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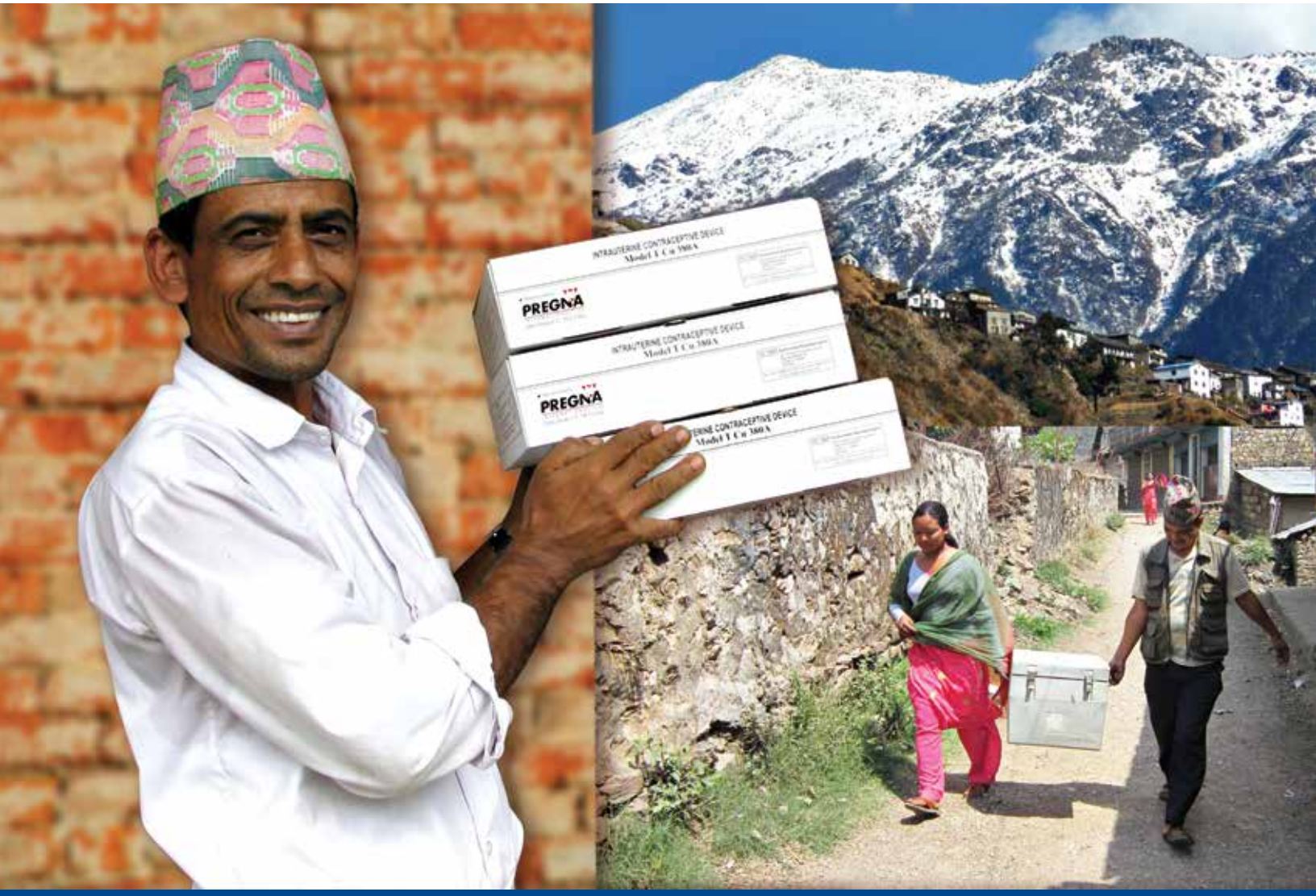

Health Logistics in Nepal

Two Decades of Investments in Public Health Supply Chain Management: How Access to Supplies Improved Health Outcomes in Nepal

MARCH 2014

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Two Decades of Investments in Public Health Supply Chain Management: How Access to Supplies Improved Health Outcomes in Nepal

USAID | DELIVER PROJECT,Task Order 4
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Abstract
This report describes key achievements of USAID-funded logistics projects, managed by John Snow, Inc. (JSI), in Nepal. From 1994–2013, USAID, in partnership with JSI and others, worked with the government of Nepal (GON) to improve access to medicines and medical supplies for the population of Nepal by strengthening the public health supply chain.

Cover photo: Warehouse staff member with commodities at Dhading district store.

All photos in this document are credited to the USAID | DELIVER PROJECT, unless otherwise stated.

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Acronyms

ACDP	Annual Commodity Distribution Program
AI	avian influenza
AIDS	acquired immune deficiency syndrome
ART	antiretroviral therapy
ARV	antiretroviral
CD-ROM	compact disk/read-only memory
CPR	contraceptive prevalence rate
CYP	couple-years of protection
CWH	central warehouse
DFID	Department for International Development
EPI	Expanded Programme on Immunization
FCHV	female community health volunteer
GON	government of Nepal
HIV	human immunodeficiency virus
IMS	Inventory Management System
JSI	John Snow, Inc.
KfW	*Kreditanstalt für Wiederaufbau*
LMD	Logistics Management Division
LMIS	logistics management information system
LSIP	Logistics System Improvement Plan
LTF	Logistics Taskforce
MCH	maternal and child health
MCHW	Maternal and Child Health Worker
MOAC	Ministry of Agriculture and Cooperatives
MOHP	Ministry of Health and Population
NCASC	National Center for AIDS and STD Control
NFHP	Nepal Family Health Program
NHTC	National Health Training Center
OI	opportunistic infection
PMTCT	prevention of mother-to-child transmission

PPMO	Public Procurement Monitoring Office
PPP	public-private partnership
RHTC	regional health training center
RMS	regional medical store
SDP	service delivery point
STI	sexually transmitted infection
TB	tuberculosis
TFR	total fertility rate
TOT	training-of-trainers
U.S.	United States
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VHW	village health worker
WB	World Bank

Acknowledgments

The USAID | DELIVER PROJECT would like to acknowledge the hard work and commitment of Ministry of Health and Population staff from the central, regional, district, and health facility levels to improving the country's supply chain management system. The project would also like to acknowledge the support and funding from USAID | Nepal, as well as the support of other donor partners, including the United Nations Population Fund (UNFPA), the World Bank, Department for International Development (DFID), AusAID, United Nations Children's Fund (UNICEF), *Kreditanstalt für Wiederaufbau* (KfW), *Deutsche Gesellschaft für Internationale Zusammenarbeit*, and the United Nations Development Programme. Through the team work and collaboration of all the partners, the country met and surpassed many milestones in health supply chain strengthening during the two decades. Also, gratitude is expressed to the Nepal field office staff, Shyam Lama, Anne Marie Hvid, and Gary Steele for their help in preparing this document.


DIMAGEL
ORAL CONTRACEPTIVE PILLS
VITABIC
PARACETAMOL TABLETS I.P.
UCETAMOL

Executive Summary

Over the past two decades, investments in public health supply chain management by USAID-funded logistics projects, managed by John Snow Inc. (JSI), and by the government of Nepal (GON) and other donors and partners, have contributed to many extraordinary accomplishments that have had a revolutionary impact on the health and lives of the citizens of Nepal. They include the following highlights—

- Contraceptives are now universally available at service delivery points (SDPs), and people can exercise the option of determining how many children they want and when they want them.
- Childhood vaccination has increased to a rate of 95 percent or more for most vaccines, and Nepalese children are very well protected from many fatal or debilitating childhood diseases.
- HIV and AIDS is under much better control with over 8,000 people on antiretroviral therapy (ART) and with condoms widely available.
- Forecasting and quantifying the needs for health commodities has been routinized, and a cadre of officials now has the skills and commitment to carry out the process.
- The GON finances major purchases of health commodities, including 100 percent of contraceptives.
- The quantities of essential drugs coming into the public sector in the country have vastly increased and are closer to meeting the actual needs of the population.
- The logistics management information system (LMIS) continues to be improved and upgraded, providing more thorough and reliable data for decisionmakers at the various levels of the supply chain. Stockouts are becoming rarer and rarer.
- Procurement of public health commodities has much improved, so that the country is getting more for its money, in terms of both quality and quantity.
- Storage capacity for health commodities has increased several fold, as has the expertise in practicing quality storage principles.
- Effective contracting with the private sector has succeeded in a variety of areas, such as assuring reliable transport of commodities to the districts and, in some cases, beyond.
- Avian influenza outbreaks have been contained, and the related dangers averted.
- Major capacity building efforts over the years have strengthened commodity security. Qualified institutions and trainers now provide education to a cadre of several thousand officials and staff who have the skills to operate and guide the evolution of the supply chain system.

These accomplishments are remarkable, and their impact on the lives and quality of life of the Nepalese people is commendable. They provide an excellent basis for addressing current challenges and the as-yet-unseen challenges beyond the horizon.

For nearly 20 years, USAID, in partnership with JSI and others, worked with the GON to improve access to medicines and medical supplies for Nepal's population of more than 26 million. Nepal's unique location—spanning low-lying areas and many of the world's tallest mountains—presented a

special set of challenges for the partners as they set their goal of bringing a steady supply of medicines to even the most remote villages. In some places, medical supplies must be carried on foot from the nearest district center for as long as 14 days. In other places, seasonal floods and severe weather conditions require special supply planning.

Support for better access to contraceptives has helped Nepal increase its contraceptive prevalence rate (CPR) and reduce its total fertility rate (TFR). Year-round availability of contraceptives has reached more than 95 percent of the population, up from 45 percent in 1995. These improvements have contributed to a dramatic increase in modern method use over 15 years, from 26 percent of married women of reproductive age in 1996 to 43 percent in 2011, almost doubling the CPR, according to Demographic and Health Survey data. Making family planning supplies available to those who need them has helped reduce Nepal's TFR from 4.6 in 1996 to 2.6 in 2011.

In addition to family planning, the Ministry of Health and Population (MOHP) has seen improvement in other health indicators, including vaccination rates. Without an effective supply chain, this would not have been possible.

But these successes are the result of incremental steps, which began when the system was sorely lacking in financial and human resources and was not able to serve the population as it can now. Starting in 1994, technical and financial support from USAID and JSI enabled the MOHP to complete two profound sets of changes: they created a more integrated supply chain, resulting in improved performance, and they increased the institutional capacity and commitment of the MOHP and local service providers to manage, monitor, and operate their supply chain, as well as plan for future supply chain needs.

