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## BANGLADESH: FINAL REPORT

### RAPID ASSESSMENT 2008 FOR THE DEPARTMENT OF LIVESTOCK LOGISTICS MANAGEMENT SYSTEM



**MARCH 2009**

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## **USAID | DELIVER PROJECT, Task Order 2**

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### **Abstract**

In the Spring and Summer of 2008, the local USAID | DELIVER PROJECT office's Avian Influenza Team carried out an assessment of the Logistics Management System (LMS) for the Department of Livestock Services (DLS). This report continues an earlier assessment of the Emergency Avian Influenza Logistics Management System (EAILMS) of the Department of Livestock Services, Government of Bangladesh, which the USAID | DELIVER PROJECT conducted for USAID/Washington in August 2007. This assessment's overall objective was to point out strengths and weaknesses of the LMS system and to provide recommendations toward integrating and standardizing the EAILMS with the DLS' LMS.

Cover photo: Live birds being carried in a bamboo cage from farm to local market, by rickshaw van, Bangladesh, 2008.

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# ACRONYMS

AI	avian influenza
DLO	District Livestock Office(r)
DLS	District Livestock Store
EAILMS	Emergency Avian Influenza Logistics Management System
HPAI	highly pathogenic avian influenza
ICR	Inventory Control Register
IEC	information, education, and communication
LMS	logistic management system
LPAI	low pathogenic avian influenza
MSR	medical-surgical requisites
NGO	nongovernmental organization
OIE	Office of International Epizootic (World Organization for Animal Health)
TOR	Terms of Reference
USAID	U.S. Agency for International Development
ULO	Upazila Livestock Office(r)
VS	Veterinary Surgeon (proper noun, but veterinary surgeon when referring to in general)



# ACKNOWLEDGMENTS

This report continues an earlier assessment of the Emergency Avian Influenza Logistics Management System (EAILMS) of the Department of Livestock Services, Government of Bangladesh, which the USAID | DELIVER PROJECT conducted for USAID/Washington in August 2007. The assessment recommended that the emergency system should be integrated with the Department of Livestock Services' logistics management system (LMS). Because only part of the regular system was evaluated in the emergency system assessment, to ensure the appropriate integration of the two systems, it was necessary to further evaluate the LMS at the District Livestock Store (DLS).

To assess the existing operational logistics management situation, the USAID | DELIVER PROJECT, Task Order 2, conducted the current assessment in 18 districts and 54 Upazilas and the 17 greater district stores. The work was completed in four months (May–August 2008) under the regular monitoring and technical supervision of Dr. Zandra Hollaway Andre DVM, MPH, the technical advisor for avian and pandemic influenza in South Asia, USAID/Bangladesh Dhaka. The work would not have been possible without USAID's technical and financial assistance. We would like to express our profound gratitude to USAID management for giving us the opportunity to promote the Logistics Management System (LMS) for the Department of Livestock (DLS) in Bangladesh, particularly in the precarious situation that followed the emergence of avian influenza in the country and its devastating effect.

We are also grateful to the Director General, DLS, particularly the Director (Administration), for their administrative cooperation before, during, and after the study; to the Deputy Director, Central Store, for sharing information about the current warehousing situation; and to the Assistant Director, Training, DLS, for their support in issuing the office order in the quickest possible time by asking the District Livestock Officer and the Upazila Livestock Officer for their active cooperation.

We are also grateful for the cooperation and assistance shown by Dr. Md. Abdul Baqi, the Principal Scientific Officer, DLS. We thank all the District Livestock Officers, Upazila Livestock Officers, veterinary surgeons, and their support staff for offering their formal and informal assistance and collaboration during the assessment.



# ASSESSMENT AREAS

## District

1. Barisal
2. Chittagong
3. Comilla
4. Noakhali
5. Narayanganj
6. Narsingdi
7. Gazipur
8. Netrokona
9. Kishoregonj
10. Mymensingh
11. Khulna
12. Jessore
13. Rajshahi
14. Bogra
15. Dinajpur
16. Rangpur
17. Sunamganj
18. Hobigonj

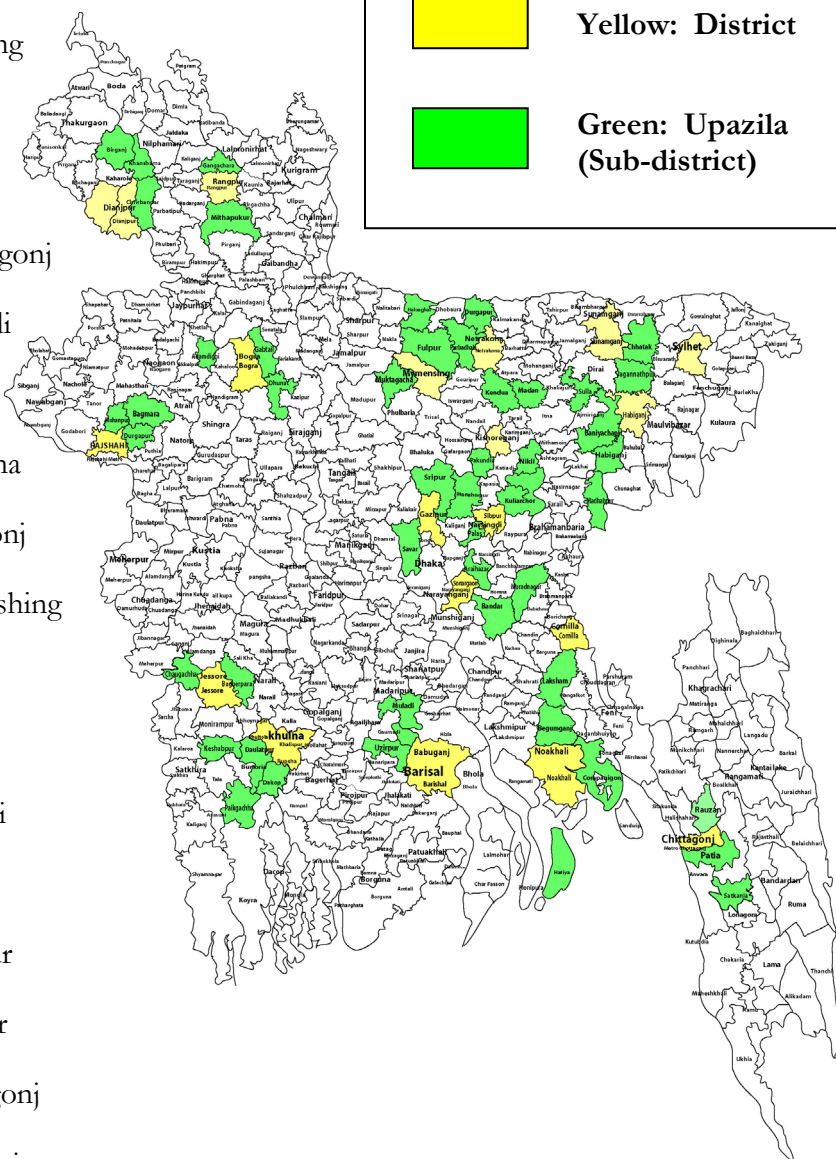
(District and Upazila) for the  
Rapid Assessment of DLS LMS



Yellow: District



Green: Upazila  
(Sub-district)



## Upazila

1. Babuganj
2. Uzirpur
3. Muladi
4. Patyia
5. Rajan
6. Sitakunda
7. Comilla Sadar
8. Laksham
9. Muradnagar
10. Begumgonj
11. Companigonj
12. Hatyia
13. Savar
14. Bandar
15. Araihaazar
16. Sonargaon
17. Narsingdi Sadar
18. Sibpur
19. Palash
20. Gazipur Sadar
21. Sreepur
22. Madan
23. Kandua
24. Purbodhola
25. Kuliarchor
26. Nikli
27. Pakundia
28. Muktagacha
29. Haluaghat
30. Fulpur
31. Dighalia
32. Paikgacha
33. Dakop
34. Bagharpara
35. Keshobpur
36. Chaugacha
37. Durgapur
38. Bagmara
39. Mohonpur
40. Adamdighi
41. Dhunat
42. Gabtali
43. Birgonj
44. Chirirbandar
45. Khanshama
46. Rangpur Sadar
47. Gangachara
48. Mithapukur
49. Sulla
50. Chatak
51. Jagannathpur
52. Madhabpur
53. Hobigonj Sadar
54. Baniachong



# EXECUTIVE SUMMARY

## BACKGROUND

The USAID | DELIVER PROJECT, Bangladesh, as part of its global assignment and upon the request of USAID, Dhaka, under Task Order 2, conducted an assessment of the existing logistics management situation and system in 18 districts, including 17 old greater district stores that were built in the 1980's and 90's before the greater districts were divided into smaller districts, and 54 Upazila (sub-district) stores. The objective of the assessment was to look at ways to “Integrate and Standardize the Emergency Avian Influenza Logistics Management System (EAILMS) with the Department of Livestock Services and the regular Logistics Management System (LMS).” The assessment focus areas were (1) warehouse/store operational system, (2) logistics management system (LMS), (3) inventory control system, and (4) training. The assessment was conducted May–June 2008.

## KEY FINDINGS

Except for Dinajpur and Noakhali, all other District Livestock Offices (DLOs) are located in their own buildings; each DLO office has an average 20 feet × 10 feet storeroom within the DLO premises. From the last financial year— FY2007–2008—the procurement of drugs has been decentralized to the DLO; previously, it was done by the Central Warehouse, Dhaka. The DLOs have received fund allocations and, using competitive bidding for the lower facility Upazila Livestock Offices (ULOs) in their district, they have started procuring medicines, drugs, and medical-surgical requisites (MSRs) locally. They procure a minimum of 44 medical items (see annex 1). In addition, they receive avian influenza items (see annex 2) and emergency supplies to meet their needs for natural disasters—for example, floods, cyclone, etc. Also, using a *push* system, the DLOs often receive stocks of semen for artificial insemination and vaccines from the Central Warehouse and other sources. The DLOs and ULOs do not have designated storekeepers; the DLO and ULO store assigns a storekeeper to manage activities through a local arrangement with staff, which is in addition to their normal duties. Records are kept on service statistics, but logistics data are not maintained; there is no reporting nor is there an organized system for ordering all of the commodities in the system.

