

Document of  
The World Bank

Report No: ICR00003144

IMPLEMENTATION COMPLETION AND RESULTS REPORT  
(PROJECT NO: P110207-UG)

ON A  
CREDIT (IDA-44820)

IN THE AMOUNT OF SDR 6.20 MILLION  
(USD10 MILLION EQUIVALENT)

AND A  
GRANT (TF-92919)

IN THE AMOUNT OF USD 2.00 MILLION

TO  
THE REPUBLIC OF UGANDA  
FOR THE

AVIAN AND HUMAN INFLUENZA PREPAREDNESS AND RESPONSE PROJECT  
UNDER THE  
GLOBAL PROGRAM FOR AVIAN INFLUENZA CONTROL AND HUMAN  
PANDEMIC PREPAREDNESS AND RESPONSE

June 30, 2014

Agriculture, Rural Development and Irrigation Unit (AFTAI-3)  
Sustainable Development Department  
Country Department AFCE1  
Africa Region

CURRENCY EQUIVALENTS  
(Exchange Rate Effective May 30, 2014)

Currency Units US\$ 1 = 2,546.74 SHS

FISCAL YEAR  
July 1–June 30

ABBREVIATIONS AND ACRONYMS

|        |   |
|--------|---|
| AHI    | Avian and Human Influenza   |
| BSL    | Bio-Safety Level  |
| DANIDA | Danish International Development Agency   |
| ESMP   | Environment and Social Management Plan  |
| FAO    | Food and Agriculture Organization   |
| GPAI   | Global Program for Avian Influenza Control and Human Pandemic Preparedness        |
| GPS    | Global Positioning System   |
| GOU    | Government of Uganda  |
| HPAI   | Highly Pathogenic Avian Influenza   |
| ICR    | Implementation Completion and Results Report                                      |
| IDA    | International Development Association   |
| IDSR   | Integrated Disease Surveillance and Response                                      |
| INAP   | Integrated National Action Plan   |
| ISR    | Implementation Status and Results Report  |
| MAAIF  | Ministry of Agriculture, Animal Industry and Fisheries                            |
| M&E    | Monitoring and Evaluation   |
| MOH    | Ministry of Health  |
| MUWRP  | Makerere University Walter Reed Project   |
| NTF/AI | National Task Force on Avian Influenza  |
| OIE    | <i>Office International des Epizooties</i> (World Organization for Animal Health) |
| OP     | Operational Policy  |
| OPM    | Office of the Prime Minister  |
| QAG    | Quality Assurance Group   |
| SHS    | Uganda Shillings  |
| UNICEF | United Nations Children’s Fund  |
| USAID  | United States Agency for International Development                                |
| USD    | United States Dollar  |
| UNHRO  | Uganda National Health Research Organization                                      |
| WHO    | World Health Organization   |

|                                  |                                    |
|----------------------------------|------------------------------------|
| Vice President                   | Makhtar Diop                       |
| Country Director/Country Manager | Philippe Dongier/Ahmadou M. Ndiaye |
| Sector Manager/Sector Director   | Tijan Sallah/Jamal Saghir          |
| Project Team Leader              | Abel Lufafa                        |
| ICR Team Leader                  | Abel Lufafa                        |
| ICR Principal Author             | Eustacius Betubiza                 |

**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**  
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**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**

| <b>A. Basic Information</b>  |                 |                   |   |
|--|-----------------|-------------------|---|
| Country:   | Uganda          | Project Name:     | Avian and Human Influenza Preparedness and Response Project |
| Project ID:  | P110207         | L/C/TF Number(s): | IDA-44820; TF-92919   |
| ICR Date:  | 02/28/2014      | ICR Type:         | Core ICR  |
| Lending Instrument:  | SIL             | Recipient:        | Government of Uganda  |
| Original Total Commitment:   | USD12.0 Million | Disbursed Amount: | USD10.63 Million  |
| Environmental Category:  | B               |                   |   |
| Implementing Agency: Office of the Prime Minister; Ministry of Agriculture, Animal Industry and Fisheries; and Ministry of Health  |                 |                   |   |
| Co-financiers and Other External Partners: 1) European Union (through the African Union – International Bureau of Animal Resources: Support Programme for Integrated National Action Plans – AU-IBAR SPINAP; 2) United States Agency for International Development); 3) Centers for Disease Control, Atlanta; 4) Institute of Animal Health, Pirbright |                 |                   |   |

| <b>B. Key Dates</b> |             |                   |               |                            |
|---------------------|-------------|-------------------|---------------|----------------------------|
| Process             | Date        | Process           | Original Date | Revised / Actual Date(s)   |
| Concept Review:     | 28-Mar-2008 | Effectiveness:    | 09-Jan-2009   | 03-Dec-2009                |
| Appraisal:          | 09-May-2008 | Restructuring(s): |               | 11-Jun-2012<br>10-Jun-2013 |
| Approval:           | 19-Jun-2008 | Mid-term Review:  | 30-Jun-2011   | 11-Aug-2011                |
|                     |             | Closing:          | 30-Jun-2012   | 31-Dec-2013                |

