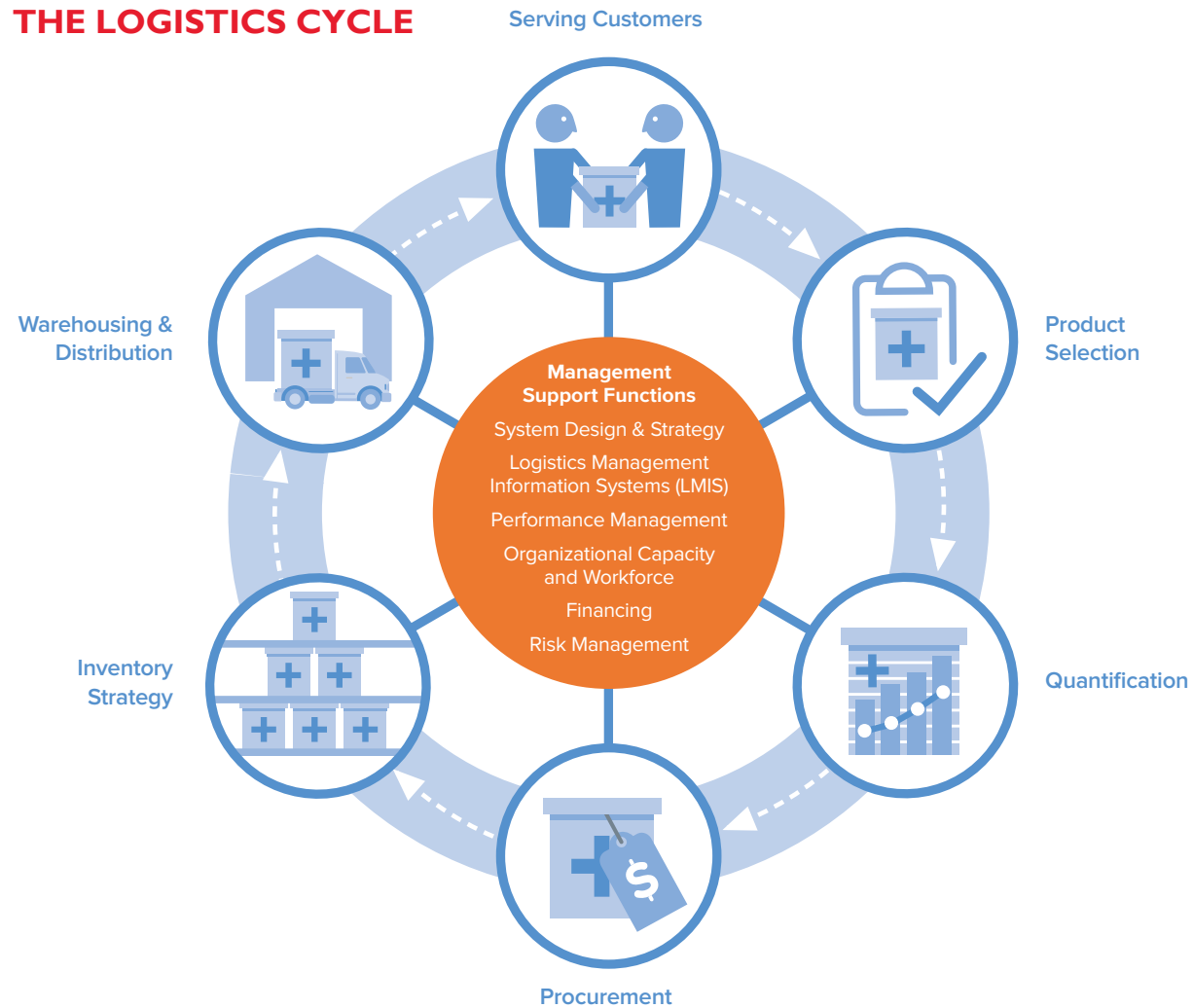




FIGURE 11-1.  
THE LOGISTICS CYCLE



## WHAT SUPPLY CHAIN MANAGERS NEED TO KNOW:

Health commodities and the supply chains that deliver them need to be adequately resourced, and those managing the system need to mobilize, manage, and deploy these resources efficiently and effectively.

The supply chain manager needs to know the following about financing, which are included in this chapter:

- Cost of the health care products that are required by the health care system
- Source of funding for these products and the extent to which commitments are sufficient to meet requirements in the short and long term
- Cost of the supply chain operations to deliver those products to the last mile
- Strategy and plan for efficiently meeting the costs to operate and strengthen the supply chain

Managing an effective public health supply chain is a costly endeavor made more complicated by the numerous stakeholders who might participate in funding parts of the system and the idiosyncrasies of these funding sources, including timing, legislative restrictions, reliability, among others. This requires the supply chain manager to carefully monitor and coordinate the costs and funding to ensure viability of the ongoing operations.