As needed, staffs are assigned for logistics management, but they have not had any logistics management training. Supervisors do not appear to be familiar with the concept of modern logistics management. As a result, avian influenza commodities arrive sporadically, without advance notice and without any organization. Storerooms are not cleaned or organized regularly.

Like the DLO facility, almost all the Upazila livestock offices (except Bandar, Dighalia, and Nikli) are located in their own buildings; a room in each building is earmarked for storage. The average size of the ULO store is 16 feet × 12 feet = 192 square feet. The storage pattern and organization in the DLO and ULO are exactly the same. No storekeeper is assigned to the DLO and ULO; the

veterinary surgeon does most of the logistics management activities; occasionally the compounder in the ULO and the office assistant in the DLO help, in addition to their normal duties. The managers of the stores at both levels do not know the correct procedures for logistics management.

Some key decisions were made at the Stakeholder Meeting based on Assessment Recommendations to initiate and improve the Department of Livestock Services' Logistics Management System, which were based on the findings and analysis of the data and information. It was recommended that the DLO and ULO facilities take appropriate actions for each component: (1) warehousing, (2) inventory management, (3) logistics management information system, (4) training, and (5) human resource and system strengthening.

The District Livestock Officer has recommended that the entire country have stores with the same size and shape. They also recommended a layout that includes adequate equipment for both the DLO and ULO facilities—pallets, dunnage, and racks; Almirahs made of steel; a refrigerator; a deep freeze; and fire fighting equipment, including a fire extinguisher and bucket. The results from the assessment showed that the ULO stores need a deep freezer and the DLO stores need a cold room to warehouse and distribute vaccines and semen for artificial insemination. Also, to strengthen the warehousing capacity of the DLO facility, the DLO recommends the repair and renovation of the 17 older greater-district stores. This study found no justification for repairing and renovating them as in each of these District Offices there is a functioning store. Moreover, renovation of these older stores will involve huge costs and time. Regardless, the DLS has included repair and renovation of the older stores in the USAID-funded TAPP, so it wants to renovate, if not all, at least 5-6 of the older stores. Funding should be made available for hiring vans or vehicles to carry medicines, vaccines, and other commodities from district to Upazila stores, while the central store should arrange transport to ensure that supplies reach their destination safely.

The storekeepers/stores-in-charge should have a 4–5 day training session on the logistics management system; the managers at both levels should have an approximately three-day orientation. For uniform logistics recordkeeping and reporting, required forms and registers have been proposed, including the quantity required.

Because there is a government constraint to creating the post of storekeeper, official orders may be issued to designate one staff, preferably the compounder, to act as storekeeper and to ensure accountability.

The logistics management system of the Department of Livestock services could be strengthened, by giving the DLO sufficient emergency supplies, especially during avian influenza outbreak seasons.

Other recommendations to strengthen the system are as follows:

- all managers and store personnel—including DLOs, ULOs, and store officers at the central store and the storekeepers/stores-in-charge at the DLO and ULO levels—acquire skills through logistics management system training
- approved uniform forms and formats are supplied and used for logistics reporting
- logistics equipment and furniture are provided, placed, and maintained
- warehousing principles, including layout plans, are followed
- technical assistance is given as appropriate.

Based on recommendations from the assessment and decisions made during the stakeholders' workshop, several first steps have already been taken to improve the system and complete Phase A of the agreed upon Terms of Reference (TOR). Storage guidelines and principles to follow for systematic storage upkeep have been established (see annex 21). A logistics management reporting flow has been created to link the central store to the ULO store through the DLO store. Also, an avian influenza flow chart shows the movement of the avian influenza commodities from the central store to the Upazila livestock store, through the DLO store, and possibly from the DLO store directly to the affected farms. A training curriculum / guidelines have been drafted for the DLO and ULO logistics trainings. Estimates have been made for the required number of logistics equipment and furniture for both DLO and ULO levels.



# BACKGROUND AND INTRODUCTION

The avian influenza (AI) virus causes disease in birds, poultry, pigeons, and wild or migratory birds. There are two forms of the virus: highly pathogenic avian influenza (HPAI) and low pathogenic avian influenza (LPAI). Pathogenicity indicates the severity of the disease if the bird is infected with the virus.

Avian influenza A subtype H5N1 is a HPAI strain of the virus; it has been confirmed in poultry populations across Asia, Europe, Africa, and the Middle East.

Although this disease infects birds, it has been transmitted to humans in Southeast Asia (although rarely). H5N1 is also important because it could recombine with seasonal human influenza virus and create a new and potentially pandemic human flu strain.

When the Government of Bangladesh (GOB) refers to pandemic flu, it is referring to an outbreak of human flu that affects the global human population. A human pandemic flu can occur at anytime and does not involve birds.

The Asian strain of avian influenza H5N1 virus has been confirmed in poultry and wild birds in several countries in the following regions: Asia, Europe, Africa, and the Middle East. While this confirms the rapid and on-going geographical spread of the virus, information to date has shown that the greatest risk to humans occurs when the virus becomes established in small backyard poultry flocks; this allows continuing opportunities for close human contact, exposure, and infections to occur. Tables 1 and 2 provide information about emerging A/H5N1 cases in humans from September 1, 2007 to May 2008.

**Table 1. Number of Laboratory-confirmed Human Cases (Deaths) of Influenza A/ H5N1 Reported by the World Health Organization (WHO)<sup>1</sup>**

Country	Total Cumulative Cases (Deaths 2003 to Present)	Most Recent Cases (Deaths) September 1, 2007	Most Recent Symptom Onset Date (Known or Estimated)
Azerbaijan	8 (5)	0 (0)	March 11, 2006
Bangladesh	1 (0)	1 (0)	January 27, 2008
Cambodia	7 (7)	0 (0)	April 2, 2008
China	30 (20)	5 (4)	February 16, 2008
Djibuti	1 (0)	0 (0)	April 23, 2006
Egypt	50 (22)	12 (7)	April 13, 2008
Indonesia	133 (108)	28 (24)	April 14, 2008

<sup>1</sup> Current avian influenza (H5N1) affected areas—Public Health Agency of Canada

Iraq	3 (2)	0 (0)	March 15, 2006
Lao (PDR)	2 (2)	0 (0)	February 26, 2007
Myanmar	1 (0)	1 (0)	November 21, 2007
Nigeria	1 (1)	0 (0)	January 16, 2007
Pakistan	3 (1)	3 (1)	November 21, 2007
Thailand	25 (17)	0 (0)	July 24, 2006
Turkey	12 (4)	0 (0)	January 5, 2006
Vietnam	106 (52)	6 (6)	March 4, 2008
<b>TOTAL</b>	<b>383 (241)</b>	<b>56 (42)</b>	<b>April 14, 2008</b>

Other outbreaks have been reported throughout the world. Table 2 shows figures for the number of recent outbreaks by country/region.

According to the Office of International Epizootic (World Organization for Animal Health) and United Nations health officials, H5N1 avian influenza has been detected in more than 55 countries. It resulted in the death or destruction of more than 220 million birds and the death of 170 people. Available evidence points to an increased risk of transmission to humans during widespread outbreaks of HPAI/H5N1 influenza in poultry.

**Table 2. Office of International Epizootic (World Organization for Animal Health)  
Confirmed Avian Influenza H5N1 Activity in Poultry: September 1, 2007–present (updated  
June 5, 2008)**

Country	Date of Outbreaks		Total Number of Outbreaks
	Initial	Most Recent	Total
<b>Asia and the Pacific</b>			
Bangladesh	Oct. 24, 2007	April 5, 2008	229
China	Sept. 14, 2007	March 28, 2008	006
India	Jan. 4, 2008	May 11, 2008	042
Iran	Dec. 10, 2007	Dec. 10, 2007	001
Korea (Rep. of)	Apr. 1, 2008	May 12, 2008	033
Laos	Feb. 1, 2008	Feb. 1, 2008	001
Myanmar	Oct. 19, 2007	Dec 23, 2007	003
Pakistan	Oct. 19, 2007	March 3, 2008	10
Vietnam	Sept. 14, 2007	April 15, 2008	068
<b>West Asia (Middle East)</b>			
Saudi Arabia	Nov. 12, 2007	Jan. 29, 2008	026
<b>Europe</b>			
Germany	Sept. 1, 2007	Dec. 25, 2007	004
Israel	Dec. 27, 2007	Dec. 27, 2007	001
Poland	Nov. 30, 2007	Dec. 22, 2007	008

Romania	Nov. 27, 2007	Dec. 27, 2007	001
Russia	Sept. 7, 2007	April 8, 2008	007
Turkey	Jan. 18, 2008	March 9, 2008	006
Ukraine	Jan. 15, 2008	Jan. 15, 2008	001
United Kingdom	Nov. 11, 2007	Nov. 14, 2007	002
<b>Africa</b>			
Benin	Nov. 7, 2007	Dec. 15, 2007	005
Egypt	Dec. 6, 2007	Jan. 26, 2008	093

Table 2 shows that Bangladesh has had the highest number of avian influenza outbreaks in the world. In addition, the latest media reports from the neighboring country, India (Tripura), revealed that approximately 109 new flu cases were detected in the Bishalgarh subdivision of the state of Tripura. This is a threat for Bangladesh because the affected area is close to the bordering district of Comilla; the virus could easily spread to Bangladesh.

The first outbreak of avian influenza in Bangladesh occurred in March 2007; it affected 75 farms in 17 districts, resulting in the death of more than 40,000 birds and the culling of approximately 264,000 birds. The outbreak seriously concerned the government, the poultry farmers, and the international development organizations in Bangladesh.