Family planning commodities were the focus of the early projects; later, maternal and child health (MCH) commodities, vaccines, essential drugs, and HIV and AIDS were added to the logistics system, which developed under the Logistics Management Division (LMD) of the MOHP. Building a center of expertise and combining all commodities into one system enables the MOHP to share efficiencies from established capabilities.

In parallel with the creation of a more integrated and effective supply chain, USAID and JSI helped integrate new skills and capabilities into the MOHP and local organizations to ensure that the improvements would be sustainable beyond the end of USAID's support. As part of the first comprehensive plan to improve the health supply chain in Nepal in 1994, coordination and oversight of logistics operations were envisioned under a single logistics management unit, the LMD. The LMD became the driving force and focal point for health supply chain work and the improvements that followed.

From the beginning, sustainability of the system and its workforce was integrated into the interventions. Starting with trainings-of-trainers (TOT), JSI worked with the MOHP's national and five regional health training centers (RHTCs) to institutionalize logistics training; this was part of both in-service and pre-service training for health workers and public health students. Curricula for a variety of logistics topics and practices, including the LMIS, were the basis for many interventions.

As part of its technical assistance approach, JSI identified local firms to provide support to the MOHP and to strengthen their capabilities. These firms had expertise in training, transportation provision, software development, and technical assistance. Transportation for the distribution of commodities from the central warehouse (CWH) to the regional medical stores (RMSs) and districts is contracted out to a private company each year, enhancing private sector capacity and minimizing transportation costs. Further expansion of this model is planned from the districts to the health facilities in places where local transportation companies are available.

Committed to improving the health of its population, the GON has been a strong, steadfast leader in building a reliable health supply chain in Nepal. In partnership with USAID and JSI, the GON has supported the initiatives with collaboration from policymakers; support for logistics staff and training at all levels; as well as support for funding, including a significant increase in funding for procurement of family planning commodities. This funding increased from 0 percent in 2000/2001 to 100 percent in 2012/2013.

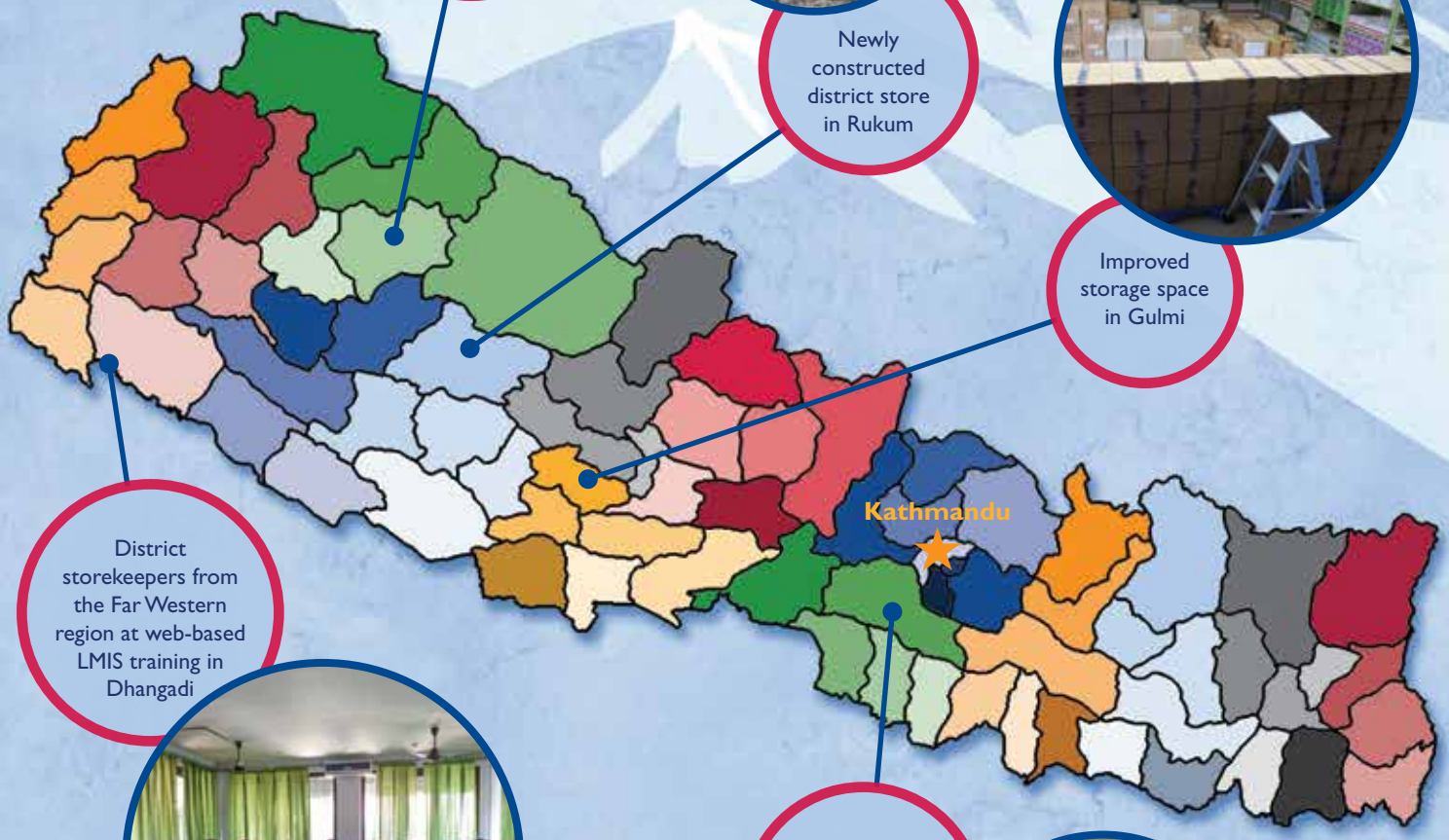
Figure 1.

Map of Nepal

Logistics training for village health workers and maternal and child health workers in Jumla

Newly constructed district store in Rukum

Improved storage space in Gulmi



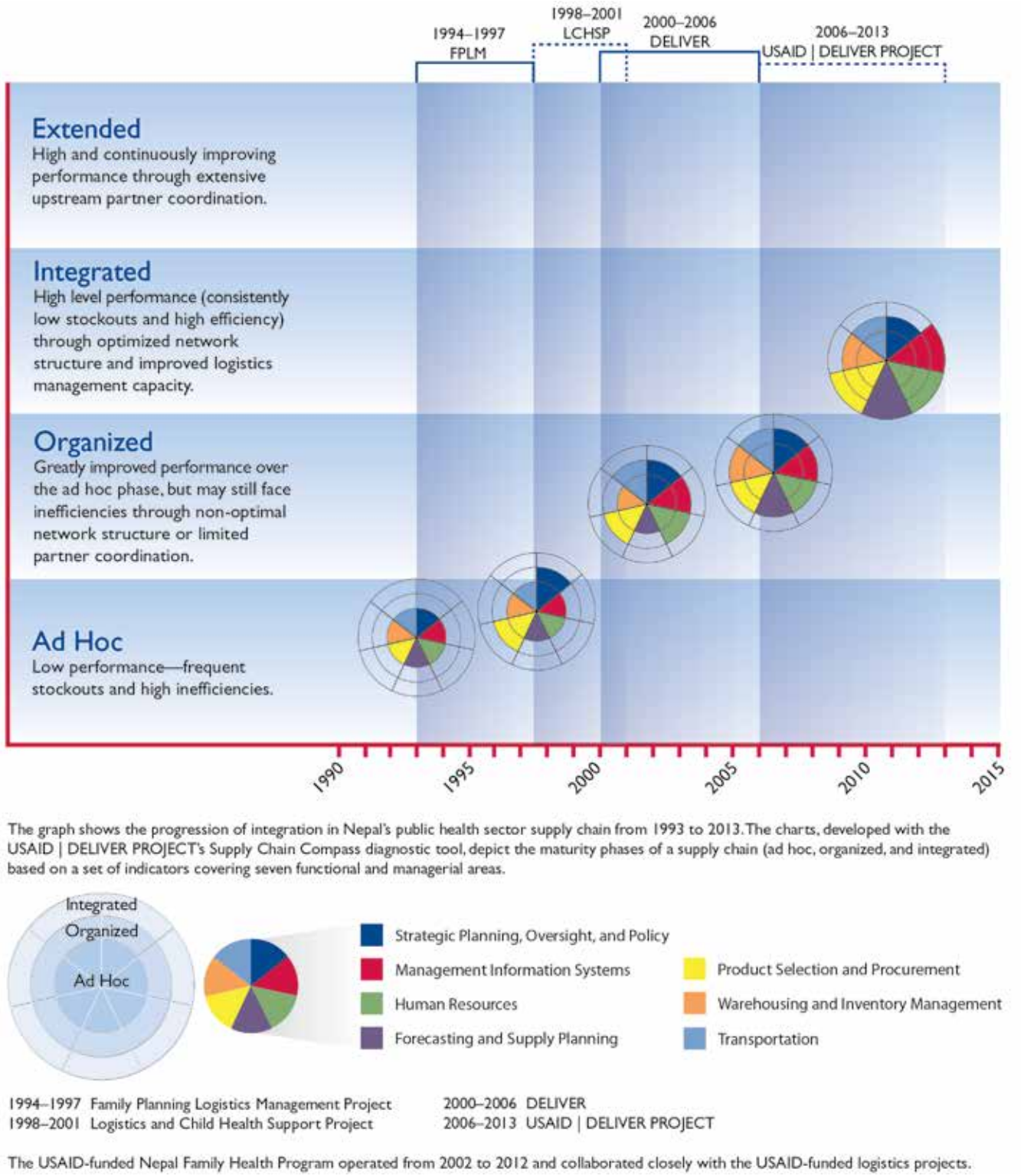
District storekeepers from the Far Western region at web-based LMIS training in Dhangadi

Training-of-trainers for basic logistics training in Hetauda

Creating an Integrated Supply Chain

During the past two decades, USAID-funded logistics projects, managed by JSI, helped the GON improve the provision of health commodities to Nepal's population. By the time the USAID | DELIVER PROJECT ended in 2013, Nepal's supply system had moved from ad hoc-managed to an integrated system, on the trajectory of supply chain evolution (see figure 4). To maintain this level of supply chain maturity, continued commitment and investments from the GON will be necessary.