Costs can be thought of as (1) costs of the health commodities and products themselves, (2) operating costs to procure, store, distribute, and manage the products in the supply chain, (3) capital costs that may be required for either replacement of equipment and facilities that may have surpassed their useful life or necessary future improvements required by health programs or stakeholders, and (4) advisory costs to help supply chain managers analyze their supply chain's operation, their options and opportunities for improvement, and their strategies and plans for adapting to future needs.

Chapter 5: Quantification provides information on estimating commodity costs. Section 11.2 provides managers with an overview of how to track commodity funding, commitments, and spending to advocate and mobilize resources for commodities over the medium term. Section 11.3 provides steps to help cost the supply chain as a critical step in meeting the financial requirements of operating and strengthening a country's supply chain. Finally, Section 11.4 outlines how to determine the effectiveness and efficiency of the supply chain.

## 11.1 TRACKING COMMODITY FINANCIAL FLOWS

Adequate funding for essential health commodities is essential for ensuring that those in a country have access to the health services they need and deserve. But how can a country determine how much money is enough? How can policymakers advocate for resources if they do not know how much they have, or how much they need? How can they ensure that commitments made by partners are met in full, and that funds and commodities are available when they are needed?

While it has always been difficult to gather and track this information, doing so continues to take on greater importance. The development community is increasingly looking to countries to fund their own health systems. New funding sources and mechanisms introduce more complexities and require greater coordination and alignment. Donors have different funding cycles and

policies for committing and disbursing funds, and they are rarely synchronized with each other or with the country government budgeting process.

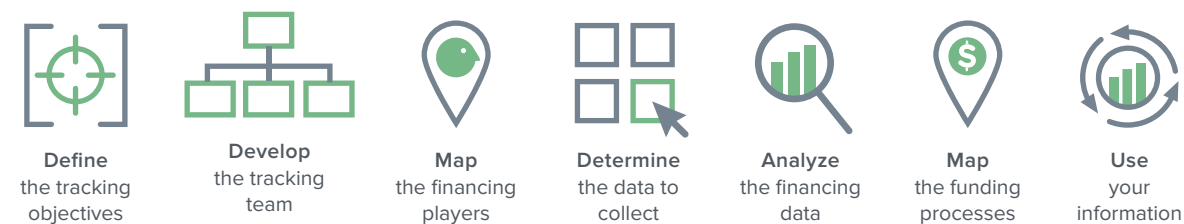
For example, some development partners provide cash or credit, while others give in-kind commodities. Procurement policies, lead times, and disbursement mechanisms vary significantly. As supply chain stewards, national supply chain managers need to manage and coordinate these variables to optimally meet their supply objectives.

Using a systematic approach to gather and analyze detailed financial and procurement information helps bring clarity and focus to the status of commodity financing for the country or sub-level. This process is conducted in close coordination with the quantification and the procurement processes described in Chapters 5 and 6.

### STEPS TO COUNTING AND TRACKING COMMODITY FINANCING

There are seven broad steps to counting and tracking commodity financing. Following these steps will allow you to map the funding processes and identify entry points for advocacy.

**FIGURE 11-2.**  
**STEPS FOR COUNTING AND TRACKING COMMODITY FUNDING**



#### STEP 1: DEFINE THE FINANCIAL TRACKING OBJECTIVES AND QUESTIONS

Before beginning, it is paramount to ask and understand why you are doing a tracking exercise. Illustrative uses include:

- Monitor funding
- Analyze funding by main sources and uses
- Compare funding over time
- Advocate for more funding, overcome funding bottlenecks
- Ensure funders meet commitments
- Gauge the success of commodity security efforts
- Facilitate procurement decision making
- Improve transparency
- Anticipate funding gaps
- Respond more effectively to spending surveys