# **LITERATURE REVIEW ON THE PROSPECTS AND PROBLEMS OF THE POULTRY INDUSTRY IN BANGLADESH**

## **LIVESTOCK SITUATION AND ITS CONTRIBUTION TO WEALTH AND THE ECONOMY**

The economy of Bangladesh is heavily dependent on mixed agriculture—crops, livestock, and poultry. The contribution of agriculture to the gross domestic product (GDP) is 17.68 percent; the share of livestock to the agricultural GDP is 16.42 percent. The livestock sector's share of employment in the agriculture sector is 39 percent. The livestock sub-sector offers employment opportunities, particularly for the rural poor; for many, livestock is their only livelihood option. The livestock sector has enjoyed sustained growth in last 15 years. Small-scale livestock farming, particularly poultry, provided self-employment for approximately 4 to 5 million poor women during 1993–2007, at about 22 percent of the livestock sub-sector.

## **POULTRY POPULATION**

During the last 15 years, poultry farming has developed in Bangladesh in such a way that every house-hold, in both rural and urban areas, could be categorized as a mini-poultry firm. According to the Food and Agricultural Organization (FAO) classification, all four sectors of poultry production systems—(1) industrial, integrated, and commercial production, (2) large scale, (3) small scale, and (4) village or backyard production—are prominent across Bangladesh. Commercial poultry, backyard, or family poultry raising all play a pivotal role in the livelihood of the poor.

The population of chickens and ducks in Bangladesh is rapidly increasing. (Source: National Avian Influenza And Human Pandemic Influence Preparedness And Response Plan 2006-2008 with Technical Assistance by FAO and WHO). In 2000–2001, the chickens numbered 142.68 million and ducks numbered 33.83 million. In 2004–2005, the number increased by 28.6 percent and 10.1 percent, for a total of 183.45 million chickens and 37.28 million ducks, respectively. The commercial poultry sector recently emerged as one of the fastest growing industries, with an average growth rate of 20 percent. Raising poultry has also become a poverty reduction strategy in Bangladesh; more than 100 nongovernmental organizations (NGOs) are currently involved in encouraging the raising of poultry to reduce poverty; it is also an economic activity for women's empowerment. The commercial poultry sector employs approximately 5 million people; the total national investment in the poultry sector is estimated to be U.S. \$3 billion.

## **SITUATION OF MIGRATORY AND WILD BIRDS**

Approximately 244 species of migratory birds visit Bangladesh during the winter (October–March), of which approximately 21 species may carry the HPAI/H5N1 virus. Migratory birds are considered to be one of the major biological vectors by which the virus travels across and between continents.

The global community has been alarmed recently by the death of 8,000 bar-headed geese from the H5N1 in northeast China, Russia, and Eastern Europe. Bar-headed geese and some water birds are the suspected carriers of the deadly HPAI/H5N1 virus. These water birds migrate to Bangladesh during the winter season and stay in wetlands, rivers, and estuaries throughout the country.

## **LIVESTOCK OPERATIONAL SERVICE FACILITIES**

Bangladesh is administratively divided into six divisions, with sixty-four districts and four hundred eighty-three Upazilas, or sub-districts.

### **PRIMARY LEVEL**

- Livestock services at the Upazila level and below are available in all 483 Upazilas. The Upazila livestock officer, veterinary surgeon, sub-technical staff, and field personnel are the service providers.
- In each Upazila, one veterinary hospital provides preventive and curative services, including preventive vaccination and one artificial insemination center in each Upazila. The union level does not have a service unit. However, micro-finance NGOs have outlets at the grassroots level to support small-scale poultry farming across the country. The Upazila level does not have laboratories for performing diagnostic services for livestock.

### **SECONDARY LEVEL**

- The 64 district veterinary hospitals are the main providers for the secondary-level livestock services delivery systems, primarily for treatment and preventive measures. One veterinary hospital comprises a veterinary officer, a veterinary surgeon, and sub-technical staff. Each district has one district livestock officer, who is assisted by one additional livestock officer (ADLO); they are responsible for all administrative and extension activities within the districts. At this level, specialized staff is not available in epidemiology or laboratory, nor are other relevant personnel who could provide support for surveillance and other key activities.

### **TERTIARY LEVEL**

- In Dhaka, one central veterinary hospital has radiological and surgical services. The staff includes one chief veterinary officer, nine veterinary surgeons, one anesthesiologist, one radiologist, one clinical pathologist, and 29 sub-technical and support staff. Limited facilities for routine blood, feces, and bacterial culture tests are available at the district and central veterinary hospitals.

## **STATUS OF VACCINE PRODUCTION AND RESEARCH FACILITIES**

The Department of Livestock Services has two facilities, one at Dhaka and the other at Comilla where they produce vaccines for major avian and livestock diseases. They use tissue culture and egg embryo inoculation techniques to produce the vaccines. In an emergency, facilities could be used to produce suitable avian influenza vaccines. The private sector brings vaccines for major avian diseases into the country; importing avian influenza vaccine is not allowed officially, although in an emergency, the linkage, experiences, and facilities of private entrepreneurs could be used to import vaccines. The Bangladesh Livestock Research Institute has experience developing vaccines and quick diagnostic tests.



# SCOPE OF WORK

In August 2007, the USAID | DELIVER PROJECT on behalf of USAID/Washington, conducted an initial assessment of the logistics management system for the Department of Livestock Services after avian influenza was found in Bangladesh. During that assessment, the team found that the Emergency Avian Influenza Logistics Management System (EAILMS), a parallel structure, does not use the strengths of the regular Department of Livestock Services' logistics management system, and that the current system is inadequate to handle upcoming shipments of commodities. Because of the findings, USAID/Bangladesh asked for technical assistance from the project to—

- Conduct a rapid assessment of 2–5 district warehouses in each division and 2–5 Upazila warehouses in each division.
- Make recommendations based on the results of the assessment.
- Assess the central and district warehouse inventory management systems in general and look specifically at the central system to determine if it is a candidate for automation (computerized inventory management system).
- Provide technical assistance for warehousing and distributing commodities and inventory control logistics based on the recommendations of the assessment.

A Term of Reference (TOR) was framed stating that the work would be completed in two phases (A and B). The key area under phase A (and the focus for this report) was to conduct the rapid assessment while Phase B would concentrate on, (1) warehouse operationalization, (2) implementing a Department of Livestock Services LMS, (3) developing an automated inventory management system (AIMS), and (4) training.

Rapid assessment 2008 tasks (Phase A), primarily were to (1) map the study districts and Upazilas; (2) conduct a rapid assessment; (3) assess the requirements for storage equipment and furniture (dunnage, shelves, racks, and almirahs, etc.) for the Central Warehouse, district, and Upazila stores; (4) prepare specifications for the assessed furniture and equipment; (5) assess facility requirements for the Inventory Control Register (ICR) and other inventory management forms (Indent Form, Issue Voucher, reporting forms, etc.); (6) establish a computerized warehouse inventory management system (WIMS) in the Department of Livestock Services Central Warehouse; and (7) assess training needs.

## SELECTION OF SURVEY SITES

To focus on the components above, which are set in the TOR, the Department of Livestock Services randomly selected 18 districts—four from the Rajshahi division: Bogra, Dinajpur, Rangpur, and Rajshahi; two from the Khulna division: Khulna and Jessore; one from the Barisal division: Barisal; two from the Sylhet division: Habiganj and Sunamganj; three from the Chittagong division: Chittagong, Comilla, and Noakhali; and six from the Dhaka division: Gazipur, Kishoreganj, Mymensingh, Narayanganj, Netrakona, and Narsinghdi.

In consultation with the Department of Livestock Services, a total of 54 Upazilas (three from each of the 18 districts) were selected (see annex 6): Babuganj, Muladi, and Wazirpur; Adamdighi, Dhunat, and Gabtali; Patiya, Rawzan, and Sitakunda; Comilla Sadar, Laksham; and Muradnagar; Birganj, Chirirbandar, and Khansama; Gazipur Sadar & Sreepur; Baniachong, Habiganj & Madhabpur; Bagharpara, Chowgachha, and Keshabpur; Kuliarchar, Nikli, and Pakundia; Dacope, Dighalia, and Paikgachha; Phulpur, Haluaghat, and Muktagachha; Araihaazar, Bandar, and Sonargaon; Kendua, Madan, and Purbadhala; Narsinghdi Sadar, Palash, and Shibpur; Begumganj, Companiganj, and Hatiya; Gangachara, Mithapukur, and Rangpur Sadar; Bagmara, Durgapur, and Mohanpur; Chhatak, Jagannathpur, and Sulla; and Savar.

# METHODOLOGY

The USAID | DELIVER PROJECT developed two separate interview tools, or instruments, for the district and Upazila facilities. Eight components were identified for the district facilities assessment and six components for the Upazila facilities. The project staff in Arlington reviewed the instruments; the instruments were then field tested and finalized in the districts of Manikganj and Munshiganj, and the Saturia and Tongibari Upazilas. During the field test, the respondents commented that they were simple, understandable, and relevant to the objectives of the study; they all agreed that they would be very helpful in promoting a systematic and organized Department of Livestock Services' LMS.

The following areas for assessment for the district and Upazila are listed below (see annex 6- List of District & Upazilas for Storage survey for the full instrument).

## DISTRICT FACILITY: DLO

- physical facility
- present inventory
- human resources
- inventory control
- transportation
- reporting
- computerization
- training

## UPAZILA FACILITY: ULO

- physical facility
- present inventory
- inventory control
- human resources
- training
- reporting

The USAID | DELIVER PROJECT put together a team to conduct the interviews; they began interviewing in mid-May and ended on June 30, 2008. The interviewers collected data from all 72 survey sites (18 districts and 54 Upazilas), surveying District Livestock Officers (DLOs) and the

Upazila Livestock Officers (ULOs)/veterinary surgeons. District livestock officers (DLOs), Upazila livestock officers (ULOs), and veterinary surgeons (VSs), interviewed were from academia; they were professionals working at recognized agriculture universities and institutions and were employed as responsible livestock managers, as well as service providers.

# SITUATION ANALYSIS

During the study, it was determined that only two districts did not have outbreaks: Habiganj and Sunamganj.