Figure 2. Supply Chain Evolution in Nepal's Public Health Sector



The graph shows the progression of integration in Nepal's public health sector supply chain from 1993 to 2013. The charts, developed with the USAID | DELIVER PROJECT's Supply Chain Compass diagnostic tool, depict the maturity phases of a supply chain (ad hoc, organized, and integrated) based on a set of indicators covering seven functional and managerial areas.

1994–1997 Family Planning Logistics Management Project
1998–2001 Logistics and Child Health Support Project
2000–2006 DELIVER
2006–2013 USAID | DELIVER PROJECT

The USAID-funded Nepal Family Health Program operated from 2002 to 2012 and collaborated closely with the USAID-funded logistics projects.

Figure 3.

Two Decades in Nepal:

Building Better Health Programs by Strengthening the Supply Chain

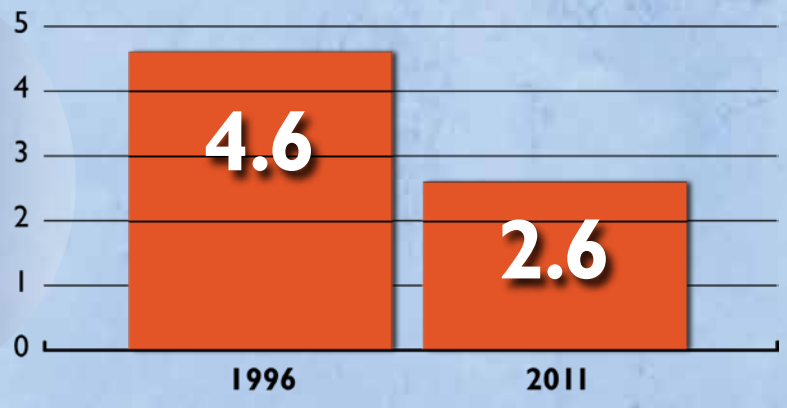
Prior to 1994, it was estimated that as much as 40 percent of clinics and hospitals across the country frequently ran out of important drugs and supplies

Developed a web-based LMIS and established a national pipeline monitoring system to strengthen data for decisionmaking

Shifted to a demand-based supply system to increase efficiency

Formed a Contraceptive Security Working Group and introduced consensus forecasting to improve stakeholder collaboration

Total Fertility Rate reduced



From 1994 to 2013, USAID-funded projects, managed by John Snow, Inc., have helped turn an ad hoc-managed supply chain into an integrated system, managing commodities for multiple health programs.

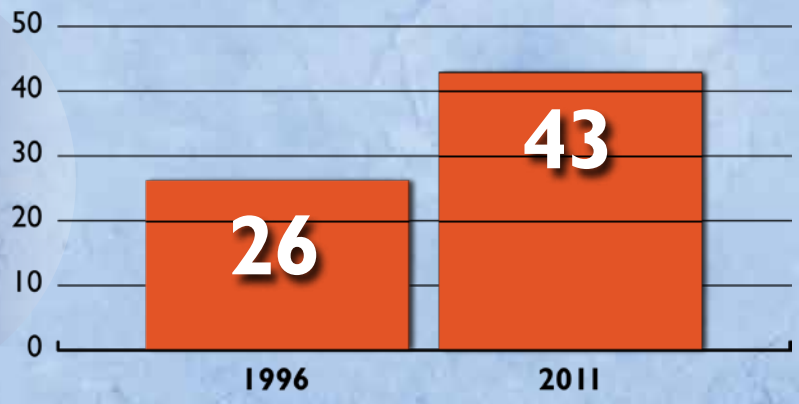
The supply chain carries approximately **200 products** from **9 health programs** to **4,000 facilities**. Programs: family planning, Expanded Programme on Immunization, malaria/kala-azar, tuberculosis, control of diarrheal disease, acute respiratory infection, nutrition, leprosy, and essential drugs.

Developed pre- and in-service training programs to build sustainable human resource capacity

Helped build 72 new warehouses to expand and strengthen supply chain infrastructure

Stockouts reduced to less than 2% for family planning products

Contraceptive Prevalence Rate increased*



Data Source: LMIS/LMD and Demographic Health Survey (DHS)/Nepal

* Modern methods among married women of reproductive age

Figure 4.

The Health Logistics Journey in Nepal

Logistics System Improvement Plan implemented

Logistics Management Division (LMD) established

LMIS scaled up to all districts and health facilities

1994-1997
Family Planning Logistics Management (FPLM) Project

1997

1995

1994

1998-2001
Logistics and Child Health Support Project

Government of Nepal begins to **fund procurement of family planning commodities**

1999

2002

Consensus forecasting of family planning commodities initiated

2000-2006
DELIVER

2000

The Nepal Family Health Program operated from 2002–2012 and collaborated with the USAID-funded logistics projects.

Auction/disposal guidelines and national transportation profile revised and disseminated

Subcontracting distribution and transportation to private sector in five pilot districts

Web-based LMIS and **inventory management system** implemented in all district stores

Integration of HIV and AIDS logistics into LMD

District medical store construction initiated

Pull system (demand-based inventory system) implemented in all districts

Pull System (demand-based inventory system) implementation started in districts

Logistics orientation for female community health volunteers initiated

2003

2004

2006-2013
USAID | DELIVER PROJECT

2009

2011

2010

2012

Routine basic logistics training for storekeepers initiated

2006

Logistics training for maternal & child health workers/village health workers and **district-level procurement training initiated**

2013

Improving Supply Chain System Design

By improving the country's health supply chain system design, stockout rates for key health commodities declined dramatically between 1994 and 2013.

In 1994, as much as 40 percent of clinics and hospitals across the country would frequently stock out of important drugs and supplies to treat common illnesses. With assistance from USAID and other external donors, the MOHP set out to build an effective health supply chain for the public sector. As a first step, with technical support from the JSI-managed logistics project, they developed the Logistics System Improvement Plan (LSIP). Under the LSIP, storage infrastructure was improved; distribution was rationalized; an LMIS was put in place; and logistics standards and procedures were established at the central, district, and subdistrict levels. The LSIP interventions were also designed to support the newly created LMD within the Department of Health Services, MOPH. The LMD would oversee and carry out routine logistics activities, as well as planned improvements.

Prior to 2003, the MOHP relied less on LMIS data and more on historical consumption patterns and equitable rationing when calculating quantities of stock needed, which resulted in a range of supply problems. Efforts to improve supply chain performance had decreased stockouts significantly, but it became clear that fundamental restructuring was needed to make additional improvements. The MOHP, with support from USAID-funded logistics projects, managed by JSI, began moving to a new supply chain model, known as a *pull system*. The pull system enabled staff at the lower levels to order the supplies they needed, using calculations that were based on LMIS data. The pull system also helped address concerns about drugs that were not in high demand and were frequently expiring and being wasted. A pull system is also better suited to responding to seasonal fluctuations in demand or to epidemics.

In 2004 and 2005, the pull system was introduced in six districts; in 2005 and 2006, it was extended to eight more districts. In 2007 and 2008, taking ownership of the program, the MOHP started to fund expansion of the pull system to the remaining districts. By 2010, it was scaled up to all 75 districts in the country.

The GON, with cost sharing and technical assistance from *Kreditanstalt für Wiederaufbau* (KfW) and the USAID-funded logistics projects (see figure 5), made the shift to the new system through system redesign, revised policies and procedures, and comprehensive training for logistics personnel and

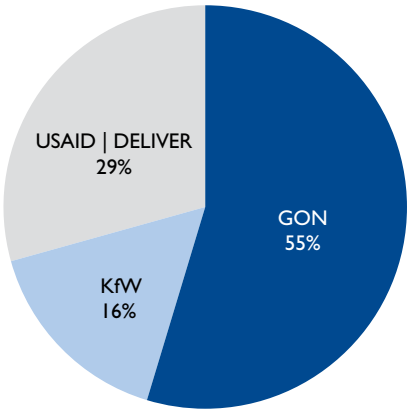
Results

- Reduced stockouts and wastage.
- Increased availability of health commodities at health facilities.
- Increased utilization of health services.
- Improved LMIS reporting.
- All health commodities—contraceptives, essential drugs, and vaccines—managed under a single system, making distribution more efficient.
- Empowered field-level health personnel by decentralizing decisionmaking.

Health personnel are trained in preparation for implementation of the pull system, which decreased stockouts at health facilities.

health providers in all of Nepal's 75 districts. The supervision and monitoring structure was also strengthened to enable a successful transition to the new system.

Figure 5. Cost Sharing to Implement the New Supply Chain Model

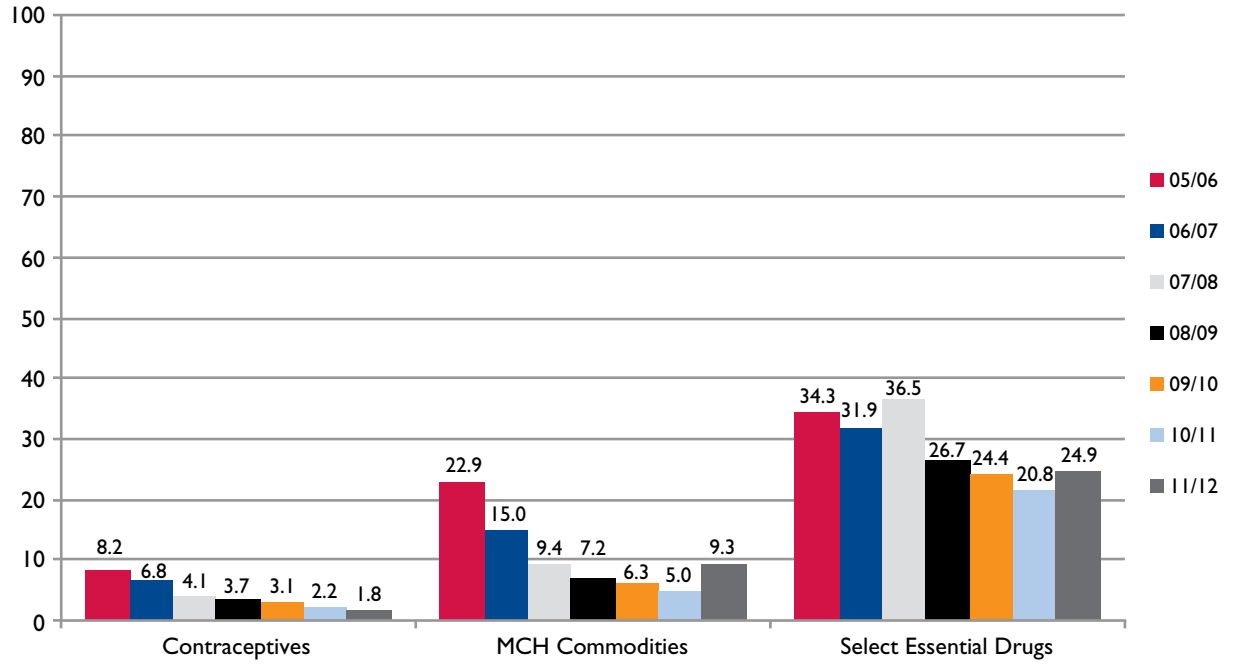


With the new pull system, expiry and wastage of drugs declined, and reliable availability of health commodities increased. The system also appears to have contributed to improved LMIS reporting. Reporting from health facilities is up from 88 percent in 2003 to 96 percent in 2012, which strengthens data visibility and improves the supply chain.