| <b>C. Ratings Summary</b>            |                         |
|--------------------------------------|-------------------------|
| <b>C.1 Performance Rating by ICR</b> |                         |
| Outcomes:                            | Moderately Satisfactory |
| Risk to Development Outcome:         | Moderate                |
| Bank Performance:                    | Moderately Satisfactory |
| Borrower Performance:                | Moderately Satisfactory |

| <b>C.2 Detailed Ratings of Bank and Borrower Performance</b> |                         |                                      |                         |
|--|-------------------------|--------------------------------------|-------------------------|
| Bank   | Ratings                 | Borrower                             | Ratings                 |
| Quality at Entry:  | Moderately Satisfactory | Government:                          | Moderately Satisfactory |
| Quality of Supervision:                                      | Moderately Satisfactory | Implementing Agency/Agencies:        | Moderately Satisfactory |
| <b>Overall Bank Performance:</b>                             | Moderately Satisfactory | <b>Overall Borrower Performance:</b> | Moderately Satisfactory |

| <b>C.3 Quality at Entry and Implementation Performance Indicators</b> |                         |                                 |               |
|---|-------------------------|---------------------------------|---------------|
| <b>Implementation Performance</b>                                     | <b>Indicators</b>       | <b>QAG Assessments (if any)</b> | <b>Rating</b> |
| Potential Problem Project at any time (Yes/No):                       | Yes                     | Quality at Entry:               |               |
| Problem Project at any time (Yes/No):                                 | Yes                     | Quality of Supervision:         |               |
| PDO rating before Closing/Inactive status                             | Moderately Satisfactory |                                 |               |

| <b>D. Sector and Theme Codes</b>                  |                 |               |
|---|-----------------|---------------|
| <b>Sector Code (as % of total Bank financing)</b> | <b>Original</b> | <b>Actual</b> |
| AJ Animal Production and Fishing                  | 73.0%           | 62.0%         |
| JA Health   | 27.0%           | 38.0%         |
| <b>Theme Code (Primary/Secondary)</b>             |                 |               |
| 79 Other Rural Development                        | 73.0%           | 62.0%         |
| 64 Other Communicable Diseases                    | 27.0%           | 38.0%         |

| <b>E. Bank Staff</b> |                    |                        |
|----------------------|--------------------|------------------------|
| <b>Positions</b>     | <b>At ICR</b>      | <b>At Approval</b>     |
| Vice President:      | Makhtar Diop       | Obiageli K. Ezekwesili |
| Country Director:    | Philippe Dongier   | John M. McIntire       |
| Sector Manager:      | Tijan Sallah       | Karen M. Brooks        |
| Project Team Leader: | Abel Lufafa        | Wilson. O. Odwongo     |
| ICR Team Leader:     | Abel Lufafa        |                        |
| ICR Primary Author:  | Eustacius Betubiza |                        |

## **F. Results Framework Analysis**

### **Project Development Objectives (PDO) and Key Indicators(as approved)**

#### *Project Development Objective*

The overall development objective was to substantially reduce the threat posed to the poultry industry and humans in Uganda by Highly Pathogenic Avian Influenza infection and other zoonoses and to prepare for, control, and respond effectively to future avian and human influenza pandemics and other infectious disease emergencies in livestock and humans.

#### *Key Indicators*

##### **(a) PDO Indicator(s)**

| <b>Indicator</b>      | <b>Baseline Value</b>   | <b>Original Target Values (from approval documents)</b> | <b>Formally Revised Target Values</b> | <b>Actual Value Achieved at Completion or Target Years</b> |
|-----------------------|---|---|---------------------------------------|--|
| <b>Indicator (1):</b> | <b><i>Increased percentage of annual suspected HPAI cases in poultry reported and fully investigated (both laboratory and field) in ten high risk districts</i></b> |   |                                       |  |
| Value:                | 0   | 80%   |                                       | 100%   |

|                       |   |             |  |             |
|-----------------------|---|-------------|--|-------------|
| Date:                 | 31-Dec-2009   | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:             | The Project has supported investigations for Trans-boundary Animal Diseases and other zoonotic diseases throughout the country  |             |  |             |
| <b>Indicator (2):</b> | <b><i>Proportion of veterinary facilities with capacity to diagnose HPAI in at-risk districts</i></b>   |             |  |             |
| Value:                | 0   | 80%         |  | 75%         |
| Date:                 | 31-Dec-2009   | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:             | Laboratories in 15 at risk districts were supplied with rapid detection kits that screen influenza type A   |             |  |             |
| <b>Indicator (3):</b> | <b><i>Percentage of districts with sufficient stocks of personal protection equipment, disinfection units, burdizzos, and asphyxiation systems</i></b>  |             |  |             |
| Value:                | 0   | 100%        |  | 100%        |
| Date:                 | 31-Dec-2009   | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:             | Personal Protection Equipment, burdizzos and asphyxiation units were procured and all items, with exception of the asphyxiation units, distributed throughout the country. The asphyxiation units held at MAAIF will be dispatched in case of an outbreak |             |  |             |
| <b>Indicator (4):</b> | <b><i>Percentage of commercial poultry farms, poultry slaughter facilities, and live bird markets practicing acceptable bio-security standards</i></b>  |             |  |             |
| Value:                | 0   | 60%         |  | 63%         |
| Date:                 | 31-Dec-2009   | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:             |   |             |  |             |
| <b>Indicator (5):</b> | <b><i>Percentage of veterinary facilities meeting standards for diagnostics of the World Organization for Animal Health (OIE)</i></b>   |             |  |             |
| Value:                | 30%   | 100%        |  | 75%         |
| Date:                 | 31-Dec-2009   | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:             | Three out of four veterinary diagnostic laboratories meet the standards   |             |  |             |