Thirty-three (61 percent) of the Upazilas reported no outbreaks—Babuganj, Muladi, Wazirpur of Barisal district, Adamdighi, Dhunat, of Bogra, Laksham, Muradnagar of Comilla, Chirirbandar, Khansama of Dinajpur, Baniachong, Habiganj Sadar, Madhabpur of Habiganj, Bagharpara, Chowgachha, Keshabpur of Jessore, Kuliarchar, Nikli, Pakundia of Kishoreganj, Dacope, Dighalia, Paikgachha of Khulna, Muktagachha of Mymensingh, Kendua, Madan, Purbadhala of Netrakona, Hatiya of Noakhali, Gangachara, Mithapukur of Rangpur, Durgapur, Mohanpur of Rajshahi, Chhatak, Jagannathpur, and Sulla of Sunamganj. Table 3 shows the list of affected areas, including the number of birds killed.

**Table 3. Statement on Outbreaks as Revealed by the Study**

District(s)	# of Outbreaks	Birds Killed	Upazila(s)	# of Outbreaks	Birds Killed
Barisal	03	7,546	Babuganj	00	00
			Muladi	00	00
			Uzirpur	00	00
Bogra	03	3,775	Adamdighi	00	00
			Dhunat	00	00
			Gabtali	01	1,623
Chittagong	17	62,235	Patiya	02	7,457
			Rawzan	01	197
			Sitakunda	01	4,742
Comilla	04	30,531	Comilla Sadar	03	28,665
			Laksham	00	00
			Muradnagar	00	00
Dinajpur	18	75,356	Birganj	01	2,302
			Chirirbandar	00	00
			Khansama	00	00
Gazipur	42	2,55,847 hens; 4,406: ducks and pigeons	Gazipur Sadar	14	135,594
			Sreepur	04	95,648
Habiganj	00	00	Baniachong	00	00
			Habiganj Sadar	00	00
			Madhabpur	00	00
Jessore	07	2,146	Bagharpara	00	00
			Chowgachha	00	00

District(s)	# of Outbreaks	Birds Killed	Upazila(s)	# of Outbreaks	Birds Killed
			Keshabpur	00	00
Kishoreganj	02	34,444	Kuliarchar	00	00
			Nikli	00	00
			Pakundia	00	00
Khulna	04	13,591	Dacope	00	00
			Dighalia	00	00
			Paikgachha	00	00
Mymensingh	04	68,957	Phulpur	01	1,000
			Haluaghat	01	612
			Muktagachha	00	00
Narayanganj	19	270,000	Araihazar	04	18,186
			Bandar	07	30,868
			Sonargaon	04	33,119
Netrakona	01	1,914	Kendua	00	00
			Madan	00	00
			Purbadhala	00	00
Narsinghdi	14	68,414	Narsinghdi Sadar	01	10,593
			Palash	01	26,943
			Shibpur	05	72,068
Noakhali	02	8,597	Begumganj	01	2,183
			Companiganj	01	6,415
			Hatiya	00	00
Rangpur	07	7,801	Gangachara	00	00
			Mithapukur	00	00
			Rangpur Sadar	05	4,665
Rajshahi	05	29,411	Bagmara	01	6,231
			Durgapur	00	00
			Mohanpur	00	00
Sunamganj	00	00	Chhatak	00	00
			Jagannathpur	00	00
			Sulla	00	00
*Dhaka			SAVAR	13	152,000
<b>Total</b>	<b>152</b>	<b>944,971</b>	<b>54</b>	<b>72</b>	<b>641,111</b>

Source: Service statistics maintained in the DLO/ULO.

\*Savar was included as an independent Upazila and not as an Upazila of Dhaka district. If Dhaka district is included, then the number of districts will be 19, but for the study purpose, we were given 18 districts.

# STUDY FINDINGS: DISTRICT LIVESTOCK STORE LEVEL

## PHYSICAL FACILITY

### STRENGTHS

- An estimated 83 percent of the respondents said that their offices are housed in the buildings where they work. Barisal, Dinajpur, and Noakhali said that their office is in a hired building. The Noakhali DLO said they have been using the accommodations abandoned by the Deputy Commissioner; they do not pay rent.
- With the exception of five DLOs (Rangpur, Rajshahi, Kishoreganj, Narayanganj, and Barisal), the other 13 DLOs said they have dedicated store rooms.
- Almost all DLOs said that their store room is secure and provides protection from the weather.



This Upazila Livestock Store is cluttered with broken equipment and unusable materials.

### DEFICIENCIES

- Approximately 94 percent of the respondents do not have a separate space for storing avian influenza commodities.
- Although 44 percent of the DLO stores have exhaust and ceiling fans, only four are working.
- Pest control work is done in only one DLO (Habiganj).
- Only three DLOs (Netrakona, Rajshahi, and Bogra) replied that they have adequate storage equipment.
- All the DLOs responded that they do not have adequate equipment for storing avian influenza commodities.

## PRESENT INVENTORY

### STRENGTHS

- For the current FY2007–2008, a budget is included for procuring commodities for the subordinate offices/lower facilities (ULO office).

- Approximately 72 percent of the DLOs had avian influenza items in the store on the day of the visit.

## DEFICIENCIES

- Approximately 88 percent of the ULOs have to hire private carriers to carry commodities from the DLO stores as neither the DLO nor the ULO has any vehicle for transporting commodities from District to Upazilas; more than 50 percent of the DLOs answered that they previously received supplies pushed from the Central Warehouse.
- Eleven percent of the respondents did not have any avian influenza items in stock (16 percent of the DLOs did not respond).



This Upazila Livestock Storeroom contains unusable items and some personal belongings.

## INVENTORY CONTROL

### DEFICIENCIES

- None of the DLOs had departmental supply registers and cards in the store to maintain, track, and record transactions, including avian influenza items; they use a traditional register to maintain, track, and record transactions. Traditional registers do not have all the minimum required information such as opening balance, receipts, issues and closing balance. For systematic and detailed documentation, the DLOs noted that they need printed standard and uniform registers.
- The records in the existing register have not been regularly updated (except in Habiganj and Khulna); the remaining 16 DLOs answered that the registers are not updated because no one asks to see them. Once a year the storekeeper/support staff (UD/office assistant) updates the register.
- Almost all the DLOs answered that they verify the register and cards, while the DLO in Noakhali said the divisional director verifies their works, including records on finance and logistics, services, outbreaks, etc.
- Thirteen DLOs answered that they do not have any standard operating procedures to determine *Issue Quantity*.
- Vaccines supply is not scheduled and not tied to reporting or ordering: One DLO answered that vaccines are supplied monthly; 10 answered that they are supplied once a year, while the remainder said they often receive vaccines, but only receive medicines once a year.
- Thirteen DLOs answered that they do not have any printed invoice/IV forms to supply avian influenza items. Barisal and Comilla said they use printed forms; three DLOs answered that they produce these forms/form locally.

# **TRANSPORTATION**

## **DEFICIENCIES**

- None of the district stores have official vehicles to carry commodities like vaccines and semen to the ULO store; or to transport medicine, drugs, MSRs, equipment, or instruments to the lower facilities (ULO stores), nor is there provision to outsource transport of commodities.

# **REPORTING**

## **DEFICIENCIES**

- Approximately 38 percent of the DLOs have a regular logistics management reporting system for sending service progress reports; but, in fact, they do not have any structured printed forms/formats for the logistics reporting system.
- Nearly 77 percent of the DLOs have never received feedback from their reporting system; this may be the result of weak monitoring.

# **COMPUTERIZATION**

## **STRENGTH**

- All the DLO offices have a computer; one operator said that he has training on word processing.

## **DEFICIENCIES**

- Although computers are present, no one answered that the computer was being used for logistics data. All the respondents answered that they need a computerized DLO logistics system, and preferably a computer for the DLO's Automated Inventory Control System (AICS). Reporting is essential for analysis, because it helps track the needs and demands for services, thereby providing a better understanding of the program performance.

# **HUMAN RESOURCE**

## **STRENGTH**

- All the DLOs answered that they have a dedicated manager for the District Livestock Office (the DLO himself).

## **DEFICIENCIES**

- The warehouses do not have a dedicated storekeeper.
- The office assistant, head clerk, and head assistant accomplish the storage work on an ad-hoc basis as this is not part of their job description.

# **TRAINING**

## **DEFICIENCIES**

- None of the DLOs have received logistics management training, nor were they aware of any opportunities for logistics training. All the DLOs want and need the training. Every respondent said the training would help them professionally; they also said it would help the Department of Livestock Services by developing the skills of the managers to provide better quality services.

# FINDINGS OF THE STUDY: UPAZILA LIVESTOCK STORE LEVEL

## PHYSICAL FACILITY

### STRENGTHS

- Ninety-five percent of the ULOs are located in their own building (Dighalia, Bandar, and Nikli ULOs are accommodated in the Upazila Parishad building), with the exception of Dighalia, Gazipur Sadar, Nikli, Rawzan, Savar and Sitakunda Upazilas where they have a dedicated store.
- Approximately 74 percent of the ULOs said that their facility has secure doors and windows.
- The average size of the storeroom is L 12 feet × W 10 feet × H 10 feet, which is considered as appropriate considering the volume of current transactions.
- Eighty-three percent of the ULOs have an Almirah.

### DEFICIENCIES

- Most of the respondents (70 percent) do not have the appropriate equipment (rack, Almirah, and refrigerator) to store commodities in order to ensure their quality. This was also observed during physical visits to the stores.
- None of the respondents have shelves and dunnage; 14 said they have a refrigerator; four ULOs reported that they have a rack; of the 83 percent of the ULOs that have an Almirah, it was used for storing several different items.
- Ninety-five percent do not have fire extinguishers.
- Seventy-six percent have no appropriate ventilation or ceiling fans.
- Ninety-four percent of the stores do not have pest control.
- Security guards are not present in any of the 54 ULOs, nor is there a security guard in the ULO.



Unorganized Upazila Livestock store

# PRESENT INVENTORY

## EXISTING PROCEDURES:

- Once a year, all 54 respondents receive medicines and MSRs from the DLO office. If there is further need of medicine during the year, DLS has no provision to re-supply for meeting the requirement.
- None of the respondents have yearly budgets for medicines or MSRs.
- The respondents receive the following items during a one-year period:
  - medicine: 70–80 items\*
  - instrument: 29–35 items\*
  - vaccines: 12–18 items in one year
  - AI items: 3–27 at time of outbreaks
  - flood items, including for special goat project: 12 items
  - semen hydrogen: monthly
- They use a push system. If there is a need of more medicines, DLS current system does not allow submitting an Indent request from the lower tiers to the upper tier.