Both policymakers and the people who operate the supply chain support the new model. For policymakers, the system supports the broader goal of decentralization. For districts, the system enhances district control over health resources; and for healthcare providers, the system provides clients with a more reliable supply of commodities.

By 2012, stockouts of family planning commodities had dropped to below 2 percent and the stockout rates of other health commodities had decreased significantly as well. The increased availability of supplies improved the quality of health service delivery and gained Nepal recognition as having successfully established an effective health supply chain (see figure 6).

Figure 6. National Stockout Rates at Health Facilities 2005–2012



Source: MOHP LMIS Unit/Logistics Management Division.

Recovering Warehouse Space

Reorganizing and dejunking warehouses across the nation created additional storage space at a low cost. As unused items were auctioned off, government revenue increased.

In 1994, with technical and financial support from USAID, the MOHP began a massive warehouse reorganization and dejunking effort across the nation under the LSIP (1994–1997). *Dejunking* is the process of identifying, inventorying, and removing expired and damaged products; taking out inappropriate items, such as outdated forms and old hospital furniture; doing a physical inventory; and reorganizing for greater efficiency.

Warehouses and stores at all levels of the supply chain, including more than 2,000 health facilities, were cleaned and dejunked; racks were added, if needed. Programs for maintaining storage standards had not yet been established, so the support included establishing new processes and training storekeepers on how to maintain the stores.

Broken down vehicles, obsolete equipment, expired medicines, and damaged supplies taking up space in warehouses and around building complexes were disposed of or sold at auction. The cleanup and dejunking continued until 2003; after that, support was provided only upon request.

The initiative generated revenue for the government and freed up significant amounts of storage space, which could be used to store health commodities

Results

- Gained 152,938 square feet of additional storage space by dejunking.
- Improved storage standards at all levels of the supply chain.
- Auctioned unusable goods and generated more than U.S.$235,000 in revenue for the GON.
- Developed standard guidelines for auctioning and disposal that made it easier for all government agencies to regularly dejunk.

An old vehicle is lifted from the LMD complex for auctioning.

Making Auctioning Easier

Government institutions in Nepal are required to auction and dispose of unusable commodities every year, but because of cumbersome processes and the complexity of coordinating with other government departments, these tasks are often delayed.

Guidelines for auctioning, disposal, and write-off.

In 2010, the LMD took a lead role in revising the guidelines for auctioning, disposal, and write-off, making them easier to use. Working with multiple government departments, the LMD made the guidelines generic and obtained approval for them from the Ministry of Finance. With these new guidelines, any public sector office can regularly carry out auction, disposals, and write-offs with minimal external support.

or even add hospital beds. At Bir National Referral hospital, which had 300 beds, the dejunking effort made room for an additional 48 beds, significantly increasing the hospital's capacity.

By 2011, the dejunking efforts had generated more than U.S.$235,000 in revenue for the GON and freed up 152,938 square feet of storage space. Dejunking and auctioning can be low-cost solutions. With little support, significant amounts of space can be made available for storage and may create revenue for the government.

Building New Warehouses

A fourfold increase in storage space from 1999 to 2011 enabled Nepal's public health supply chain to keep up with increased demand for health products.

The quantity of drugs managed through Nepal's public health supply chain has risen dramatically over the years. In 2007, the MOHP adopted a free drug policy, greatly increasing access to lifesaving medicines and supplies. The larger volume of products put extra pressure on already crowded warehouses.

In 1999, the MOHP's LMD, in collaboration with JSI and USAID, assessed the storage conditions and space requirements at the district level. The results showed that 58 of 75 districts had immediate storage needs, none of the districts had ideal cold storage facilities, and all 75 districts would require new warehouses. Space was inadequate and security was poor. In 49 districts, commodities were scattered in two or more storage places, with none of them specifically designed for storage.

With assistance from USAID and JSI, the Architectural Project of Nepal created a warehouse design that would not require significant maintenance or repair for 10 years. The design, which would be applied in all districts, included a separate cold room for vaccines. To discourage health personnel from using the storage space as offices, there were no windows or toilets in the warehouses.

The warehouse design had three size variations to accommodate varying storage needs, which had been relatively stable with health facilities receiving a limited quantity of essential drugs each year. However, in 2007, with the free drug policy, procurement of essential drugs increased almost tenfold. Drugs were distributed from districts to health facilities based on demand, and this affected the need for storage. Some of the newly constructed warehouses soon became too small to accommodate the increasing volume of products. When the impact of the new policy was known, the warehouse size design was adjusted to fit the new requirements.

The GON was unable to fund all the warehouse construction it needed, so KfW and DFID stepped in with funding for 43 and five district warehouses, respectively. The GON funded six warehouses. In addition, KfW funded a cold chain facility large enough to serve as the central repository for the entire country at Pathalaiya Transit Warehouse.

With this funding and some other help, the GON built district warehouses in 54 of the country's 75 districts between 2001 and 2011. The USAID-funded logistics projects and the Nepal Family Health Program (NFHP) managed construction, equipped and organized the new stores, oversaw the

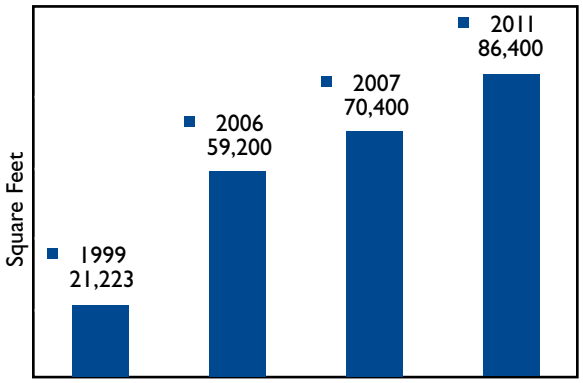
Results

- Increased storage capacity fourfold from 1999 to 2011.
- Decreased wastage and expiry of drugs.
- Completed 54 district warehouses.
- Planned or constructing 18 additional district warehouses.
- Built cold chain warehouse in Pathalaiya Transit Warehouse complex.
- Increased packaging and distribution capabilities in districts.

The district store in Gulariya, Bardiya district. Photo: DELIVER.

transition from the old to the new spaces, and trained staff on best practices for organization and storage.

Figure 7. Storage Space in Districts



Source: MOHP Logistics Management Division.

With the construction of the 54 district stores and the national cold chain facility at Pathalaiya, the total storage space for drugs and associated health commodities increased from 21,223 square feet in 1999 to 86,400 square feet in 2011, a more than fourfold increase (see figure 7). This was enough to accommodate all product groups, including the greatly expanded flow of essential drugs, at least for the short term.

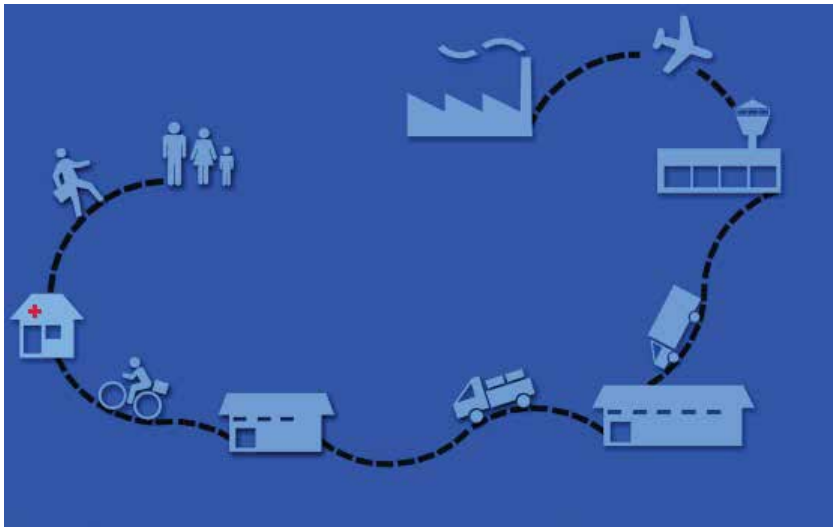
In addition to providing better storage conditions for health commodities, the new stores accommodate packaging and distribution activities more effectively. Wastage and expiry of drugs has decreased. Storage and logistics standards in the 54 districts have improved. Drugs and other commodities are now more reliably available to providers and clients. The new district stores and the cold chain facility serve more than 78 percent of the population in Nepal.

Distributing Health Commodities

By strengthening the distribution system, the availability of health commodities has increased, positively impacting health outcomes.

Distribution is the backbone of an effective logistics management system; it helps ensure the uninterrupted delivery of quality health supplies to SDPs. In 1994, the LMD was established under the Department of Health Services to oversee commodity distribution in the supply system, including two central stores, five regional stores, and 75 district stores.

Figure 8. National Supply Chain of Health Commodities



Source: MOHP Logistics Management Division.

Nepal's rugged terrain makes logistics management challenging. Despite many barriers, the LMD has established a well-functioning distribution system and is gradually adopting modern systems and technologies. Early on, the LMD and the Department of Health Services initiated a public-private partnership (PPP) model for distribution and transportation of health commodities between the central store, the RMSs, and the districts. Each year, private (commercial) transport companies are selected through open bidding. This not only enhances the private sector capacity, but also minimizes the transportation cost of the government. The LMD plans to

Results

- Increased availability of health commodities at SDPs.
- Minimized wastage and expiry with distribution based on consumption data.
- Lowered the cost of transportation and built capacity through partnership with the private sector.
- Optimized distribution and transportation with distribution profiles.