#### STEP 2: DEVELOP A TRACKING TEAM AND STEERING COMMITTEE

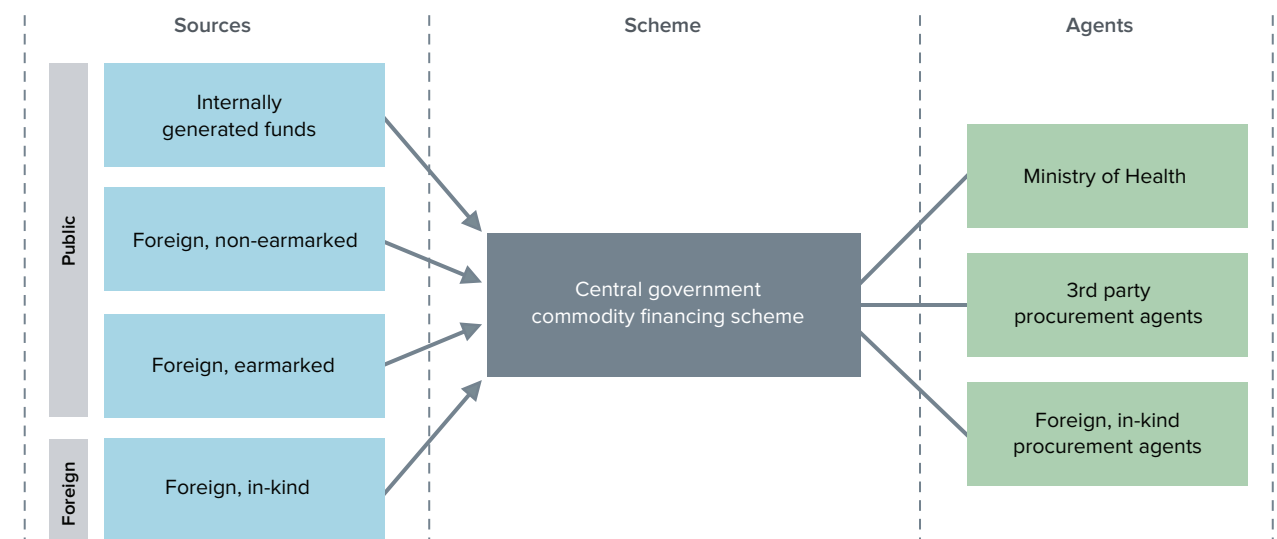
To effectively track the financing requires the insight and expertise of more than one person or institution. The **tracking team** should include people who are familiar with government accounting mechanisms, have in-depth knowledge about the national health system and health policies, specific knowledge about actors in the specific health program, experience with advocacy, etc.

A **steering committee** can provide overall technical guidance and support to the tracking team. For many countries, the commodity security committee will be a natural choice. From the beginning, the team needs to be clear about and **define which commodities to track**.

#### STEP 3: MAP THE COMMODITY FINANCING PLAYERS

Once the tracking team is formed and the list of commodities to track agreed upon, the team should identify the financing schemes, financial agents and financing sources for commodities that make up the health commodity financing system. Figure 11-3 provides a country example of contraceptive financing sources, schemes, and agents.

**FIGURE 11-3.**  
**COUNTRY EXAMPLE OF COMMODITY FINANCING**



#### STEP 4: DETERMINE DATA ANALYSIS

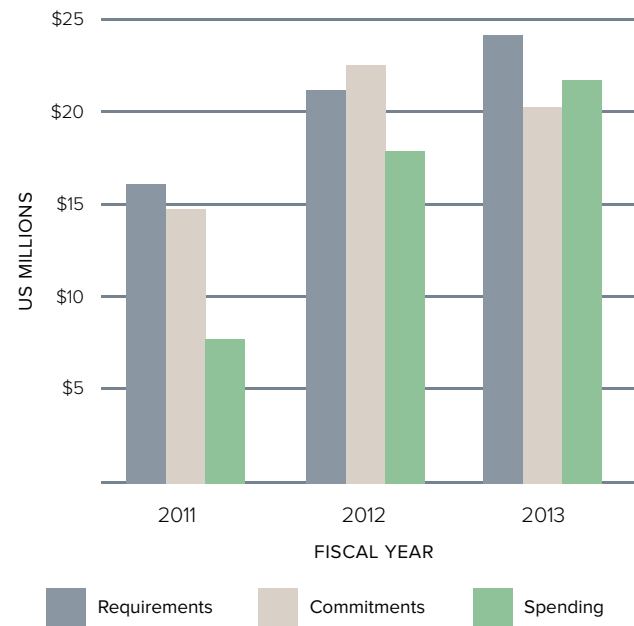
In general, the information needed will include funding needs, commitments, and spending for commodity procurement. While entities within the financing system operate on different fiscal years, the recommended approach is to select a single year of analysis and then convert all the information to that year. Because government funding is usually the focus, the logical choice is to **use the government's fiscal year as the unit of analysis**.

**STEP 5: ANALYZE DATA**

Once the required data is collected, you will be able to analyze the funding requirements, commitments, and spending in a variety of ways in support of your defined objectives. For example, the analysis can be done in terms of:

- Commitment as a percentage of need
- Comparison of requirements, commitments, and spending (see figure 11-4)
- Spending by commodity, source, and/or scheme
- Spending as a percentage of need, total commitments, and commitment by source
- Public share of spending on health commodities for the government scheme

**FIGURE 11-4. COMPARISON OF REQUIREMENTS, COMMITMENTS, AND SPENDING**



**STEP 6: MAP THE FUNDING PROCESS**

Understanding the financing processes and flows will help your team track and influence spending more effectively.