Unorganized DLO store

- Private carriers are used to transport supplies from the DLO store. The private carrier is hired on an as and when needed basis. There is no system of yearly or half-yearly contracting.

## STRENGTH

- Sixty-one percent of the commodities were available on the day of the visit.

## DEFICIENCY

- Thirty-nine percent of the commodities were not available on the day of the visit.

\*as per the physical findings

# INVENTORY CONTROL

## STRENGTHS

- Almost all the respondents answered that they have registers to maintain the records.
- Approximately 69 percent of the ULOs said they update their records monthly.
- Eighty-one percent of the respondents said that the veterinary surgeons update the records.
- All ULOs noted that the ULO, DLO, Deputy Director, or higher authority verification (not logistics-related verifications) are done by higher authority when they visit the lower level facilities.
- Approximately 72 percent of the ULOs updated their registers.
- Most veterinary surgeons receive supplies from the ULO store; while some answered that the compounders receive supplies.
- Forty-four percent of respondents said that supply is made when needed, although 22% said daily and 33% did not respond to this question.

## DEFICIENCIES

- Respondents answered that they do not have inventory control cards.
- Approximately 20 percent of the ULOs said they update their records daily; 11 percent did not respond.
- There are no rules and guidelines for issuing quantity for 85 percent of the ULOs, while 7 percent have set procedures.
- Printed *Invoice/IV* forms to supply items are not available for any of the ULOs, indicating that systematic supply form/formats do not exist.
- Eighteen percent of ULOs said they did not update their registers, and five ULOs did not respond.
- Different kinds of recording tools—stock registers, plain registers, patient registers, plain sheets and others—are used for commodity transactions in each facility. To get an idea of the different kinds of tools used, the following registers were found at various stores:

## **Name of the Registers**

Daily Medicine Register	Stock Register
Daily Patient Register	Daily Medicine Supply Register
Medicine Register	Equipment Register
Vaccine Register	MSR Register
Instrument Registers	Office Supply Register
Instrument Stock Register	Equipment Stock Register
Daily Patient Register	Patient Register
Office Supplies Register	Out door patent Register
Out Patient Register	Drug & Medicine Register

## **HUMAN RESOURCES**

### **STRENGTH**

- All the Upazila livestock officers are dedicated managers for the Upazila Livestock Office.

### **DEFICIENCIES**

- None of the facilities have a designated storekeeper.
- In 74 percent of the ULO stores, the veterinary surgeon does the storage work. Only 9 percent of the ULO stores are run by Compounder (A compounder is a paramedic who dispenses drugs on the basis of prescription given by VS) and more than 9 percent stores are run by the ULOs.

## **TRAINING**

### **STRENGTHS**

- A vast majority of respondents recognized the need for training in store management and recording; about 93 percent of the respondents said they would benefit most from inventory management practices. Most of the respondents (95 percent) said the training would improve their performance, efficiency, commodity management, reporting, recording, quality, and capacity.

### **DEFICIENCIES**

- None of the ULOs have received logistics management training, nor were they aware of any opportunities for logistics training. All want and need such a training. Approximately 31 percent of the respondents said they were not familiar with logistics topics. Every respondent said the training would benefit them and the Department of Livestock Services professionally by developing the skills of the managers to provide better qualitative services.

# REPORTING

## DEFICIENCIES

- About 59 percent of the respondents answered that they do not have a formal logistics management reporting system; 33 percent answered that they only have printed reporting forms for vaccines and artificial insemination.
- About 28 percent of the respondents do not provide logistics reports at all, while 44 percent said they provide monthly reports that are related to activity performance reporting.
- Veterinary surgeons and field workers frequently prepare several different reports. Some said the logistics report is not a priority. In the absence of a regular reporting system, information is passed on to higher authorities through workshops, progress reports, and inspections or visits from higher authorities.
- No formalized provision of feedback; feedback is provided informally during monthly meetings or when asked by the higher authority to send written report. About 70 percent of the respondents answered that they have not received any feedback on their reporting and 14 percent said they receive feedback during workshops; the others did not understand the meaning of a feedback system.



# AN OVERVIEW OF THE OLD STORES IN THE 17 GREATER DISTRICTS

Historically, Bangladesh was divided into four divisions and 17 districts, which were increased to 6 divisions and 64 districts in the 1980s. The initial 17 districts were Bogra, Dinajpur, Rajshahi, Rangpur, and Pabna in the Rajshahi division; Dhaka, Barisal, Faridpur, and Mymensingh in the Dhaka division; Chittagong, Comilla, Noakhali, Chittagong Hill tracts, and Sylhet in the Chittagong division; and Khulna and Jessore Kushtia in the Khulna division.

During the 1980s and 1990s, the Ministry of Livestock and Fisheries built livestock stores in all the greater districts, which included a cold room, under the financial assistance of the European Economic Commission (EEC). The average size of these stores is approximately 50 feet × 20 feet;

the size of the cold room is 20 feet × 10 feet. Most of the stores are located at a considerable distance from the present District Livestock Offices. It is worth mentioning that no repairs or renovations have been made to these buildings since they were first constructed. As a result, the buildings are dilapidated and pose a serious safety risk.

Even though the buildings are not fully functional, district authorities have continued to provide some services from these buildings, for example, artificial insemination. The Department of Livestock Services does not use any of these buildings for warehousing avian influenza commodities. With the construction of new buildings for the DLO offices, store spaces have been made available from within the existing accommodations.

The assessment findings revealed that the 17 greater district stores are in poor condition, but the district managers think that these buildings, after some repairs and renovation, can be used for purposes other than storing avian influenza commodities. There are differing opinions regarding the future use of the 17 greater district stores. Some have suggested that the space could be used as a laboratory for the detection of avian influenza, for artificial insemination, or as training centers. However, during the dissemination workshop held on August 13, 2008, others said it was not worth the investment to repair or renovate the buildings. Others argued that it would be a lengthy process and would not guarantee that the stores could be returned to their original state.



Inside condition of old Greater District DLO store



Outside view of a cold room

Because the DLOs already have storage space in the DLO building, and the distribution of DLO commodities—including avian influenza commodities—are small quantities, it is not advisable to invest in rehabilitating the older stores. Instead, our recommendation is to improve facilities of the existing stores to ensure quality of commodities.

# **FINDINGS AND RECOMMENDATIONS PRESENTED TO STAKEHOLDERS**

The following recommendations for the DLO and ULO stores are based on the assessment findings.

## **PHYSICAL FACILITY**

- A dedicated storeroom for the DLO and ULO for storing commodities, equipment, and instruments must be earmarked within the present facility. The storerooms for the DLO and ULO should be called the DLO Store and ULO Store, respectively. Because the commodities will be stored vertically and horizontally, it is essential that the warehouse has equipment that includes racks, Almirah, and dunnage.
- DLO and ULO cold room stores need a standard size ladder and a trolley for easy and faster movement of inbound commodities.

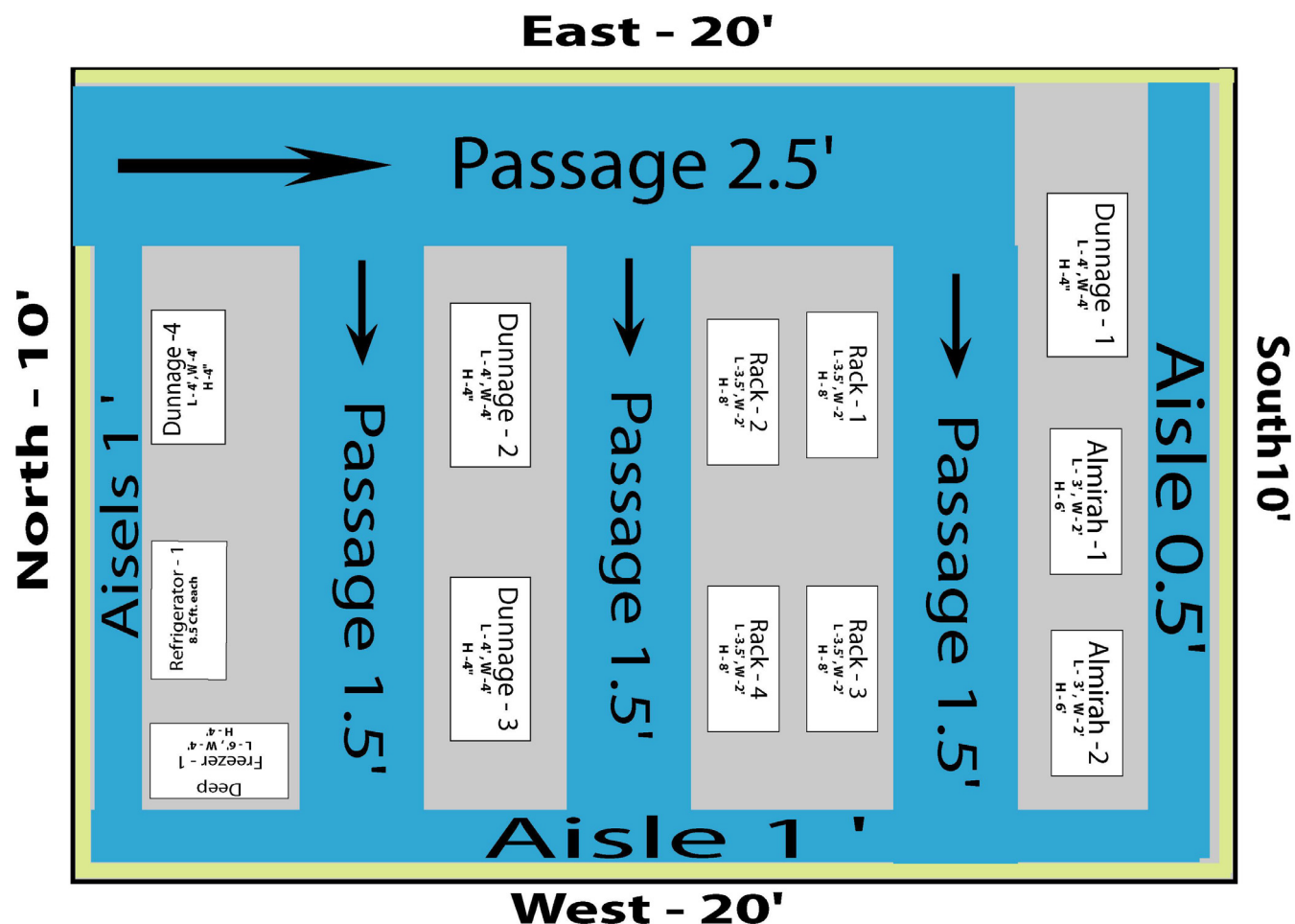
## **RATIONALE FOR FLOOR SPACE FOR THE PLACEMENT OF GOODS IN THE DLO AND ULO STOREROOM**