## (b) Output Indicator(s)

| Indicator         | Baseline Value  | Original Target Values (from approval documents) | Formally Revised Target Values | Actual Value Achieved at Completion or Target Years |
|-------------------|---|--|--------------------------------|---|
| <b>Indicator:</b> | <b>Number of districts reporting promptly on veterinary services</b>  |  |                                |   |
| Value:            | 0   | 40   |                                | 83  |
| Date:             | 31-Dec-2009   | 31-Dec-2009                                      |                                | 31-Dec-2013   |
| Comments:         | E-reporting is operational in all districts (112 districts have been supplied with modems and 30 districts have been supplied with computers and their accessories). Currently all districts in the country have a functional computer set for data capturing   |  |                                |   |
| <b>Indicator:</b> | <b>Number of districts with adequate GPS equipment and transport facilities for HPAI control</b>  |  |                                |   |
| Value:            | 0   | 112 GPS<br>48 Transport                          |                                | 94 GPS<br>48 Transport                              |
| Date:             | 31-Dec-2009   | 31-Dec-2009                                      |                                | 31-Dec-2013   |
| Comments:         | Ten high risk districts have been supplied with 4 wheel Double Cabin pickups, and 48 districts that lacked transport have been provided with a motorcycle each. The number of districts has increased through splitting, hence only 94 GPS pieces, versus 112 districts. Some districts will be covered by GPS equipment from neighbouring ones |  |                                |   |
| <b>Indicator:</b> | <b>The curricula at Makerere University Faculty of Veterinary Medicine and para-</b>  |  |                                |   |

|                    |  |             |  |             |
|--------------------|--|-------------|--|-------------|
|                    | <b>veterinary schools reviewed</b>   |             |  |             |
| Value:             | 0  | 3           |  | 3           |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          | There are three institutions covered which are offering certificates, diplomas and degrees. All curricula reviewed by a consulting firm and final report presented to MAAIF.   |             |  |             |
|                    |  |             |  |             |
| <b>Indicator:</b>  | <b>Number of sero-prevalence surveys of HPAI and emerging zoonotic diseases</b>  |             |  |             |
| Value:             | 0  | 6           |  | 8           |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          | Surveys have been undertaken for HPAI and other non-zoonotic diseases e.g. Pestes des Petits Ruminants, Foot-and-Mouth Disease, Anthrax, and Contagious Bovine Pleuropneumonia |             |  |             |
|                    |  |             |  |             |
| <b>Indicator:</b>  | <b>Full diagnostic competence at MAAIF veterinary laboratory for HPAI differential diagnosis</b>   |             |  |             |
| Value:             | None   | Full        |  | Partial     |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          | Full diagnostic competence will be achieved after the recently completed BSL-3 laboratory is fully operational   |             |  |             |
|                    |  |             |  |             |
| <b>Indicator::</b> | <b>Five high risk districts with active community based surveillance system</b>  |             |  |             |
| Value:             | 0  | 5           |  | 2           |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          | Community based surveillance systems have been established in Busia and Tororo Districts   |             |  |             |
|                    |  |             |  |             |
| <b>Indicator:</b>  | <b>Percentage of commercial poultry farms and breeders registered</b>  |             |  |             |
| Value:             | 0%   | 100%        |  | 100%        |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          |  |             |  |             |
|                    |  |             |  |             |
| <b>Indicator:</b>  | <b>Percentage of districts linked to an incident command system established within the National Veterinary System for the management of logistics at all levels</b>            |             |  |             |
| Value:             | None   | 100%        |  | 100%        |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          |  |             |  |             |
|                    |  |             |  |             |
| <b>Indicator:</b>  | <b>Number of updated HPAI protocols, Standard Operating Procedures, and case definitions printed and distributed</b>   |             |  |             |
| Value:             | 0  | 3           |  | 3           |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          | Standard Operating Procedures for reporting between MAAIF and other line ministries have been developed and disseminated to the relevant audiences                             |             |  |             |
|                    |  |             |  |             |
| <b>Indicator:</b>  | <b>Number of veterinary policies (e.g. Compensation policy) adopted by Cabinet</b>   |             |  |             |
| Value:             | 0  | 1           |  | 0           |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          | The compensation policy has been drafted, but still awaits cabinet adoption  |             |  |             |
|                    |  |             |  |             |
| <b>Indicator:</b>  | <b>Number of quarantine centres and checkpoints renovated and operationalized</b>  |             |  |             |
| Value:             | 0.0  | 4           |  | 5           |
| Date:              | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:          | Five quarantine centres and 40 check points operationalized  |             |  |             |
|                    |  |             |  |             |
| <b>Indicator:</b>  | <b>Percentage of districts with preparedness and response plans for HPAI</b>   |             |  |             |