For each funding source, your team can map the funding processes, including the timing and decision makers for each step. Once you know the funding processes, you will be able to identify advocacy entry points for mobilizing and utilizing funds for procuring health commodities.

**STEP 7: USE THE TRACKING INFORMATION FOR DECISION MAKING AND ADVOCACY**

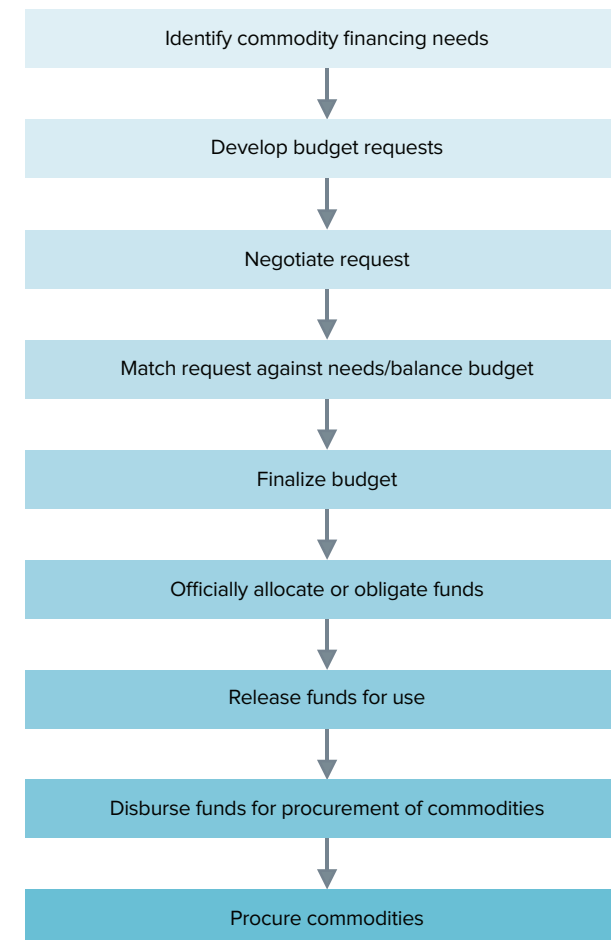
The financial tracking information provides the evidence to strengthen decision making and advocacy. Advocacy with in-country stakeholders is often an under-valued activity. Internal

stakeholders such as Ministry of Finance/Planning, parliamentarians, and civil society play a critical role in monitoring and mobilizing funding and ensuring accountability.

The following are some common situations where you might use the information gained from a tracking exercise:

- Advocate for resource mobilization
- Hold funding sources accountable
- Ensure funds are converted to commodities
- Identify and follow up on bottlenecks including delayed procurements
- Determine an optimal quantification timeline
- Ensure spending in a sector-wide approach environment
- Gauge success of contraceptive security efforts in increasing government contribution