Family planning commodities are loaded into a truck from a private transport company.

implement the PPP model from districts to SDPs in selected districts, where local transportation companies are available.

As an exception to the PPP model, vaccines that require refrigeration are usually transported in government vehicles. The LMD started using a refrigerator van for vaccine transportation to ensure their quality. In the first phase, the van transports the vaccines from the central store to the five RMSs. In the future, the LMD plans to provide refrigerator vans for all five RMSs to transport the vaccines from regions to districts.

With support from the USAID | DELIVER PROJECT, the LMD created a logistics distribution network profile for each district. The profiles capture information about the districts' supply plans and transportation network, allowing for better planning of commodity distribution. Road access in Nepal has improved significantly in the past decade. In 2006, only 33 percent of all peripheral-level health facilities were linked by road; by 2012, this had almost doubled to 65 percent.

The Annual Commodity Distribution Program (ACDP) contributed significantly toward achieving the MOHP's Health Indicators and Millennium Development Goals, including CPR, couple-years of protection (CYP), and TFR. Because of the success of the ACDP in ensuring the availability of family planning commodities, the program is now a key priority of the MOHP, which is funding the program.

Because the ACDP is an annual distribution, it requires a significant amount of storage space at the district level; stores are required to hold 12–15 months of supply. As the program grows, the volume of commodities will also increase, which will require more warehouse space at various tiers of the supply chain. As of 2013, there are plans to phase in semi-annual and then quarterly distribution in place of the current annual distribution. This will reduce the need for larger warehouse space. The construction of a new CWH by the GON is currently in process. Once operational, the MOHP expects to move toward staggered delivery to districts.

Strengthening the LMIS

By improving the LMIS, policymakers and managers at all levels now have a reliable source of information for making supply chain decisions.

Access to timely, relevant logistics data enables coordinating bodies along the supply chain to make the right decisions to support product availability. An LMIS was first implemented in 1994 as part of the LSIP. It was pilot tested in four districts and, by 1997, it was used nationwide. In 2001, the NFHP and the DELIVER project began providing technical assistance to the LMD's LMIS unit.

In 2008, with the expansion of Internet access in Nepal, the MOHP saw the possibility of transforming decisionmaking within their supply chain by creating a computerized logistics system that could be shared through a web-based interface. With technical and financial support from the USAID-funded NFHP II and USAID | DELIVER PROJECT, the MOHP introduced the web-based LMIS, as well as an inventory management system. UNFPA and DFID also supported the initiative by funding training and procuring computers and accessories for one region. Today, the system extends from the top of the supply chain to the country's 75 district warehouses.

In 2001, the LMIS unit created a logistics databank by archiving all the previous years' LMIS data. The data are compiled to show trends, over time, that can provide powerful insights for decisionmakers at the national level. The information is used by different program divisions for long-term forecasting and quantification of health commodities on a semi-annual and annual basis. It is also used extensively to monitor the stock situation for seven key commodities at the district and health facility levels. Joint technical support visits by the USAID | DELIVER PROJECT and the LMD to health facilities also helped improve the LMIS.

The increased data sharing has established a better logistics network among the central-level storage facilities, five RMSs, and 75 districts, contributing to a decline in stockouts at health facilities in recent years. Each year, the LMD conducts a regional-level logistics review meeting to discuss LMIS reporting, stockouts, and other logistics-related activities, as well as the impact these activities have on increasing reporting and reducing stockouts.

As part of the implementation, districts were supplied with networking accessories to set up reliable high-speed Internet connections; district storekeepers received computer training. Linking the inventory management system (IMS) to the LMIS has helped the LMD monitor the stock levels in all 75 districts; the LMD can now supervise and guide districts on key issues of inventory management.

Results

- National LMIS produced reliable logistics data for decisionmaking at all levels of the supply chain.
- Policymakers accepted LMIS data as credible and used it to make nationwide policy and operational decisions.
- LMIS reporting reduced waste and expiry of commodities.
- Improvements in LMIS made it possible to successfully introduce the redesigned supply system.

A storekeeper trained by the project updates information in the web-based LMIS at his office in Dhunche.

All of these efforts helped to greatly improve the reporting rate within the national LMIS. The percentage of LMIS forms submitted from health facilities on a timely basis increased from 36 percent in 1996 to 96 percent in 2012 (see figure 9).

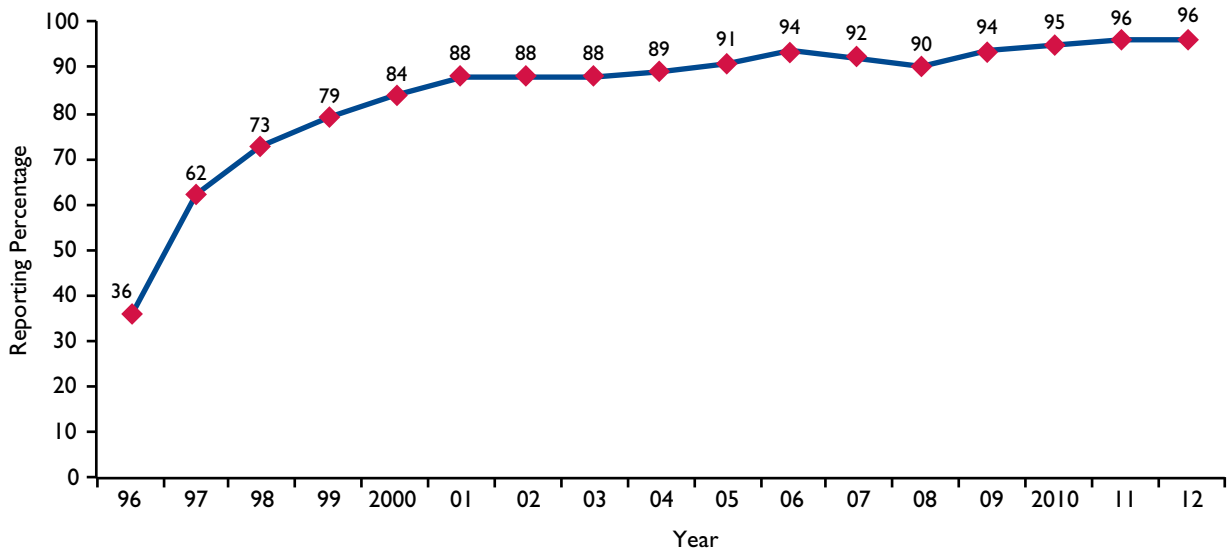
The LMIS has been institutionalized within the MOHP since 2010, and the GON now funds the yearly training on the web-based LMIS and the inventory system for existing staff and newly recruited storekeepers. Today, the LMIS is an integrated system, tracking 206 types of tests, drugs, and other items at the district level, for nine different programs:

- Family Planning Program
- Expanded Programme on Immunizations
- Malaria/Kala-Azar Program
- Tuberculosis Program
- Control of Diarrheal Disease Program
- Acute Respiratory Infection Program
- Nutrition Program
- Leprosy Program
- Essential Drugs

The LMIS is used for critical planning and decisionmaking activities throughout the supply chain, including forecasting, inventory management, distribution, and pipeline monitoring of key health commodities. These activities ultimately prevent stockouts, leading to better health outcomes. The GON recognizes the importance of the web-based LMIS and plans to fund it in all 75 districts.

To ensure sustainability of the LMIS at the central level, key discussions took place with the MOHP in 2012–2013 to have the MOHP's staff operate the LMIS. This led to the MOHP contemplating two viable options: (1) assigning staff for database operation, analysis, and monitoring and follow-up, and providing on-the-job training; or (2) outsourcing these operations. In upcoming phases of the program, these options will need to be pursued further with the MOHP.

Figure 9. National Trend of LMIS Reporting



Source: MOHP LMIS Unit/Logistics Management Division.

Strengthening HIV and AIDS Logistics Management

With a stronger HIV and AIDS supply chain, the National Center for AIDS and STD Control was able to significantly increase the number of antiretroviral therapy centers and the number of patients in treatment.

Timely and consistent supply and delivery of HIV and AIDS commodities at SDPs determines the success of ART and reduces the risk of drug resistance. In 2010, it was estimated that 55,000 people were living with HIV in Nepal, with concentrations among injection drug users, female sex workers, and men having sex with men. A growing response to curb the epidemic has led to the expansion of testing and treatment programs for HIV and AIDS and sexually transmitted infections (STI)/opportunistic infections (OIs). This response has translated into an increased demand for tests and drugs that support these programs.

In 2004, only two ART centers were operational, providing antiretroviral (ARV) drugs to 50 patients. In 2006, to improve service delivery, the National Center for AIDS and STD Control (NCASC), with assistance from the USAID | DELIVER PROJECT, designed and implemented a logistics management system for ARVs, STIs, OIs, and laboratory commodities. The system initially operated through NCASC's central store; it included all the functions necessary for a steady flow of drugs and supplies, including forecasting and quantification, quality assurance, warehousing and distribution, an LMIS, and capacity building.

An important component of the HIV and AIDS logistics system is the Logistics Taskforce (LTF), which was formed under the chairmanship of the director of NCASC in 2006. The LTF, which meets monthly, brings together all stakeholders of the HIV and AIDS supply chain to implement the program, based on national strategies, standards, and guidelines—including supply chain optimization, forecasting, and system strengthening. Forecasting and quantification is done once a year to determine annual needs, which are reviewed quarterly at LTF and supply chain review meetings.

In 2012, the HIV and AIDS logistics management system was integrated with the MOHP's main logistics system. This effort helped respond to problems in institutional and regulatory frameworks, and it helped gain efficiencies in infrastructure, management, operations, skills, financing structure, and methodologies. With integration, the LMD is responsible for procurement and

Results

- HIV and AIDS logistics system supporting 41 ART sites and almost 8,000 patients.
- HIV and AIDS logistics system merged into the main logistics system under the LMD.
- ARV drugs included in the essential drug list.