|                   |  |             |  |             |
|-------------------|--|-------------|--|-------------|
| Value:            | 30%  | 50%         |  | 92%         |
| Date:             | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:         |  |             |  |             |
| <b>Indicator:</b> | <b>Percentage of districts reporting data on influenza-like illness using the weekly Integrated District Reporting System</b>  |             |  |             |
| Value:            | 0.0  | 50%         |  | 100%        |
| Date:             | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:         |  |             |  |             |
| <b>Indicator:</b> | <b>Number of epidemiological mapping exercises of avian and human influenza risk factors undertaken in high risk districts</b> |             |  |             |
| Value:            | 0  | 10          |  | 14          |
| Date:             | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:         |  |             |  |             |
| <b>Indicator:</b> | <b>Proportion of districts with bulletins/Integrated District Reporting System feedback reports</b>                            |             |  |             |
| Value:            | 2.6%   | 63%         |  | 100%        |
| Date:             | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:         |  |             |  |             |
| <b>Indicator:</b> | <b>Proportion of regional referral hospitals with bulletins/Integrated District Reporting System feedback reports</b>          |             |  |             |
| Value:            | 15%  | 54%         |  | 100%        |
| Date:             | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:         |  |             |  |             |
| <b>Indicator:</b> | <b>Cumulative percentage of districts with trained Rapid Response Teams</b>  |             |  |             |
| Value:            | 42.5   | 100%        |  | 97%         |
| Date:             | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:         |  |             |  |             |
| <b>Indicator:</b> | <b>Health personnel receiving training (number)</b>  |             |  |             |
| Value:            | 0  | 250         |  | 250         |
| Date:             | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:         |  |             |  |             |
| <b>Indicator:</b> | <b>Percentage of population reporting awareness of avian and human influenza activities</b>                                    |             |  |             |
| Value:            | 78%  | 65%         |  | 85%         |
| Date:             | 31-Dec-2009  | 31-Dec-2009 |  | 31-Dec-2013 |
| Comments:         |  |             |  |             |

**Revised Project Development Objectives (as approved by original approving authority) and Key Indicators and reasons/justifications**

*Revised PDO*

No revisions



*Revised project outcome indicators and targets*

None

**G. Ratings of Project Performance in Implementation Status and Results Reports (ISR)**

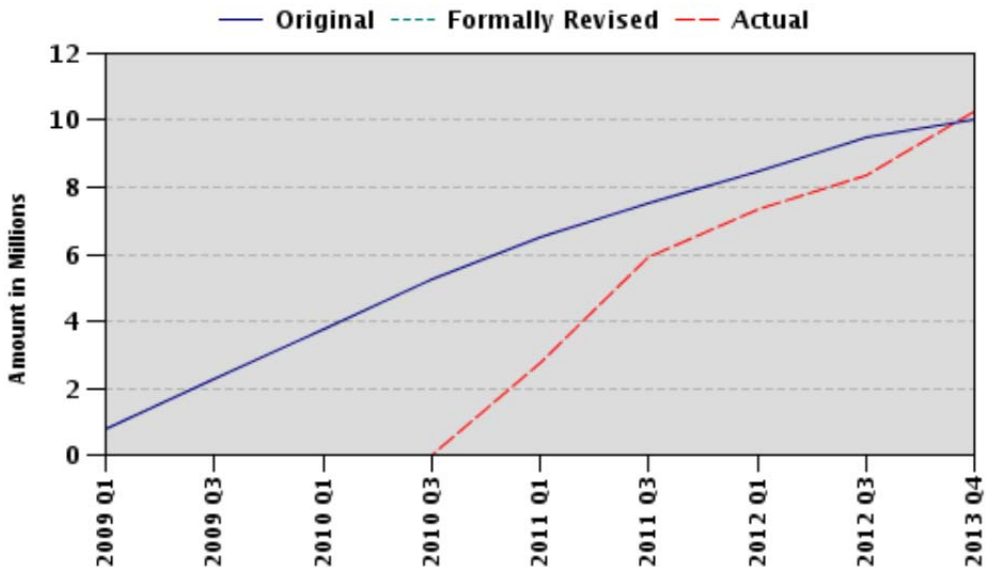
| <b>ISR No.</b> | <b>Date</b> | <b>PDO</b>                | <b>IP</b>                 | <b>*Actual Disbursements USD Millions</b> |
|----------------|-------------|---------------------------|---------------------------|---|
| 01             | Dec-01-2008 | Satisfactory              | Satisfactory              | 0   |
| 02             | May-15-2009 | Unsatisfactory            | Unsatisfactory            | 0   |
| 03             | Nov-28-2009 | Unsatisfactory            | Unsatisfactory            | 0   |
| 04             | May-31-2010 | Moderately Unsatisfactory | Moderately Unsatisfactory | 0   |
| 05             | Aug-19-2010 | Moderately Unsatisfactory | Moderately Unsatisfactory | 2.31                                      |
| 06             | Mar-31-2011 | Moderately Unsatisfactory | Moderately Unsatisfactory | 5.91                                      |
| 07             | Oct-19-2011 | Moderately Satisfactory   | Moderately Satisfactory   | 7.36                                      |
| 08             | May-23-2012 | Moderately Satisfactory   | Moderately Satisfactory   | 8.38                                      |
| 09             | Jun-29-2012 | Moderately Satisfactory   | Moderately Satisfactory   | 9.06                                      |
| 10             | Jan-11-2013 | Moderately Satisfactory   | Moderately Satisfactory   | 9.06                                      |
| 11             | Oct-04-2013 | Moderately Satisfactory   | Moderately Satisfactory   | 10.26                                     |