**FIGURE 11-5. TYPICAL FINANCING PROCESS STEPS**



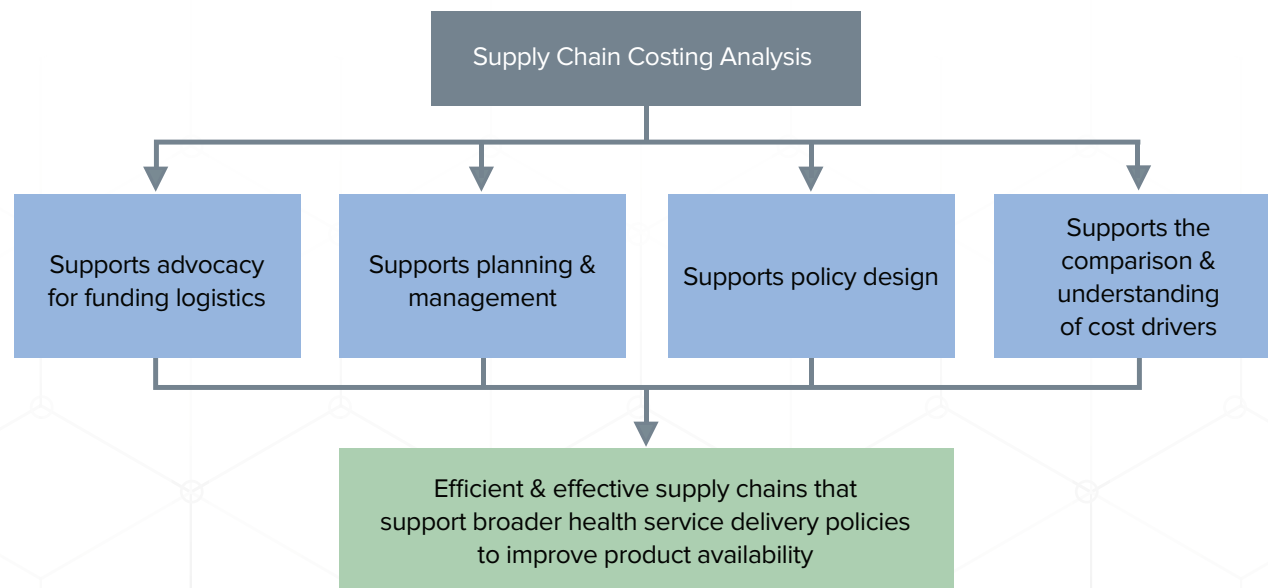
## 11.3. SUPPLY CHAIN COSTING

Essential health commodities are key to improving health outcomes in developing countries, and strong supply chains play a critical role in protecting commodity investments and ensuring these commodities are available where and when users need them. Yet the true costs to optimally operate the supply chain are often overlooked or unknown. Understanding these costs helps managers identify sources and mobilize resources and drive performance improvement decisions.

### WHY COST THE SUPPLY CHAIN?

Knowing the total cost of the system as well as its components provides useful information to assist governments and partners in meeting the financial requirements of operating and strengthening a country's supply chain. A supply chain costing exercise helps decision makers understand these costs (see Figure 11-6).

**FIGURE 11-6.**  
**SUPPORTING HEALTH SERVICES WITH EFFECTIVE SUPPLY CHAIN**



The results can be used to:

**Advocate and plan for funding.** Knowing the costs of the supply chain is essential to ensuring adequate financing, and to helping countries work towards increased sustainability of the supply chain system.

**Provide for better design, planning, and management of systems.** A costing exercise provides useful insight into cost drivers—those elements of the system that most influence costs—and thus support strategic supply chain management and planning decisions.

**Inform decision making on supply chain policies and financing.** Based on a clear view of cost, partners, governments, and central medical stores can allocate the appropriate funding for managing, storing, and distributing commodities. Supply chain costs also inform outsourcing decisions.

**Provide a clearer understanding of funding sources for the supply chain.** A costing exercise provides stakeholders with a clear understanding of the different functions being performed by various partners including the government, local jurisdictions, development partners, and the private sector.

Supply chain costing estimates the cost of delivering commodities in a supply chain through each tier of the supply chain according to four main functions: procurement, transportation, storage, and management.

**Procurement** includes in-country handling charges, clearance fees, and staff time spent on procuring commodities.

**Transportation** includes the cost of moving commodities from one facility to another, as well as the cost of using commercial transport or vehicle rental. Per diem of drivers is also accounted for.

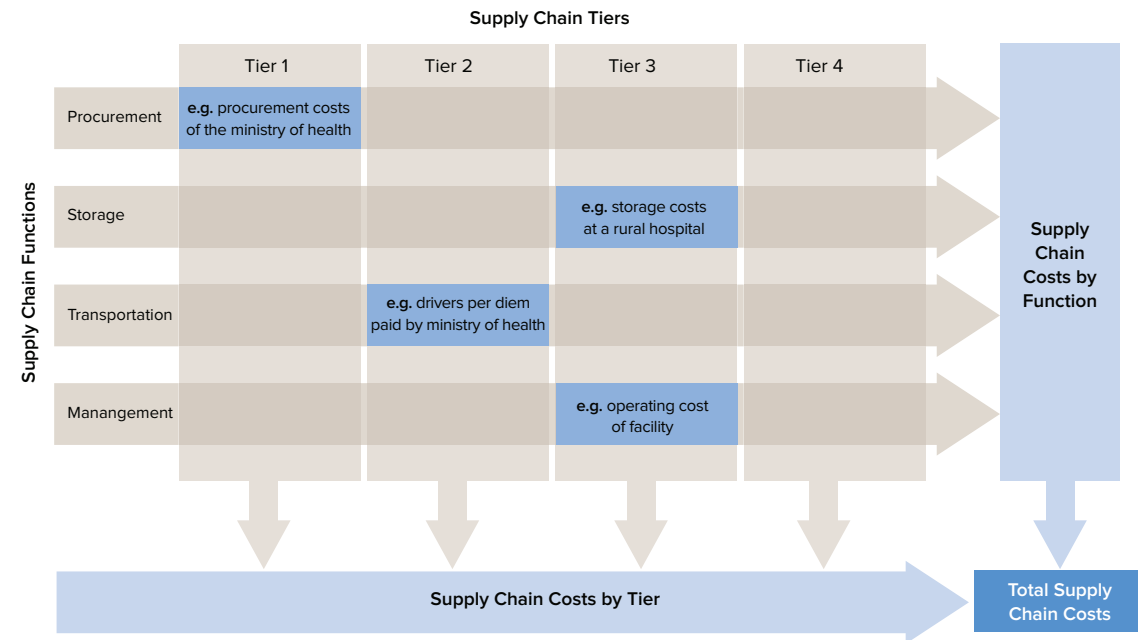
**Storage** includes staff time spent at medical stores or health facilities receiving commodities, conducting physical inventory, and completing logistics management forms (e.g., registers, stock cards, bin cards, and request and requisition forms), and the cost of the space and equipment where the commodities are stored.