Goods are procured once a year in the DLO and the ULO stores; tenders are by invitation through local procurement. Vaccines are supplied throughout the year. An analysis of the receipts of goods (see annex 1) in a DLO and ULO store for 2007–2008 shows that at least 44 items, including drugs and medicines, are received in one year. In addition, the stores receive 13 items of avian influenza (AI) commodities (annex 2) in one year. However, the receipt of avian influenza commodities depends on the number of avian influenza outbreak(s). The volume of avian influenza commodities may fluctuate according to the frequency and time of an outbreak; during outbreaks these commodities must be stored within the existing space of the facility. Additionally, there are 44 types of instruments (annex 3), which are always stored for regular clinical functions. Apart from the regular supply of medicines and vaccines, a special supply of drugs and medicine are also kept for use during natural calamities, such as floods. Medicines for the special goat project are also kept in the store. The registers; manuals; forms; and information, education, and communication (IEC) materials; including old files and documents, are also kept at the store.

Considering this situation, a layout plan for dedicated DLO and ULO storerooms is shown in figure 2.

## SPACE ASSESSMENT FOR THE DLO STORE

Figure 2. Recommended DLO Store Layout



For the DLO Store

- Racks: 4 nos. (size L 3.5 feet × W 2 feet × H 8 feet)
- Almirahs: 2 nos. (size L 3 feet × W 2 feet × H 6 feet)
- Dunnage: 4 nos. (size L 4 feet × W 4 feet × H 4 feet)
- Refrigerator: 1 nos. of 8.5 cubic feet
- Deep freezer: 1 nos. (size L 6 feet × W 4 feet × H 4 feet)

One estimate shows that approximately 487 cubic feet of storage space is required to accommodate the inventory of commodities listed in annex 4. The room would be 8 feet high. Using the principle of space utilization rate, 30 percent is ideal (Andrew Chesley, Designed & developed plan for DGFP)

CDF 1997). Therefore, the total required space for all the listed goods/commodities is 60.9 square feet.

Currently, the average size of the DLO store is  $20 \times 10 = 200$  square feet, which is much larger than the required 60.9 square feet. The remaining area could be used for future storage space for materials and additional warehousing.

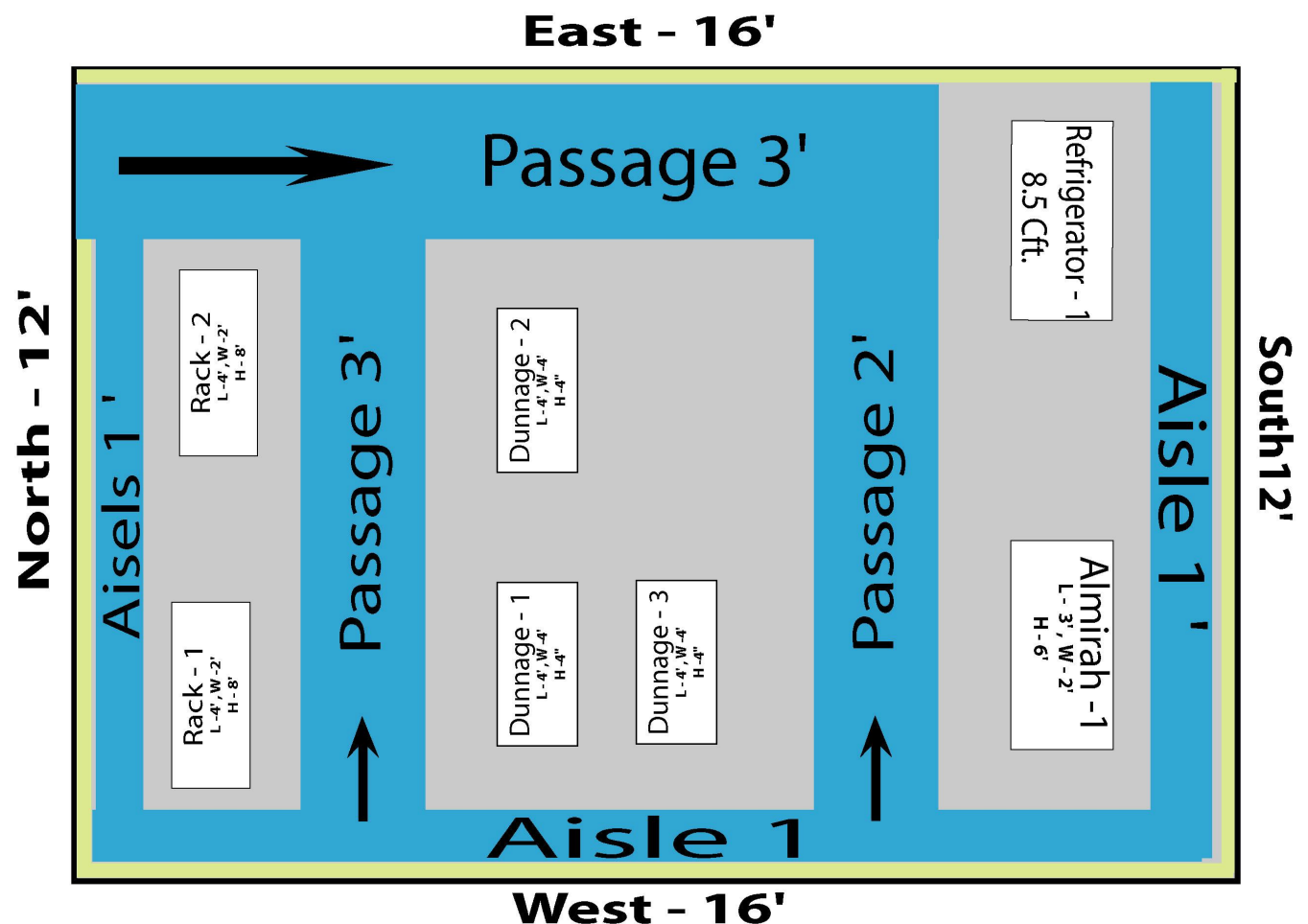
## COLD ROOM

The DLO requires, within the existing DLO store, a cold room that is 10 feet  $\times$  10 feet  $\times$  10 feet (approximately 100 square feet) for warehousing and distribution of vaccines and for semen for artificial insemination.

- Both the DLO and ULO stores need a standard size ladder.
- Both facilities (DLO and ULO) also need a trolley for easy and faster movement of inbound commodities.

**Figure 3. Space Assessment for the ULO Store**

Layout Plan: ULO Store Ideal Setup



For ULO Store:

- Racks: 2 nos. (size L 4 feet × W 2 feet × H 8 feet)
- Almirahs: 1 nos. (size L 3 feet × W 2 feet × H 6 feet)
- Dunnage: 3 nos. (L 4 feet × W 4 feet × H 4 inches)
- Refrigerator: 1 nos. of 8.5 cubic feet

The average available size of the ULO store is  $12 \times 16 = 192$  square feet, which is more than adequate for the 18.2 square feet needed. Items can be stored up to 8 feet high. An estimate shows that approximately 146 cubic feet of storage space is required to accommodate the inventory of commodities listed in annex 5. The remaining space can be used for the future storage of commodities and materials (see figure 3).

## HUMAN RESOURCES

Because both the DLO and ULO facilities have stores and full-time managers, both need a full-time storekeeper. *Until a new storekeeper is recruited, a full-time office assistant for the DLO office should be assigned and trained.* For the ULO stores, the compounder may be assigned to act as the storekeeper, in addition to his or her current duties.

## TRAINING

All managers—DLOs, ULOs, veterinary surgeons, and storekeepers—should have basic logistics management training (storage management, recording, reporting, disposal and physical inventory); the training should last approximately 4–5 days. Training manuals should be prepared with the appropriate technical assistance; they should include all the required logistics management topics. The storekeeper at the DLO store should have a computer, including Automated Inventory Control System software, and should be trained on its use. The training venue should be at a central place.

## PRESENT INVENTORY

From the DLO stores, they should continue to use a *pull* system to supply drugs, medicines, MSRs, and a *push* system to supply avian influenza items to the ULO stores. During an emergency or when there is an acute shortage of commodities, the lower tier should submit an Indent (emergency request order) to the higher tier for supplies.

Vehicles, vans, or carriers should be hired to transport medicines, drugs, surgical requisites, and avian influenza items from the DLO, or other sources, to the lower level (ULO).

## INVENTORY CONTROL

- A standard Inventory Control Register (ICR) should replace the currently used plain register for recording receipts and supplies of items.
- Each item (countable items) should have a bin card.
- Indent forms should be available to requisition materials; Issue Vouchers should be available for supplying commodities.

- All the forms and formats, including ICRs, should be standardized and uniform; they should be printed.
- Standard policies should be established for issue quantity.

## **COMPUTERIZATION**

The Automated Inventory Control System should be introduced at the DLO. Computers and printers with UPSs are available in most DLO offices. Computers should be supplied to any DLO currently without one.

In addition to the Automated Inventory Control System, the storekeeper will produce Issue Vouchers, Invoices, Indents, and quarterly reports on their computer for logistics transaction reports and records.