\*Disbursements include both the Credit and the Grant

**H. Restructuring (if any)**

There were two minor restructurings, both relating to extending the closing date. Under the first extension, the project's closing date was extended from June 30, 2012, to June 30, 2013, to make up for lost time between Board and Effectiveness. Under the second extension, the project's closing date was extended for an additional 6 months, from June 30, 2013 to December 31, 2013 to allow for bringing to an orderly conclusion the then on-going civil works pertaining to upgrading two laboratories to BSL-3 (one for the National Disease Diagnostic and Epidemiology Centre, and another for the Uganda Virus Research Institute). The extension also allowed for the completion of the construction of an isolation unit at Entebbe Grade B Hospital.

## I. Disbursement Profile



**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**

**1. Project Context, Development Objectives, and Design**

**1.1 Context at Appraisal**

1. When the Highly Pathogenic Avian Influenza (HPAI) epidemic broke out in Asia in 2003, Uganda was among the Sub-Saharan Africa countries at high risk of an outbreak principally because of: (i) high prevalence of backyard and/or free-range poultry rearing in the majority of rural Ugandan households; (ii) significant movement of poultry and/or poultry products across Uganda's border; (iii) high prevalence of unregulated trading in poultry in most rural and urban markets; and (iv) the existence of major routes for wild migratory birds within the country's borders where large masses of water facilitated close interaction between wild birds and domestic poultry.

2. From October 2005, the Government of Uganda (GOU) started to actively work on prevention, preparedness and response to the threat. A comprehensive and multi-sectoral National Task Force on Avian Influenza (NTF/AI), co-chaired by the Ministry of Agriculture, Animal Industry, and Fisheries (MAAIF) and the Ministry of Health (MOH), was established. The NTF/AI developed a national strategy and an action plan against the threat which was endorsed by Cabinet in April 2006. In April 2007, GOU requested the World Bank to coordinate a multi-donor rapid assessment of its action plan to bring it in line with international technical standards and assist in mobilizing the necessary resources from development partners. The resulting Integrated National Action Plan (INAP) was budgeted at US\$14.6 million over five years.

3. In the meantime, the Bank's Board of Executive Directors had, in January 2006, endorsed the Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response (GPAI) to allow countries access to funding for strengthening their veterinary and health services in order to deal with avian influenza outbreaks among animals, minimize the threat to people, and prepare for, and respond to, any potential human influenza pandemic. Operations benefiting from GPAI would be processed under emergency procedures to allow quick preparation and approval. All developing countries were eligible to receive financing under this program, which allowed for the use of up to US\$1 billion in loans from IBRD, and in credits or grants from the Bank's concessional lending arm, the International Development Association (IDA). In addition, an Avian and Human Influenza Facility (AHIF) was created to assist developing countries in meeting financing gaps in their integrated country programs to minimize the risk and socioeconomic impact of avian and possible human pandemic influenza. In many cases, the facility would co-finance projects funded under GPAI, although self-standing projects could also be financed, especially to promote action in countries that were behind in their preparedness.

4. It is against this backdrop that the World Bank accepted the Government's request for support, and prepared an emergency operation of US\$12 million in support of Government's INAP, US\$ 10 million as an IDA credit and US\$ 2 million as an AHIP grant (with the rest of the

funding gap for the INAP filled by Government and other development partners). At appraisal in May 2008, avian influenza had not reached Uganda, although the threat remained real, especially with the reported outbreak in 2007 of HPAI in Juba, South Sudan, which was close to Uganda's northern border and with which there was considerable formal and informal cross-border trade. Although not formally part of the 2004-2008 CAS, the project was nonetheless consistent with its ideals of inclusive economic growth and social protection.

## **1.2 Original Project Development Objectives (PDOs) and Key Indicators**

### ***Original development objective***

5. The overall development objective was to substantially reduce the threat posed to the poultry industry and humans in Uganda by HPAI infection and other zoonoses and to prepare for, control, and respond effectively to future avian and human influenza pandemics and other infectious disease emergencies in livestock and humans. To achieve this, support would be provided in three main areas: (i) preparedness and prevention, (ii) outbreak response and recovery; and (iii) coordination, monitoring and evaluation.