**Management** includes the labor to supervise and conduct monitoring, work with the logistics management information systems, and conduct quantifications as well as operating and training costs.

A costing analysis produces results on key metrics including the following:

- Supply chain cost as a percentage of the total value of commodities
- Supply chain cost per dollar of value, volume, or weight of commodities
- Procurement, transportation, storage, or management costs as a percentage of total supply chain costs
- Labor costs for procurement, transportation, storage, and management

**FIGURE 11-7.**  
**SUPPLY CHAIN COSTING FRAMEWORK**



**SUPPLY CHAIN COSTING METHODOLOGY**

The process of costing the supply chain includes four main steps: planning, data collection, data analysis, and reporting of results.

Collecting financial data can be a challenge depending on how readily available the information is, and this must be taken into consideration when planning a costing study. A costing study requires a team with costing and supply chain experience to lead the activity, as well as a team of experienced data collectors for the in-country data collection.

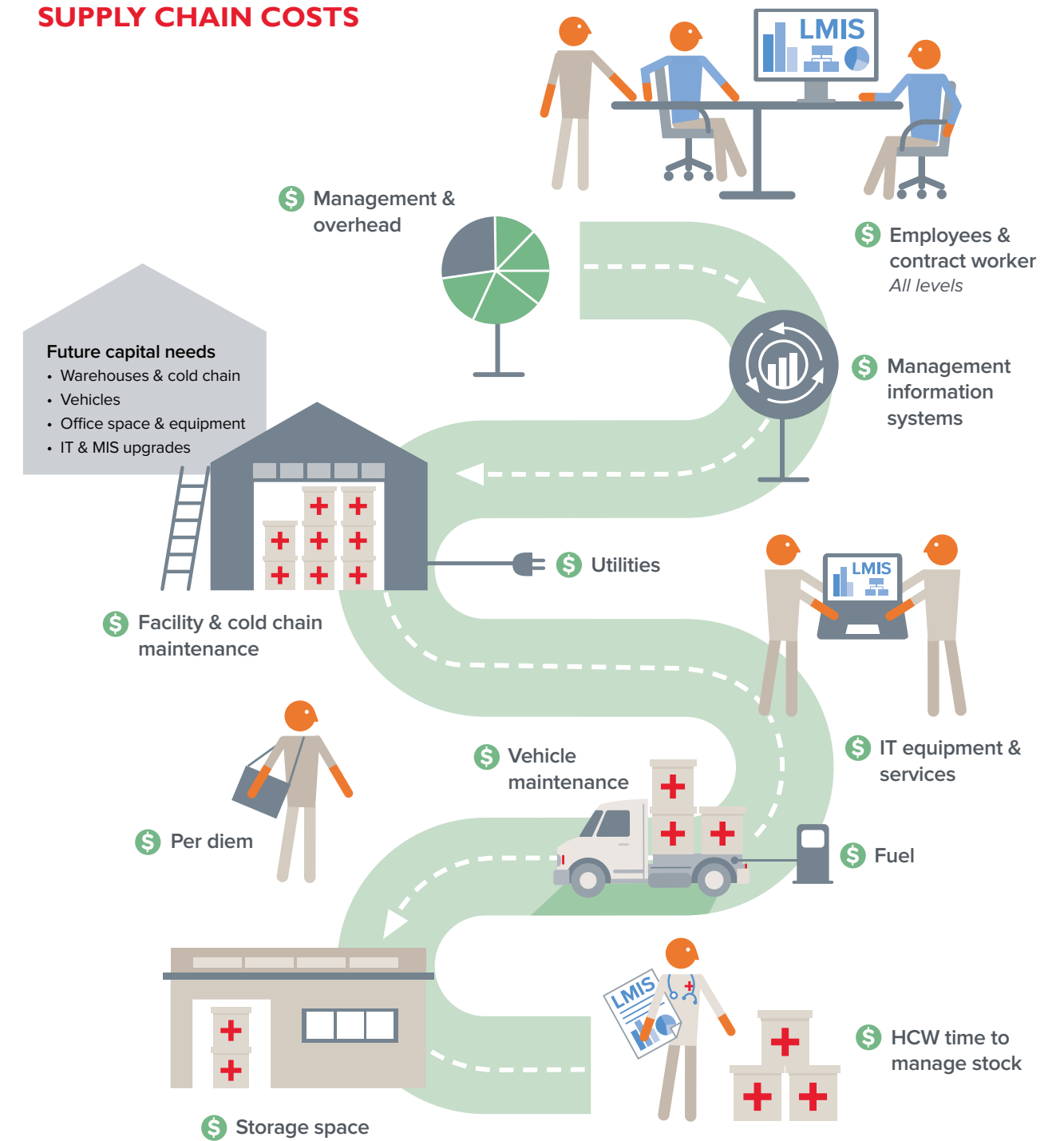
**COMMON FUNDING SOURCES OF PUBLIC HEALTH SUPPLY CHAINS**