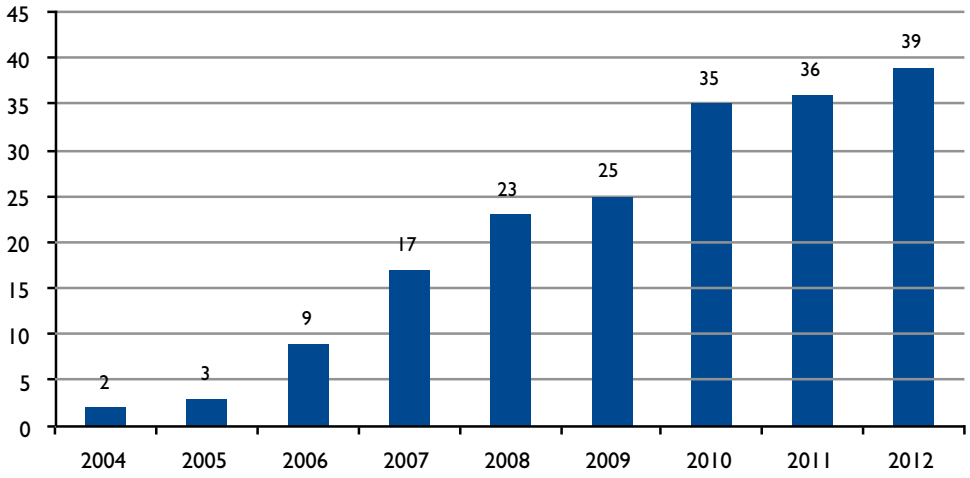
Health personnel recording distribution of ARVs, according to procedures established with the support of the project.

supply chain management of HIV and AIDS tests and other commodities. Nepal's core HIV and AIDS commodities are currently funded through the Global Fund to Fight HIV/AIDS, Tuberculosis and Malaria Voluntary Pooled Procurement, but non-core health products, such as condoms and medicines to treat OIs or STIs, are procured locally.

To achieve commodity security for HIV and AIDS commodities, it was necessary to collect data on the consumption of commodities. In 2007, the USAID | DELIVER PROJECT helped NCASC implement an ARV drug dispensing tool, a software program that records client demographics and generates data for the LMIS and a program report. With a TOT and subsequent training of health personnel, 425 staff were trained in basic logistics and the ARV drug dispensing tool.

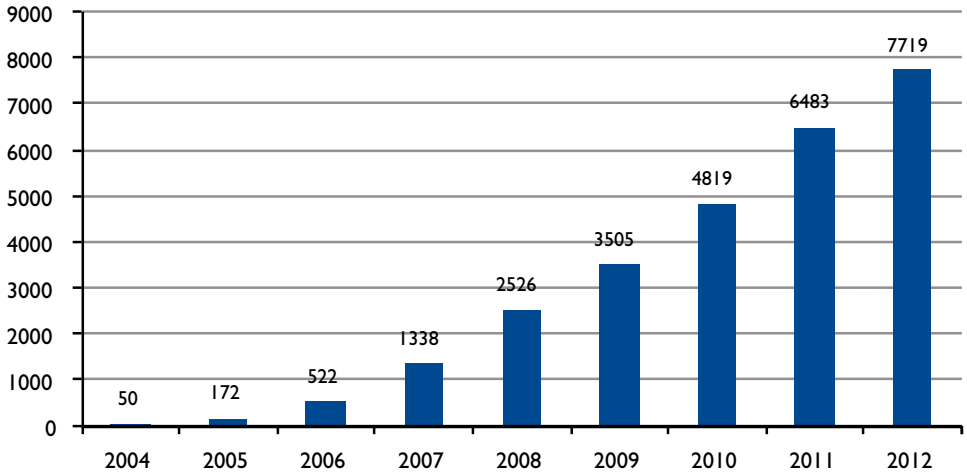
With a stronger HIV and AIDS supply chain, and continuous coordination among stakeholders, NCASC has increased the number of ART centers from two in 2004 to 39 in 2012 (see figure 10). The number of patients served has also increased—from 50 patients in 2004 to almost 8,000 in 2012 (see figure 11). As of 2013, there were 41 ART centers, 147 HIV testing and counseling sites, 35 prevention of mother-to-child transmission (PMTCT) sites, and six community-based PMTCT sites.

Figure 10. Number of ART Sites



Source: NCASC

Figure 11. Number of People Living with HIV on ART



Source: NCASC

Improving Vaccine Logistics

Strengthening the cold chain that delivers vaccines helped decrease the morbidity from vaccine-preventable childhood diseases.

Vaccination is considered to be one of the most cost-effective health interventions. Through vaccinations, dreaded diseases like poliomyelitis have been controlled in Nepal, and each year thousands of deaths are averted.

The GON is firmly committed to improving the immunization status of children in the country and, to this end, it has included the Expanded Programme on Immunization (EPI) among its national priority health programs.

Vaccines must be stored properly from the time they are manufactured until the time they are administered. Excess heat or cold will reduce their potency, thereby increasing the risk that recipients will not be protected. The cold chain has three main components: (1) transport and storage equipment, (2) trained personnel, and (3) efficient management procedures. All three elements must work properly to ensure safe vaccine transport and storage.

The goal of the MOHP's vaccination program is to ensure that routine immunization of children under one year of age reaches 90 percent nationally and that every district or equivalent administrative unit has access to vaccines. The program also aims to introduce new and improved vaccines. To achieve these goals, the following strategic approach was adopted:

- Comprehensive quarterly reporting of vaccines in the LMIS.
- Timely and sufficient supply of vaccines and cold chain equipment.
- Timely repairs and maintenance of freezers and refrigerators.
- Timely transportation and storage of vaccines.
- Accurate forecasting for vaccine needs.

To ensure a more reliable flow of vaccines, the USAID |DELIVER PROJECT provided technical support to prepare a five-year forecast that identifies the long-term costs and requirements for the vaccines in the program. The forecast enables the MOHP and its partners to better identify funding gaps and plan procurements and distribution. The project also helped strengthen reporting of vaccines and syringes in the quarterly LMIS, which is important for procurement planning. With the development of curricula for EPI cold chain activities and visits to various districts, the project provided on-the-job training to cold chain assistants/supervisors to increase the skill level of cold chain personnel and to ensure proper reporting

Results

- Improved routine immunization coverage.
- Reduced stockouts and increased availability of vaccines at health facilities.
- Better storage practices led to reduced wastage and expiry of vaccines.
- Improved commodity security for vaccines and syringes because of better forecasting of commodity needs.

Female community health volunteer vaccinating a child during the polio campaign in Rolpa.

Refrigerator technician from the RMS in Kailali repairs a freezer onsite at the District Health Office in Doti.

Health worker carrying vaccines from the district store to a health facility in Arghakhanchi district.

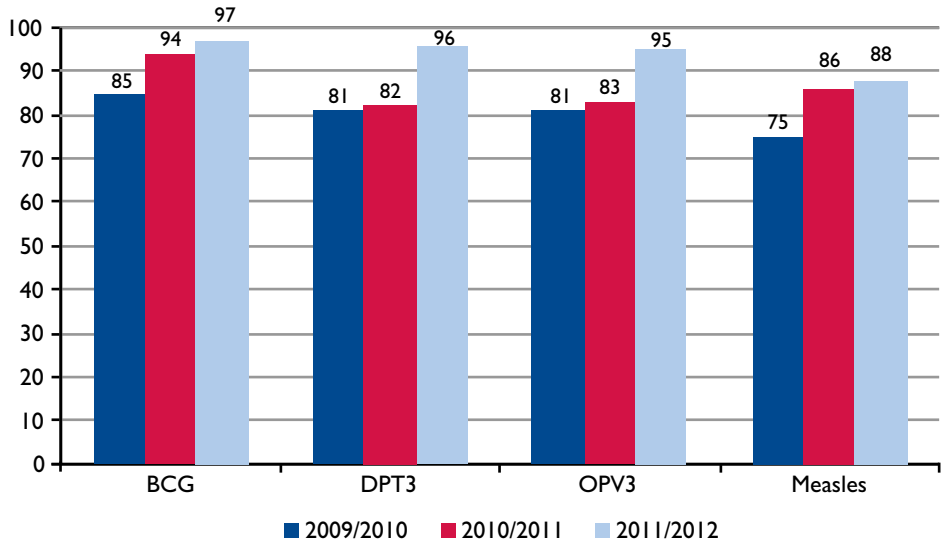
and handling of commodities. Storage space was also checked for expired commodities that needed to be destroyed.

The EPI hinges on having adequate cold chain equipment to store the vaccines. To improve immunization coverage, the DELIVER project conducted a cold chain equipment inventory to track the status of cold chain equipment in various districts. The inventory provided important information for procuring cold chain equipment. Most of the equipment at various districts was outdated and needed to be replaced. The project and the United Nations Children's Fund (UNICEF) jointly updated the cold chain equipment inventory list in all 75 districts. The World Health Organization donated and installed solar refrigerators/freezers in 11 locations. This represents a major improvement, but much of the equipment still needs to be replaced or repaired.

Proper shelving is a necessary part of cold room installation. It facilitates more efficient storage of vaccines. The USAID | DELIVER PROJECT procured cold room racks and installed them at various sites, including the walk-in coolers at various RMSs, and the central and Pathalaiya Transit Warehouse.

Prior to the initiation of the EPI in 1978, child vaccination coverage for diphtheria, pertussis, tetanus, polio, and measles was estimated to be less than 5 percent. Now, not only has coverage increased to more than 90 percent for some vaccines, it has also been expanded to include other vaccinations, such as hepatitis B and tetanus (see figure 12). The impact of increased vaccination is clear from the decreasing incidence of many diseases.

Figure 12. Routine Immunization Coverage, Fiscal Year 2009/2010–2011/2012



Using Health Sector Expertise to Support Avian Influenza Logistics

To prevent potential avian influenza outbreaks in Nepal, expertise in supply chain management was transferred from the health sector to the animal health sector.

In late December 2008, several avian influenza (AI) outbreaks in neighboring India and Bangladesh posed an imminent threat to Nepal. To support the country's National Avian Influenza and Influenza Pandemic Preparedness and Response Plan, the project stepped in to help strengthen the capacity for logistics, applying its supply chain management expertise from the health sector.

The project, in collaboration with the Ministry of Agriculture and Cooperatives (MOAC) and the Department of Livestock Services, carried out an assessment to review existing practices and to design and develop an AI logistics system, including an LMIS, inventory management, warehouse management, and distribution.