### ***Original key performance indicators***

6. The key outcome indicators from the Results Matrix are:
- (i) The percentage of annual suspected HPAI cases in poultry reported and fully investigated (both laboratory and field) in ten high risk districts increases from 0 to 80;<sup>1</sup>
  - (ii) The proportion of veterinary facilities with capacity to diagnose HPAI in at-risk districts increases from 0 to 80;
  - (iii) The percentage of districts with sufficient stocks of personal protective equipment, disinfection units, burdizzos, and asphyxiation systems increases from 0 to 100;
  - (iv) The percentage of commercial poultry farms, poultry slaughter facilities, and live bird markets practicing acceptable bio-security standards increases from 0 to 60; and
  - (v) The percentage of veterinary facilities meeting World Organization for Animal Health (OIE) standards for diagnosis increases from 0 to 100.

## **1.3 Revised PDO and Key Indicators, and Reasons/Justification**

### ***Revised PDO***

7. No revisions

### ***Revised project outcome indicators and targets***

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<sup>1</sup> There were largely border districts where cross border transmission was most likely to occur (Arua, Bugiri, Bukedea, Hoima, Isingiro, Kabale, Kitgum, Kotido, and Tororo).

8. No revisions

#### 1.4 Main Beneficiaries

9. The *primary target group* of the project consisted of: (i) staff of Government ministries and agencies involved in animal and human health, especially those in charge of surveillance and treatment of people and animals under risk of exposure to avian influenza and threats from other zoonoses; and (ii) the general public, especially people engaged in the production, transportation, processing and distribution of poultry and their products.

#### 1.5 Original Components

10. The project had four components: (i) animal health; (ii) human health; (iii) communication; and (iv) coordination, and Monitoring and Evaluation (M&E).

11. **Animal Health:** This component aimed at supporting: (i) overall institutional strengthening for animal disease prevention and control; (ii) national avian and human influenza prevention and control strategies over the short- and medium-term; (iii) strengthening the capacity of the national veterinary service to cope with an HPAI epidemic and new emerging infectious diseases; and (iv) increased monitoring and surveillance of migratory and resident birds.

12. **Human Health:** This component aimed at supporting: (i) building the health system's capacity to detect avian and human influenza early, and to respond and contain the infection at the source; (ii) adapting guidelines and training materials (including infection control guidelines); and (iii) training, activating, and strengthening national and district Rapid Response Teams (RRT), establishing isolation units, upgrading laboratories, and pre-positioning personal protective equipment, supplies and medicines.

13. **Communication:** This component aimed at, inter alia, providing funds to: (i) fill strategic information gaps; (ii) enhance the communication skills of key policy makers and spokespersons through training; (iii) establish communication centres within the coordination/operation centres at the central and district levels; (iv) mount media campaigns on avian and human influenza; and (v) train farmers and households with backyard poultry, local government officials, and religious and cultural leaders on the risks of avian influenza.

14. **Coordination, Monitoring & Evaluation:** This component aimed at supporting implementation costs associated with project planning, coordination, management, as well as overall monitoring and evaluation at the national and district levels. The support was to be provided to the Office of the Prime Minister (OPM), MAAIF, and MOH for the operational costs of the National Project Steering Committee, NTF/AI, Technical Working Groups, Project Coordination Team, and the Rapid Response Teams.

## 1.6 Revised Components

15. There were no formal revisions to the components, although the scope of work in some activities was adjusted to respond to the availability of funds or evolving needs. For instance, although six isolation facilities had been envisaged under the project (Arua, Gulu, Mbale, Mulago Hospital, Entebbe Grade B Hospital, and Fort Portal), only one (Entebbe Grade B Hospital) was constructed due to insufficient funds.<sup>2</sup> Also, since there was no HPAI outbreak in the country, funding that had been earmarked for immediate response to an outbreak was reallocated to other project activities.

## 1.7 Other Significant Changes

16. *Extension of Closing Date.* The Project became effective on December 03, 2009 – a little over 17 months after approval by the Bank on June 19, 2008. This was primarily due to delays in securing Parliamentary approval of the IDA Credit. Mainly as a result of this initial delay in effectiveness, the project closing date was extended (twice) for a total of 18 months to allow completion of project activities, especially those related to civil works.