SC costing analyses are essential for determining the operational and capital resources that the organization requires to operate the supply chain effectively in accordance with its mandates and customer expectations (see Figure 11-8). These analyses are also critical to help understand and inform the various sources of funding that are used to support these combined recurrent and capital costs. Common sources of funding include:

- Donor in-kind assets
- Government allocated assets
- Government revenues
- Service fees
- Mark up on sales

Once supply chain managers have completed these analyses, they are well equipped to determine a feasible scheme for matching requirements with assets and commitments and identify possible revenue sources and advocate for funding.

**FIGURE 11-8.**  
**SUPPLY CHAIN COSTS**





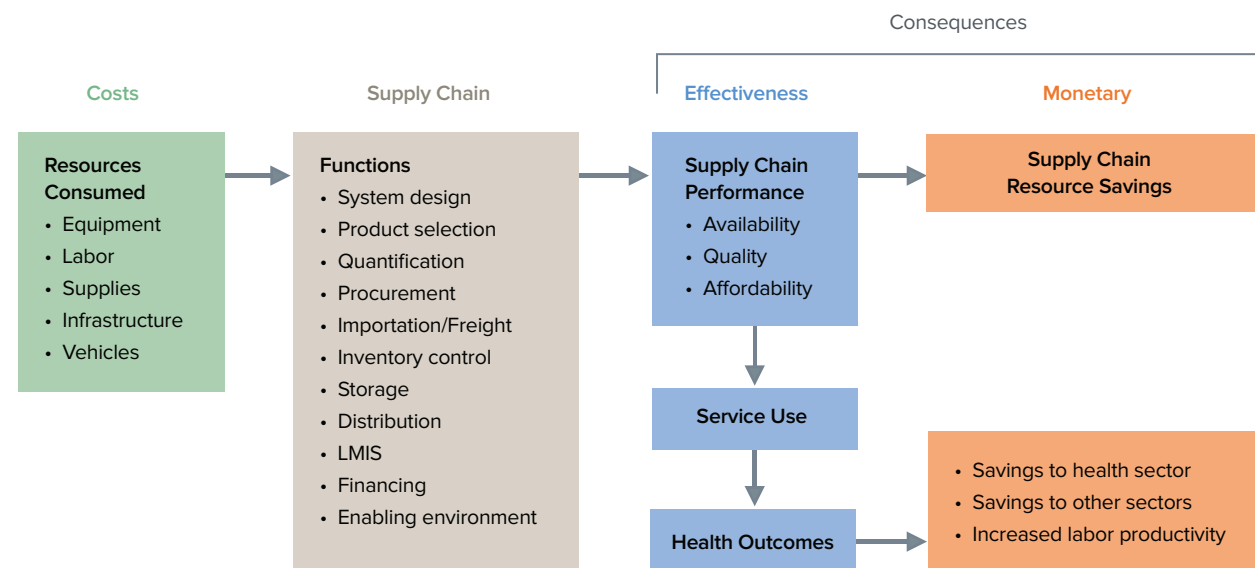
### THE USE OF SERVICE FEES TO SUSTAIN SUPPLY CHAIN OPERATIONS

Service fees are an important mechanism for sustaining supply chain operations, and they are the fundamental revenue stream for commercial supply chain service providers. 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. 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.

## 11.3. ECONOMIC EVALUATION

Once the supply chain cost data collection is complete, economic evaluation guides decision makers to make informed choices about the best way to strengthen and improve the performance of public health supply chains. Economic evaluation compares the costs and consequences of alternative courses of action as a way to guide decisions about the efficient use of scarce resources.