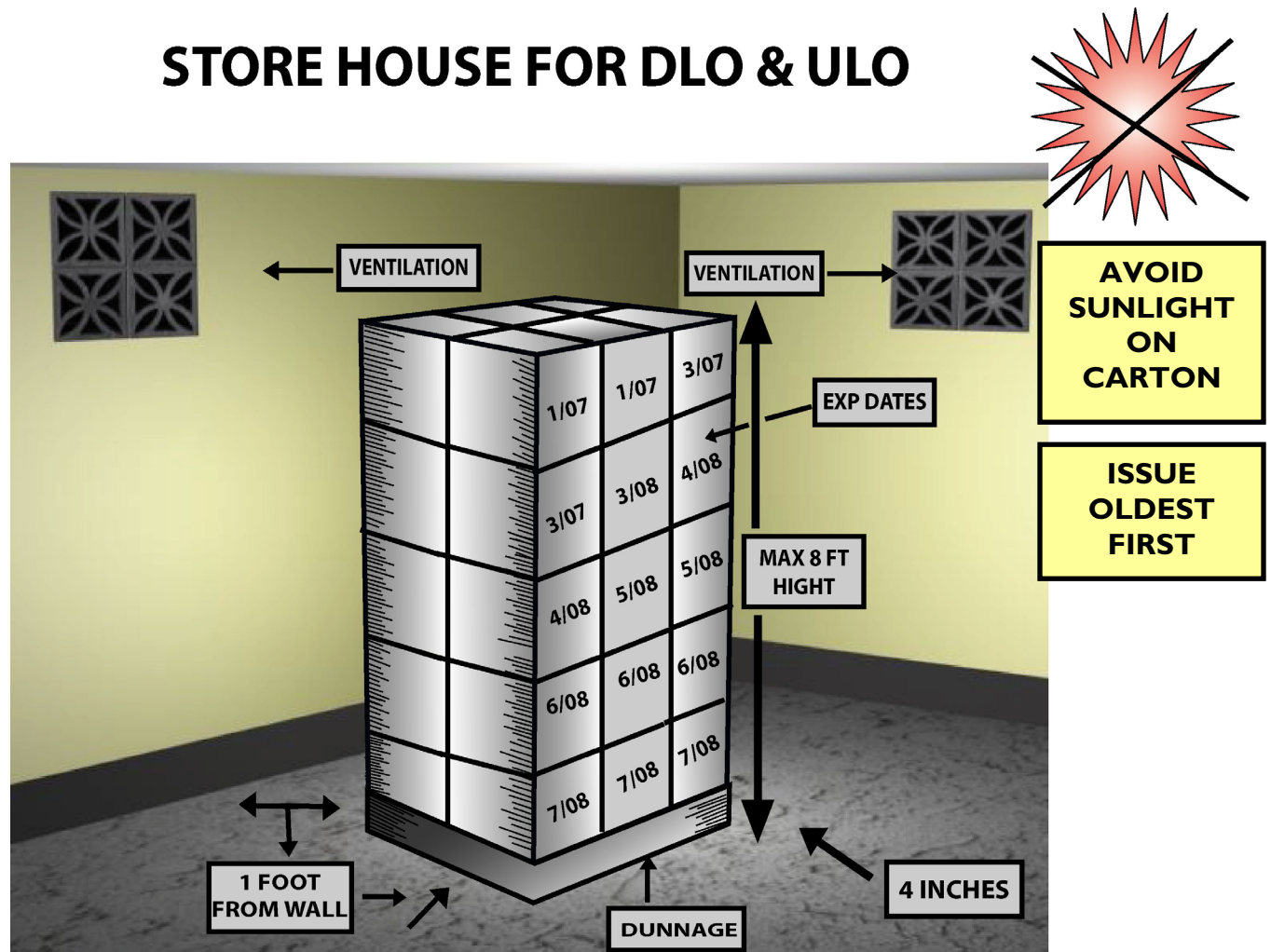
## **REPORTING**

- Four quarterly reports with logistics data will be generated, at both the DLO and ULO levels (July–September, October–December, January–March, and April–June).
- Reporting systems for logistics management at the district and Upazila levels should be uniform and identical.
- The storekeeper should prepare the reports; their respective managers (DLO/ULO) should approve them.
- To help track performance and progress of the program, there should be a feedback system between the DLO and ULO at regular intervals, preferably quarterly.
- A monitoring checklist can be devised that the DLO, or other higher authorities at the divisional and central levels, can use to give feedback to the ULOs.



# RECOMMENDATIONS BY STAKEHOLDERS AND NEXT STEPS

Figure 3. Storehouse for the District Livestock Office (DLO) Store and the Upazila Livestock Office Store

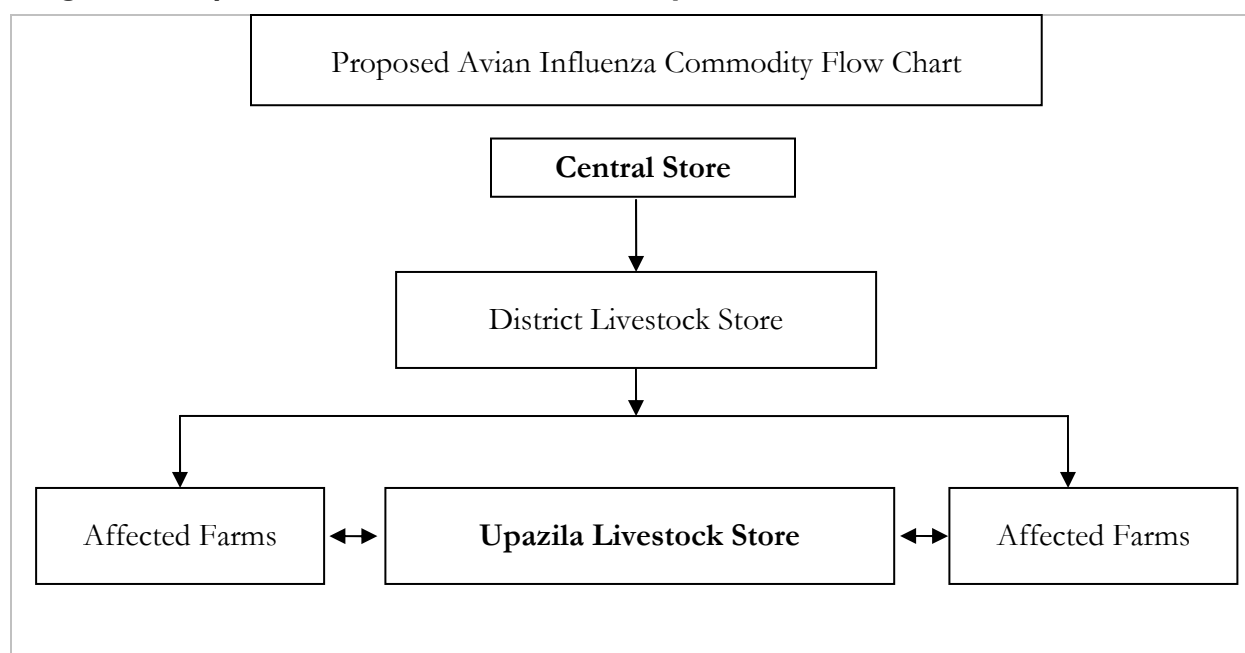


The participants of the dissemination workshop, attended by high officials of DLS and USAID, reviewed and analyzed the findings in order to decide on appropriate measures that would improve the overall logistics management system, including warehousing and inventory control, and capacity building for the logistics personnel in the district and Upazila livestock departments.

## WAREHOUSING

- The District Livestock Office needs a designated storeroom where staff can plan improvements for the facility and calculate requirements for storage equipment. Although most of the stores have adequate storage space at the District Livestock Store, regular supplies of medicines and drugs, equipment, and avian influenza commodities, the space does not follow the store layout plan. It is recommended that the DLS allocate a space of 200 square feet, with one or more rooms, for easy planning and an improved facility. This plan would follow the basic principles of warehousing—of the total space, only 30 percent, including vertical space, would be used for storage; and 70 percent would be used for the required storage aisles, and commodity movements. We also recommend that the plan follow the *Storage Guidelines* and storage layout plan already developed.
- Study findings reveal that, at this time, medicines, drugs, equipment, and AI commodities cannot be safely stored. To provide for quality assurance and to ensure warehousing best practices, we recommend that each DLO in the country receive four pallets/dunnage, four steel racks, two steel almirahs, one refrigerator, one deep freezer, three fire extinguishers, and a ladder; for a total of 256 pallets/dunnage, 256 racks, 128 almirahs, 64 refrigerators, 64 deep freezers, 192 fire extinguishers, and 64 ladders. In addition, the DLS authority should consider installing two exhaust fans (for a total of 128 exhaust fans) to control temperature, and also add a small cold room at each DLS to store vaccines and the required AI test kits.
- A room is already earmarked for the Upazila Livestock Store, which has 192 square feet to accommodate the present inventory. However, there is no storage equipment in the store, storage guidelines are not followed, and the layout plan is not followed. To provide for quality assurance and to ensure warehousing best practices, we recommend that each ULS in the country receive three pallets/dunnage, two steel racks, one steel Almirah, one refrigerator (including a freezer), two steel buckets (for water and sand), and one ladder; for a total of 1,449 pallets/dunnage, 966 racks, 483 almirahs, 483 refrigerators, 966 steel buckets, and 483 ladders.
- The USAID | DELIVER PROJECT developed standardized storage guidelines and a storage layout plan for the Upazilas, which should be strictly followed to ensure the quality of the commodities and for warehousing best practices. A flow chart should be developed detailing the connection between the ULS, the DLS and the Central Store.
- As there is no layout plan at the Upazila level, we recommend a standardized storage layout plan that allocates storage space for each category of commodities (see section 10).

**Figure 4. Proposed Avian Influenza Commodity Flow Chart**



- The Central Store will receive and store all AI commodities, whether they are supplied by donors or procured by the Department of Livestock. The Central Store will supply commodities to the DLO after the Central Store receives an indent from the DLO; they will store the commodities in the DLS. In the event of an AI outbreak, the Upazila Livestock Officer (ULO) will immediately send the DLO information about the location and distance of the affected farm(s). The DLO will immediately send commodities to the affected farms; and they will also send a copy of the Invoice/Issue Voucher to the ULO for monitoring and necessary follow up.