To improve coordination, the project initiated an AI logistics committee, bringing all AI logistics management activities under the Directorate of Animal Health. Focusing primarily on high-risk areas, activities included mapping the sites where AI commodities would potentially be used and assessing the logistics requirements for AI commodities. The project introduced new tools and techniques for inventory management, made storerooms more functional with racks and pallets, and developed standard operating procedures and LMIS reporting forms for MOAC personnel. With a customized AI logistics curriculum, animal health personnel were trained in the basics of storage and distribution, as well as recording and reporting. The improvements helped strengthen the AI logistics supply chain, enabling MOAC personnel to quickly contain outbreaks in 2009 and 2010. The project provided this specialized support to MOAC over the three-year period from 2008–2010.

Results

- Provided a system of readiness for avian influenza outbreaks.
- Established functional avian influenza stores at the central level and in high risk areas.
- Developed processes and standard operating procedures.
- Trained animal health personnel to manage avian influenza commodities in an emergency.
- The Avian Influenza Logistics Committee, under the Directorate of Animal Health, coordinated all avian influenza logistics activities.

Laborers wearing personal protective equipment disposing of culled birds during the Pokhara AI outbreak in March 2010.

Strengthening Human Resources in Health Logistics

Logistics training at all levels created the expertise necessary to run the health supply chain effectively.

Without skilled personnel at every level, supply chains cannot function. When the LMD was established in 1994, no logistics curricula existed and no staff had been trained in supply chain management. Training of health workers in logistics became a priority. Today, to provide ongoing capacity development for logistics, various types of training have been integrated into the MOHP's national training institutions.

With support from USAID, logistics training was institutionalized within the MOHP's National Health Training Center (NHTC) and five RHTCs. Logistics practices and training on the LMIS have been incorporated into in-service training curricula and the pre-service training of health workers and public health graduates.

With TOTs, the MOHP created a pool of trainers who could conduct most of the health logistics training. Using structured training packages, government trainers facilitate most training sessions. In a few cases—for example, public procurement training—consultants are also hired to support the training. Structured training packages include a trainer's curriculum session guide, slides for projection, a participant handbook, a reference manual, and a questionnaire and checklists for evaluating performance.

Ten standardized health logistics training packages—including EPI cold chain management and logistics training for nursing in-charges and referral hospital staff—have been institutionalized into the NHTC for long-term sustainability of the logistics workforce. The MOHP recognizes the need to support quality training in logistics management, and to help sustain the program. They initiated and continue to provide funds for logistics training.

Results

- Trained almost 28,000 government personnel in health logistics from 1993 to 2013.
- Established 10 standardized health logistics training programs.

Basic logistics orientation for female community health volunteers in Mugu.

Basic Health Logistics Training for Maternal and Child Health Workers/Village Health Workers

In a sub-health post, there is no separate position for managing logistics activities; it is the responsibility of other personnel, such as maternal and child health workers (MCHWs) and village health workers (VHWs). With logistics training, MCHWs and VHWs are empowered to undertake logistics activities regularly, which helps them improve accuracy and timeliness of logistics reports and distribution of commodities to female community health volunteers (FCHVs). This work increases commodity availability at the community level. After the training conducted in the Sunsari and Taplegunj districts, the reporting percentage increased from 93 to 98 percent and 86 to 91 percent, respectively.

Basic Logistics Orientation for Female Community Health Volunteers

In the past, FCHVs relied heavily on MCHWs/VHWs to replenish key commodities. A basic logistics orientation program, initiated in 2011, is expected to provide insight for FCHVs into the importance of maintaining an adequate supply of health commodities. During a training and supervision visit in Kalikot district, where this training was piloted, it was found that after the orientation, FCHVs were more aware of the commodities they needed; they now ask for commodities to top up to a 45-day supply, which is their authorized maximum stock level.

Pull System Training

With the new and more demand-based inventory pull system, initiated in 2004 to decrease stockouts and expiries, it was necessary to train district staff on how to manage stock based on their pre-determined maximum and minimum limits. Logisticians in all districts learned how to use the new system and, as a result, expiry and wastage of drugs have declined while the availability of health commodities has increased.

Self-Paced Basic Logistics Training on CD.

Self-Paced Basic Logistics Training on CD

As a valuable supplement to group training, self-paced basic logistics training on a compact disk (CD) was developed for storekeepers and other personnel who are new to logistics and have regular computer access. They can access the supply chain knowledge they need while reducing travel and accommodation costs, as well as absences from work. Successful completion of all the sessions in the course enables the participant to generate an NHTC certificate. District health offices can also use the CD to print the logistics forms they need.

Participants completing a group exercise on sealed quotation/bid document.

District Public Procurement Training

In 2007, the GON introduced new regulations for public procurement to make public expenditures more transparent. Districts were required to follow the new regulations in their procurements, and a new training program helped strengthen procurement capacity, empowering districts to procure drugs and other health commodities. After the training, districts have started forming procurement units and evaluation committees, submitting detailed annual procurement plans to the Public Procurement Monitoring Office and procuring health commodities locally.

Web-based LMIS and Inventory Management System Training

To support implementation of the new web-based LMIS and inventory control system, participants are trained to upload logistics information through the Internet once a month. The data collected through the web-based LMIS and the inventory control system are used to manage supplies and equipment, inform distribution and procurement decisions at all levels, document handover transactions, and maintain the electronic stock book for each store.

Subdistrict-Level Logistics Review and Orientation

The one-day subdistrict-level logistics review and orientation helps develop skills and increases knowledge in key commodities management at health

facilities. Districts are selected for orientation if they have a high percentage of health facilities that are stocked out of key commodities. The main objective of the program is to reinforce the capacity of the subdistrict-level health personnel and district-level storekeepers to manage key health commodities effectively.

HIV and AIDS Logistics Management Training

As part of the effort to include HIV and AIDS tests and drugs in the main supply chain system, the project, in close collaboration with NCASC, conducted HIV and AIDS logistics management trainings that included storage, reporting, recording, and review of stock status. MOHP staff managing HIV and AIDS commodities at various tiers of the supply chain were trained to ensure effective delivery of products, including ARV drugs; STI/OI drugs; test kits; and essential drugs for ART, voluntary counseling and testing, and PMTCT sites. From 2009 to 2013, more than 2,500 government personnel were trained in HIV and AIDS logistics.

Building Capacity in Public Procurement

With training in public procurement, district-level staff can use best practices to procure health products locally.

To promote local self-governance, the GON introduced decentralization policies, including a public procurement act in 2006 and a regulation governing public procurement the following year. The new regulation was to promote transparency and improve the use of public funds. The shift in policy demanded that districts be responsible for locally procuring their own health supplies.

Until then, health commodities for public health facilities across the country were procured at the central level, through the LMD, following the World Bank (WB) rules and guidelines on procurement. To ensure uninterrupted delivery of health commodities in all districts, it would be necessary to train MOHP staff at the district level to understand all the processes leading to timely procurement, quality of product, and procuring the right product in the right quantity.

Through a four-day instructional design workshop, the NHTC and LMD, with technical and financial assistance from NFHP II and the USAID | DELIVER PROJECT, developed a procurement training package focusing on rules and regulations for procuring health-related goods. This training included adaptation of many of the principles of the WB-based training used at the central level, but it was made more agile and appropriate for the local level. The training was developed in coordination with the financial section of the Department of Health Services, the MOHP, the Public Procurement Monitoring Office (PPMO), the District Treasury Controller's Office, the NCASC, and the Office of the Auditor General.

To ensure accountability, the PPMO, a separate legal and organizational entity, was established under the prime minister. This office is responsible for making procurement decisions, delivering information for public procurement, building capacity for procurement, resolving disputes, and conducting monitoring and evaluation nationwide.

With the procurement training package, the NHTC organized a TOT that would prepare a cadre of trainers to present the two-day course to staff in the districts. Participants were from the RHTCs, the Regional Health Directorate, and District Treasury Controller Office.

From 2006 to 2013, NHTC trained 462 key government health staff involved in procurement in 63 out of 75 districts. The staff trained included account officers and accountants, storekeepers, district health officers,

Results

- Increased capacity for district-level procurement in 63 districts.
- Improved timeliness and uniformity of district-level procurements.
- Improved transparency and accountability for district-level procurements.

Participants working on exercises for case studies.

procurement officers, and program supervisors. The GON funded the training of 272 of the 462 staff.

With strengthened procurement capacity, districts are empowered to procure drugs and other health commodities. The timeliness and uniformity of procurements have improved, and districts are forming procurement units and evaluation committees and submitting detailed annual procurement plans to the PPMO. The remaining districts will receive training during the next few years.

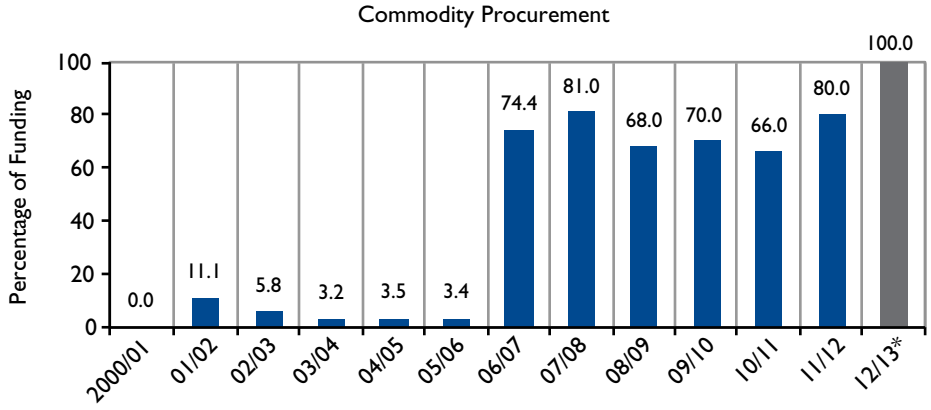
Achieving Sustainability within the Supply Chain

A strong partnership with the MOHP increased institutional capacity and commitment to improved availability.

Key to the success of building a strong health supply chain in Nepal is the support of the government and partnership with the MOHP. In 1994, when the first USAID-funded logistics project began, the newly formed logistics management unit within the MOHP became the prime mover for strengthening health logistics in the country and the hub for stakeholder collaboration.

Participation of key stakeholders in planning and coordination forums was critical to building sustainability within the supply chain. One of the most important results from stakeholder coordination through the Family Planning Commodity Security Working Group was an increase in the GON's funding for procuring family planning commodities. The GON began to fund family planning commodities in 2002, providing 11.1 percent of the total family planning expenditures; in 2012, that had increased to 80 percent—for 2013, the GON plans to cover 100 percent of family planning commodities (see figure 13).

Figure 13. GON's Funding Share for Family Planning Commodity Procurement



Source: MOHP Logistics Management Division (*figures for 2012/2013 are planned).