**FIGURE 11-9.**  
**COMPONENTS OF ECONOMIC EVALUATION OF SUPPLY CHAINS**



Economic evaluation includes two broad categories of analysis: cost-effectiveness analysis and cost-benefit analysis, sometimes referred to as return on investment (ROI) analysis. A **cost-effectiveness analysis** relates the costs of different approaches to a common measure of supply chain effectiveness, such as stock status, order fill rate, or a composite performance measure. The analysis might consider broader measures that relate supply chain performance to service use, such as, children vaccinated, clients treated or tested, or couple years of protection (CYP). Or, it might suggest a relationship between use of services and one or more health outcomes, such as births averted, deaths averted, or disability-adjusted life years (DALYs) averted. However, because of many other contributing factors, it can be difficult to demonstrate a strong causal relationship between supply chain performance and health outcomes.

The second major category of economic evaluation is a **cost-benefit analysis (CBA)**. Similar to a cost-effectiveness analysis, a CBA measures costs and consequences of alternative approaches, but in monetary terms. These benefits can include savings to the supply chain that result from better system performance, such as lower drug costs when inventory is reduced, fewer expired or spoiled products, or lower transportation and/or labor costs. The benefits might also include savings from better health outcomes, such as health costs averted when CYP increases.

A cost-benefit analysis helps answer questions including:

- What are the projected monetary savings from undertaking a specific intervention?
- Which supply chain investment provides the greatest benefit?
- How do the economic benefits of supply chain investments compare with investments in other health systems building blocks, or in other sectors outside health?



Photo courtesy of USAID | DELIVER Project

### USING COST EFFECTIVENESS TO INFORM SUPPLY CHAIN DECISIONS IN ZAMBIA

In Zambia, the cost effectiveness of the existing (standard) distribution system for essential drugs, which involved the central allocation of kits without consumption data, was compared to two models that rely on orders from service delivery points (SDPs). Given the limitations of its design, the existing model would not be able to deliver improved availability, even at higher costs, so an alternate model was needed.

Model A requires district aggregation of orders and the delivery of an aggregated consignment to the district.

Model B requires the central level packs SDP consignments, which are delivered to districts for onward distribution.

The costs included the incremental (additional) costs of labor, communication, commodity transport, administration, and training; the effectiveness was measured in terms of stock availability of 15 tracer items, use of malaria services and malaria deaths, and DALYs averted. As seen in Table 11-1, Model B was the most costly but produced 91 percent stock availability for an average of \$86 per percentage point of stock availability. The incremental costs were less than Model A, which was slightly less expensive than Model B on a monthly basis, but produced only 82 percent stock availability. The significant improvement in performance justified the decision to change to distribution Model B.

**TABLE 11-1.**  
**ZAMBIA: COST EFFECTIVENESS OF ALTERNATIVE ESSENTIAL MEDICINES SUPPLY CHAINS**

MODEL	DISTRICT MONTHLY SUPPLY CHAIN COST (\$)	AVERAGE STOCK AVAILABILITY (%)	AVERAGE COST EFFECTIVENESS RATE (\$)	INCREMENTAL COST EFFECTIVENESS RATE (\$)
Standard	3,878	79	49	N/A
A	7,357	82	90	14.50
B	7,849	91	86	4.18



#### FOR MORE INFORMATION AND ADDITIONAL RESOURCES ON SUPPLY CHAIN COSTING AND ECONOMIC EVALUATION

##### Supply Chain Costing

- Guide to Public Health Supply Chain Costing: A Basic Methodology, (USAID | DELIVER Project)
- Supply Chain Costing Tool User's Manual, (USAID | DELIVER Project)
- Measuring Supply Chain Costs—Collecting Essential Information for Public Health Decisionmaking, (USAID | DELIVER Project)
- Zambia ARV Supply Chain Costs: A Pilot of the Supply Chain Costing Tool, (USAID | DELIVER Project)
- Mozambique and Nigeria: Using Results from Supply Chain Costing, (USAID | DELIVER Project)
- Zimbabwe: Supply Chain Costing of Health Commodities, (USAID | DELIVER Project)

##### Service Fees

- Financing the Health Commodity Supply Chain: The Role of Service Fees, (USAID | DELIVER Project)

##### Economic Evaluation

- Economic Evaluation: Guide to Approaches for Public Health Supply Chains
- Using Economic Evaluation to Strengthen Public Health Supply Chains, (USAID | DELIVER Project)
- The Right Cost: Analyzing Public Health Supply Chain Costs for Sustainability, (USAID | DELIVER Project)

##### Additional Resources



Photo courtesy of USAID | DELIVER Project