## 2. Key Factors Affecting Implementation and Outcomes

### 2.1 Project Preparation, Design, and Quality at Entry

#### **i) Soundness of the background analysis supporting the project, lessons learned incorporated, and the rationale for the Bank's intervention**

17. *Soundness of Background Analysis.* The extent of the threat facing the country was well analyzed, on the basis of the information available at the time. There was also a sound analysis of Government's efforts to improve preparedness and response capability. However, the assessment of on-going or imminent interventions and the implications for the project could have been more comprehensive. For instance, on May 7, 2008, a Bio-Safety Laboratory -2 (BSL-2) facility at Makerere University, financed under Makerere University-Walter Reed Project (MUWRP), was opened, after full refurbishment of equipment and provision of necessary training, enabling researchers to analyze influenza samples, including those taken through a migratory bird surveillance program<sup>3</sup>. In addition, MUWRP had identified a number of waterfowl roosting sites and instituted a surveillance regime, with samples being collected from these sites during migration periods<sup>4</sup>. There was also some distribution of personal protective equipment conducted mid-2007 by USAID, accompanied by training on their use, decontamination protocols, rapid testing, etc. These and other activities could have been more closely examined during project appraisal, and their complementarity with the new project

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<sup>2</sup> It was indicated at project closing that Government would explore other sources to fund the construction of the Mulago Hospital isolation facility (possibly from the African Development Bank).

<sup>3</sup> This up-grading of an existing Makerere laboratory had been supported by the U.S. Department of Defense's Global Emerging Infections Surveillance and Response System, and the renovation was managed by MUWRP. Another facility at Uganda Virus Research Institute was also under renovation, which was completed in 2009. The Bank-funded project was to upgrade these facilities further to level 3.

<sup>4</sup> A maximum of 25 samples are collected from each of these sites weekly and tested with real-time Polymerase Chain Reaction for influenza viruses

highlighted. Such an analysis would also have facilitated establishing collaborative mechanisms with other on-going initiatives in order to maximize synergy.

18. ***Incorporation of Lessons Learned.*** Generally, the project did a good job in incorporating past lessons, such as integrating the project within line ministries to ensure coherence with other government programs, while maintaining a sizeable level of autonomy to ensure smooth implementation. It also drew from previous experience in responding to the Ebola outbreak by incorporating these lessons in the training of health workers on case management and rapid response, and in developing a contingency plan for human resource management in case of an outbreak. The project design also drew from lessons emerging out of the GPAI that had showed that strengthening national veterinary infrastructure and capability, adequate surveillance systems, proper diagnosis and linkage to reference laboratories, multi-sector collaboration, and effective communication were central to prevention and response the AI outbreak. However, it did not as adequately draw lessons from emergency projects regarding the use of expedited procurement procedures, but instead opted for traditional procurement methods that were inordinately long.

19. ***Soundness of Rationale for the Bank's Intervention.*** The rationale for the Bank's intervention presented by the project was strong and well-articulated, including the global public goods aspect of controlling HPAI and the recognition of the Bank's unique ability to: (i) catalyse the required coordinated international response and multi-disciplinary approach; (ii) draw from the growing knowledge about preparing such operations, in addition to its past experience in various regions in emergency preparedness and response programs more generally; and (iii) address the Government's funding gap (as resources from other development partners were limited).

**(ii) Assessment of the project design—objectives, components, and organization — including its realism and the degree of complexity**

20. The project objective was realistic and simple. The overall component design, which followed the broad design of the GPAI template (animal, human and communication components), was also straightforward, and project activities were within the Government agencies' capacity to implement. Implementation arrangements were also simple: the animal health component implemented by MAAIF and the human health component by MOH, and coordination by OPM (more on OPM's role under "Implementation").

21. However, as indicated above, the absence of expeditious procurement features, at least for emergency items, created a disconnect between the project's emergency response nature and its cumbersome procurement arrangements. In addition, the key performance indicators for the project's development objective as contained in the results matrix were exclusively focused on animal sector outcomes, with none on the human health dimensions. Finally, the design failed to provide a mechanism for coordinating and consolidating all HPAI activities in the country as had been envisaged.

**iii) Adequacy of government's commitment, stakeholder involvement, and/or participatory processes**

22. **Government Commitment.** Government commitment was mixed: high during preparation, then falling short in the lead up to and immediately following effectiveness, but picking up in the second half of project implementation. Although Government actively participated in the project's preparation, it could have done more to encourage the project's consideration in Parliament where the project suffered inordinate delays. The project was approved by the World Bank in June 2008, but it wasn't until one year later (May 2009) that the requisite parliamentary committee held the first discussion on it. It appears that Government had not adequately engaged Parliament for an expedited review.

23. As it turned out, the said parliamentary committee rejected the project at its May 2009 seating on the grounds that the avian influenza threat had passed, which in part reflected Government's inadequate sensitization of Parliament on the project's broad scope that encompassed the country's other major threats, not just avian influenza. Indeed, it wasn't long after Parliament's rejection of the project that there was a major Influenza A/H1N1 (swine flu) outbreak in Uganda, with the first case registered on July 1, 2009, and the numbers starting to grow rapidly, which created a renewed sense of urgency to approve and implement the project. Government notified the Bank on October 10, 2009 that Parliament had finally approved the project. By then, the effectiveness deadline had expired (after repeated extensions), which necessitated processing a retroactive extension whose processing added more delay. The project finally became effective on December 03, 2009, and Government commitment picked up again.