In exceptional cases, the DLS can send AI commodities to the ULS, if (1) there are 20+ commercial farms involved, (2) the Upazila is outbreak prone, (3) there is evidence that the outbreak occurred in the Upazila last year and the year before, and (4) there are adequate storage facilities.

## INVENTORY MANAGEMENT

- There is an inventory control procedure for receipt and issue and dispensing of commodities; therefore, we recommend that an inventory control system be established at both the district and ULSs.
- Uniform inventory control registers and forms—bin cards, recordkeeping registers, Indent Forms, Issue Vouchers, and periodic reporting forms—should be introduced and practiced at all levels, particularly at the Central, district, and Upazila stores.
- We recommend that the following be printed and supplied to each of the Central, district, and Upazila stores:
  - 1,646 inventory control registers (5 for the Central Store, 192 for the DLO stores, and 1,449 for the ULO stores)
  - 1,094 indent forms—pad of 100 pages (128 for DLO stores and 966 for ULO stores)

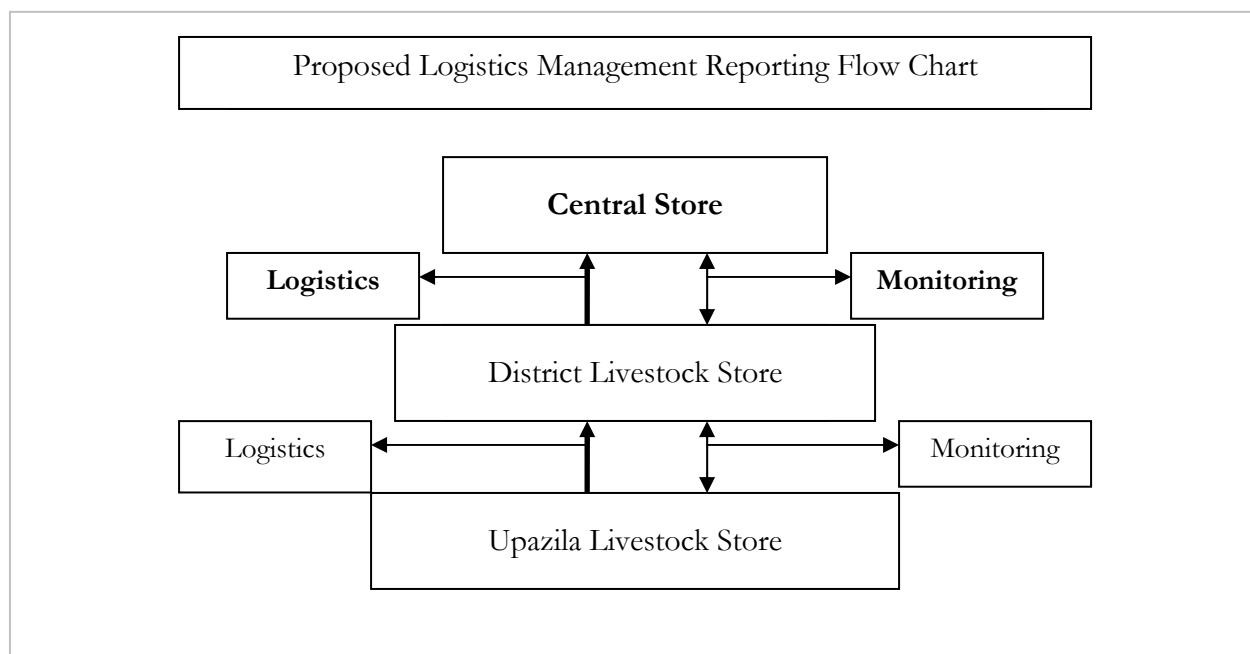
- 1,163 issue vouchers—pad of 200 pages (5 for Central stores, 192 for DLO stores & 966 for ULO stores)
  - 549 reporting forms—pad of 100 pages (2 for Central Store, 64 for DLO stores, and 483 for ULO stores)
  - 548 physical inventory forms—pad of 100 pages ( 1 for Central Store, 64 for DLO stores, and 483 for ULO stores)
  - 1,77,000 bin cards (100 for Central store, 32,000 for DLO stores, and 1,44, 900 for ULO stores).
- To ensure accountability, the correct registers and forms must be used and submitted on time.
  - At this time, the DLO and ULO stores do not have a system for doing a periodic physical inventory. A physical inventory is necessary to assess the gap or discrepancy between the book balance and the physical stock. We recommend an annual or, if possible, bi-annual physical inventory in both the DLO and ULO stores, preferably conducted by a private audit firm.
  - The current procedures for disposal of unusables are cumbersome and lengthy; as a result, timely disposal does not always take place. The procedures for disposal of unusables should be simplified; they should take place at least once a year, and, if needed, twice a year.

A specific policy should be established for determining the issuing quantity of commodities from the higher level to the lower level.

## LOGISTICS MANAGEMENT INFORMATION SYSTEM (LMIS)

- Although there is an established system for regular monthly service reporting (number of animal population treated, attended, etc.), there is no logistics reporting system. A quarterly logistics (medicines and drugs, vaccines, AI commodities) reporting system should be introduced at the district and Upazila levels. The new logistics reporting flow chart is shown below:

**Figure 5. Proposed Logistics Management Reporting Flow Chart**



## REVIEW PRESENT LIVESTOCK LOGISTICS MANAGEMENT INFORMATION SYSTEM

The Department of Livestock has a well-established system for monthly services reporting, i.e., number of animal population treated, vaccinated, attended, etc. However, there is no system for logistics/commodity reporting. Currently, if the DLO does not contact the ULO, or if the DLO does not visit the ULO store, the DLOs does not know the quantity of commodities dispensed or the stock balance available in an Upazila livestock store under their jurisdiction. Similarly, the Deputy Director of the Central Store does not know how much a DLS has supplied to the Upazila stores or the current balance available in the district store. Therefore, it is very difficult for the higher level to monitor logistics management activities at the lower levels.

- We recommend that a quarterly logistics/commodity management reporting system be established.

- The Upazila Livestock Officer prepares the report and submits it to the DLO by the fifth working day of the first month.
- The DLO, after receiving the reports from the Upazila Livestock Officers, prepares the district report, which will include the compiled information from the DLS and the Upazila reports.
- The DLO will submit the report to the Deputy Director of the Central Store, and will send a copy to the Divisional Director of the respective division and the Director General, DLS, by the tenth working day of the first month of the next quarter.

If this reporting system is established, it will be much easier for the higher levels to monitor the logistics activities of the lower levels; it will also help with the planning for the next procurement.

- Consider replicating a computerized inventory control system—which was introduced in the Central Store—in the DLOs, because they already have a computer with accessories.

## **TRAINING**

- Develop a countrywide Logistics Management Training (LMT) Implementation Plan for the district- and upazila-level designated logistics personnel, including the duration for each training course.
- In the report, an LMT curriculum outline was proposed. Develop a complete curriculum that follows the outline; implement the curriculum.
- Provide topical training for the storekeepers/store-in-charges and their supervisors, i.e., give DLOs and ULOs an orientation.
- Incorporate on-the-job training (OJT) as part of the supervisory and monitoring visits. Develop structured checklists for OJT.

## **HUMAN RESOURCES**

- If a new position cannot be created, designate one staff from the existing staff as storekeeper; have him trained in logistics management. When he is transferred, he should be replaced by another designated storekeeper to ensure that his expertise in logistics management is not lost.

## **OTHER RECOMMENDATIONS FOR SYSTEM STRENGTHENING**

- Develop a supply procedural manual that the designated storekeepers and their supervisors can use as a guide, when needed.
- Establish a regular logistics monitoring and supervision system, with an OJT structured checklist, for all levels of the livestock department, to ensure regular feedback and capacity building for strengthening logistics management systems in the DLS.
  - Establish a District → Central Store → Directorate of Livestock model that will help monitor consumption, stock position, and planning for future procurements.

# CONCLUSION

The objective of the phase-A study was to “Integrate and standardize Emergency Avian Influenza Logistics Management System with DLS LMS”. A detailed Work Plan was developed to achieve the objective which included as many as 9 activities that are outlined below—

1. Recruit and orient staff
2. Mapping of the study districts and Upazilas
3. Conduct Rapid Assessment of selected district and Upazila stores
4. Disseminate report to DLS, USAID and other stakeholders, incorporate inputs and publish report
5. Assess requirement of storage equipment & furniture (pallets, Shelves, Racks, etc.) for CWH, District and Upazila stores
6. Prepare specifications of the assessed furniture and equipment
7. Assess facility-wise requirement of ICRs and other Inventory management Forms (Indent Form, Issue Voucher, Reporting Forms, etc.)
8. Establish computerized warehouse Inventory Management System (WIMS) in DLS CWH
9. Assess Training Needs on Logistics Management

The AI team, with support from the Home Office, accomplished the above activities, including the Rapid Assessment, in about 4 months, starting in May 2008, and disseminated the findings and recommendations in a Workshop, held at DG, DLS conference room, which was participated in by the national and field level officials of Department of Livestock, USAID and the USAID | DELIVER PROJECT. The participants critically reviewed of the findings and recommendations and provided valuable inputs. It's worth quoting here some of the remarks, such as that of the DD (S&E) Dr. Sabbir Ahmed, who was the chairperson of the dissemination workshop, “we are deprived of logistics to manage logistics”. Mr. Sunil Chandra Ghosh, DG, DLS also commented saying that, “total logistics system of DLS needs to be reorganized for the better performance of the program”. After thorough review DLS accepted almost all the recommendations for implementation and USAID assured that they would provide necessary resources to implement the recommendations.

All parties, DLS, USAID and USAID | DELIVER PROJECT, that are involved in the improvement of the DLS Logistics Management System should put their coordinated efforts to implement the recommendations of the study so that the weaknesses identified during the study are removed and DLS Logistics management System is gradually developed to an acceptable and standard level.



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