Female community health volunteers in Mugu district.

In addition to fostering a strong commitment on the government's part, the USAID-funded logistics projects helped build capacity in the public and private sectors to sustain and expand health supply chain operations. Building capacity within the MOHP was a goal from the outset; it expanded the skills of the MOHP personnel carrying out logistics tasks at every level of the supply chain. And, at this point, national training institutions are the primary providers of logistics training.

In recent years, the government has also provided funding for logistics improvements—for example, warehouse construction and the pull system implementation. Although gaps still exist, the MOHP has shown a strong commitment to the availability of health commodities and has increased its support for sustaining improvements made in the health supply chain.

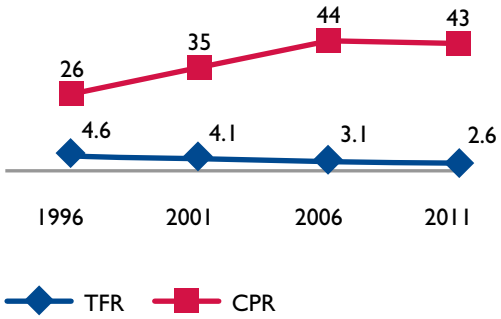
Increasing Health and Family Planning Commodity Security

Through a series of strategic interventions, Nepal has achieved commodity security for family planning products and is applying this successful approach to other health areas.

The availability of products is essential for the effective delivery of quality health services. Commodity security is achieved when clients can obtain the health supplies they need, when and where they need them.

In 1994, with technical assistance from USAID-funded projects, the LMD/MOHP started working toward better commodity security, with priority given to family planning, reproductive health, and MCH commodities. Commodity security for family planning products has largely been achieved, with a stockout rate at SDPs of less than 2 percent, as of August 2013. Such an increase in availability has contributed to improvements in national health indicators; as of 2011, the TFR had dropped to 2.6 and the CPR for modern methods had increased to 43 percent of married women of reproductive age (see figure 14).

Figure 14. Total Fertility Rate and Contraceptive Prevalence Rate (Modern Methods among Married Women of Reproductive Age)



Source: MOHP LMIS Unit/Logistics Management Division and Demographic Health Survey/Nepal

Such impressive improvements in family planning commodity security were possible because of a series of sustained strategic interventions that began almost two decades ago. They included establishment of an LMIS,

Two women with medications after a consultation at Naubise health post in Dhading district.

coordination and collaboration among stakeholders, regular forecasting, regular pipeline review and monitoring, improvements in storage infrastructure and inventory control, and capacity development in health logistics. More importantly, none of these interventions would have been possible without the collaboration and leadership of the MOHP and the 1994 establishment of the LMD.

Key Program Interventions

Supply Chain Infrastructure Improvements

Good storage facilities are key to reliable distribution of quality commodities to SDPs. In 2001, the MOHP began to improve existing storage facilities and construct new district warehouses. This decreased wastage and expiry of drugs and improved service delivery at SDPs. In 1998, an inventory control system for storage sites was developed and implemented in all districts and health facilities. The system not only allowed health facilities to determine the quantity of program commodities that can be ordered from the district store, it also set the authorized maximum stock level and the emergency order point used to trigger reorders. From 2005 to 2010, an improved and more demand-based pull system for essential drugs was implemented in all 75 districts.

Outsourcing Services to the Private Sector

As the GON became more convinced that outsourcing could benefit the public sector, several areas in supply chain management received services through private sector companies—including transportation, disposal of unusable commodities and equipment, and LMIS training and operational support in the districts. Using a competitive bidding process, local companies were selected. Performance history, price, and level of response to the scope of work helped determine the most qualified firm. While outsourcing the transportation of commodities was used initially from the central level to the regions and districts, expansion of commercial sector transport within the districts could be a way to realize cost savings and build local expertise. Using an outside firm for destruction of commodities and disposal of equipment enabled the MOHP to free up significant warehouse space in a relatively short amount of time by overcoming bureaucratic processes. Local services were also used to support the architectural design for warehouse construction.

LMIS, Forecasting, and National Pipeline Review and Monitoring

Nepal's national LMIS, a quarterly reporting system for all SDPs, was established in 1995; it is now the primary source of information for logistics decisionmaking. The system is used for forecasting, inventory management, pipeline monitoring, and procurement, which helps prevent stockouts at the health facilities. In 2010, the LMD implemented a web-based LMIS and an inventory management system at the district and regional levels. With information from the LMIS, the LMD conducts annual forecasting workshops and quarterly national pipeline review meetings to monitor family planning and other key program commodities and to make procurement, shipment, and distribution decisions.

Expanding Successful Interventions to Other Health Commodities

The success in achieving commodity security for family planning spurred the MOHP to replicate the processes—including quantification, forecasting, and pipeline monitoring—for MCH commodities, vaccines, essential drugs, and ARVs. This eventually led to better commodity security in those programs, as well. Challenges remain in some

areas; stockout rates for some essential drugs are as high as 25 percent in some health facilities. Some of the challenges relate to procurement, availability of trained personnel, and distribution of commodities from the district to the health facilities.

Capacity Development in Health Logistics

Over the years, the project and its predecessor projects, with the NHTC and the LMD, have institutionalized logistics and LMIS training within the GON. Trainers from NHTC were trained and RHTCs held logistics trainings of staff at health facilities. Logistics training was included in NHTC's annual work plan and endorsed by the National Planning Commission. Logistics practices and the LMIS are now incorporated in the in-service training curricula at the NHTC, as well as in the pre-service training of health workers and graduates of schools in the health fields. From 1993 to 2013, almost 28,000 government personnel were trained in health logistics.

Building National Commitment and Accountability

To be successful and sustainable, the program interventions that improved the health supply chain in Nepal were highly dependent on the commitment and collaboration of the GON. Therefore, a key approach was to build national commitment to product availability and to find ways to increase accountability at every level of the supply chain system. National working groups focusing on contraceptive security and forecasting of commodities engaged stakeholders at the central level, elevating their commitment as they gained new insights into the state of the supply chain. The project's advocacy for product availability, especially contraceptives, spurred commitment at the highest levels of the GON and across agencies. The GON's funding commitment for procurement of contraceptives has now reached 100 percent.

By establishing the LMD, the MOHP was able to develop expertise within its own ranks to manage and effectively operate the national health supply chain. Human resource development, in close collaboration with national training institutes, played a key role in fostering accountability within the various levels of the supply chain; as people were trained in logistics reporting, data visibility increased, and managers took action when stocks decreased. Better visibility of data engendered increased accountability for ensuring that products continued to flow down the supply chain and information continued to flow up.

Stakeholder Collaboration

The success of family planning commodity security in Nepal can be attributed, in part, to excellent team work among various MOHP program divisions: the Family Health Division, LMD, Child Health Division, NCASC; various donors (USAID, UNFPA, KfW, DFID, WB, UNICEF); and other stakeholders such as the social marketing agencies and the Family Planning Association of Nepal. In 1998, the Contraceptive Security Working Group was formed, under the leadership of the Family Health Division and the LMD. With a core group and an extended group, all stakeholders now have a seat at the table.

Beginning in 1999, a national-level consensus contraceptive security forecast workshop was held annually to develop a five-year forecast for family planning commodities—MCH commodities, vaccines, essential drugs, and ARVs were added later. Participants include regional and district staff, program divisions, the national planning commission, the Ministry of Finance, donors, social marketing agencies, and nongovernmental organizations. The forecast report identifies long-term costs and requirements for commodities, enabling stakeholders to address funding gaps and to plan procurement and distribution schedules and other logistics needs.


BETADINE 6%
मात-शिशु सुक्ष्मपोषण र

Challenges for the Future

The most persistent challenges for the supply chain include the frequent staff turnover within the MOHP and coordinating stakeholders in an environment with multiple external donors. As health services expand, supply chain capacity also needs to grow; therefore, it is essential to always anticipate future volumes of supplies and supply chain management needs. The current annual distribution of commodities to district warehouses will probably outgrow storage capacity, and a shift in distribution strategy will be necessary to avoid wastage. Introducing private sector services can be an important extension of the public sector, providing flexibility and cost savings.

During the last few years of the USAID | DELIVER PROJECT, the MOHP discussed the possibility of outsourcing LMIS operations at the central level to a private sector firm. For outsourcing, it is critical that the MOHP's roles and responsibilities are clearly defined in terms of monitoring and supervision, with clear terms of reference for the firm. With support to the MOHP for engaging more in public-private partnerships, plans for gradually using more private sector services should be outlined. However, it is also important to ensure that the GON budgeting process for outsourcing is consistent with outsourcing plans and that transparent processes are followed.

The strategies that have led to successful implementation of supply chain strengthening in Nepal mirror lessons learned from other countries: coordinating and actively involving stakeholders, aligning objectives, ensuring that information is visible at all levels, clarifying roles and responsibilities, and providing regular supervision and monitoring. These topics, captured in JSI's Supply Chain Integration Framework, represent building blocks for the integrated supply chain—a concept that links all actors involved in managing health supplies into one cohesive supply chain organization. As Nepal opens the next chapter of its supply chain evolution, these common themes will continue to be focal points in building a strong health supply system.

New technologies, such as short message service (SMS) messages for reporting, can improve data visibility and empower the supply chain workforce with better data for decisionmaking. During the two decades of improving health logistics in Nepal, learning from other countries' experiences has been a key approach. Of great importance is the fact that the implementation of new programs and technologies should always depend on country context and readiness, and it should be applied with sustainability as an end goal.

Just as there have been ongoing challenges in the past, there are more on the horizon. For example, as much as 20 percent of the country's population is not yet served by the public health system and, typically, the last groups in a country to be served are the least advantaged and the most inaccessible. The TFR is down, but the population will continue to increase for a period

of time as age cohorts pass up the population pyramid. Also, Nepal is undergoing rapid urbanization, and the impact of this on the shifting demand for services and the epidemiology of the country is not completely clear. There will certainly be more AI outbreaks or other emerging pandemics to be contained. The GON will have to lobby effectively to maintain and expand funding in the face of any economic crises in the country.

These challenges are real and very daunting, but as described in the previous pages, changes have been made that could probably not have been imagined two decades ago. Those changes serve as an inspiration and proof of what can be achieved with expertise, time, and commitment. Now there is widespread commitment and momentum that offer the promise of addressing the challenges and keeping up the pace of improvement in the coming decades.

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