24. **Other stakeholders.** The project partnered with various stakeholders, such as: (i) the Uganda Poultry Farmers Association in registering and training poultry farmers; (ii) various local communities in establishing community surveillance programs; and (iii) the Uganda Wildlife Authority in wild bird monitoring. The Uganda Virus Research Institute (one of the project beneficiary entities) also benefited from its partnership with the Centers for Disease Control, Atlanta (USA). Similarly, the National Animal Disease Diagnostic and Epidemiology Center that was being supported by the project also benefited from technical support from the Institute for Animal Health Pirbright (UK). These partnerships greatly facilitated project implementation.

#### **iv) Assessment of risks and mitigation measures**

25. Major potential threats to project implementation identified at appraisal included: (i) poor coordination among implementing agencies; (ii) weak procurement management; (iii) delays in availing financial resources; (iv) inadequacy of project activities to contain an avian influenza outbreak; (v) insufficient commitment at local levels despite strong central government commitment; and (vi) disease recurrence from porous borders. Of these, poor project coordination and weak procurement management risks materialized most considerably, with delays in availing financial resources also materializing but to a lesser extent. The other risks did not materialize. These three risks are discussed in greater detail under "Implementation". Suffice it to say here that:

- (a) Project coordination which was initially very weak, thus undermining implementation progress, improved considerably after personnel changes and greater involvement by the Permanent Secretaries of the implementing entities (OPM, MAAIF, and MOH).



- (b) Belated initiation as well as poor management of procurement processes also undermined project implementation. The latter was partially mitigated by training the procurement staff, although this could have been more effective had it been done much earlier in project implementation.
- (c) Delays in operationalizing special accounts undermined activity initiation, and the intermittent flow in counterpart funding slowed down some activities. The latter was partially mitigated through reallocations although civil works suffered from these disruptions.

## **2.2 Implementation**

26. When the project finally became effective after a 17.5 month delay, Government moved quickly to set up the National Project Steering Committee for providing overall guidance during implementation, and a Project Coordination Team comprising officials from OPM, MAAIF, and MOH to oversee day-to-day project implementation. However, project implementation got off to a very slow start, characterized by: (i) weak project coordination; (ii) slow procurement; and (iii) delayed access to project funds.

27. First, overall project coordination, which was carried out by OPM, was initially grossly inadequate<sup>5</sup>. This not only hampered initial overall project implementation progress, but also adversely affected OPM-managed priority activities, namely: (i) the production of the project Environment and Social Management Plan (ESMP), (ii) the development of the overarching M&E framework for the project, and (iii) designing modalities for public/private partnerships, all of which were only completed in early 2012, over two years after project effectiveness. It wasn't until another coordinator was appointed and additional support staff recruited that project coordination significantly improved. Also, the National Project Steering Committee met infrequently.

28. Second, the extended period between the project's Board approval and its effectiveness had not been utilized to get a head-start on procurement, such as elaborating terms of reference, preparing technical specifications and bidding documents, etc. Most procurement activities were initiated from scratch well after effectiveness, adding to further implementation delay, which triggered the extension of the project's closing date first to June 30, 2013, and then to December 31, 2013 to facilitate completion of the remaining activities. Delays were most pronounced in the construction of the isolation unit by MOH and in upgrading to BSL-3 the diagnostic laboratories by MOH and MAAIF. In addition to the above factors, other contributory elements included: (i) delays in hiring architectural design consultants; (ii) delays in payment to contractors (this was the case for the National Animal Disease Diagnostics and Epidemiology Center) of up to 4 months which led to the works stalling various times as the contractors run out of funds to sustain their cash flow requirements; and (iii) delays attributed to inadequate site management skills. Also, no expedited procurement procedures had been envisaged for emergency items. For instance, procurement of personal protection equipment, disinfectants, burdizzos, and

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<sup>5</sup> The project was coordinated by the Office of the Prime Minister (OPM), with project activities implemented by MAAIF and MOH.

asphyxiation systems was completed in June 2011, 1.5 years after effectiveness. Yet these would have been critical if an avian influenza outbreak had occurred.

29. Third, making the initial deposits into the designated accounts was delayed (the first transfers were made 6 months after effectiveness in June 2010) due to belated submission of authorized signatories and of the initial withdrawal applications. Also, the need to open multiple designated accounts for the Trust Fund money as opposed to just one as originally envisaged in the Financing Agreement (which was resolved in late 2010) resulted in delayed disbursement from the trust fund.<sup>6</sup>

30. It is important to note, however, that the project's implementation performance picked up considerably during the 18 month extension largely due to significant improvements in project coordination, coupled with strong commitment (upon realization that the project was not progressing as envisaged) from the Permanent Secretaries of OPM, MAAIF, and MOH, along with their respective technical teams. In some cases, synergy with already ongoing activities greatly facilitated implementation. For instance, MOH had already initiated surveillance activities which facilitated its expansion under the project. Similarly, on-going support for laboratory quality control systems of regional hospitals by CDC became a building block for related project interventions.

31. In the same vein, the existence of a National Task Force for Avian Influenza facilitated project implementation. For instance, NTF/AI (which included MOH and MAAIF staff) was responsible for preparing the Surveillance Guidelines for Animal and Human Influenza in 2012. Project implementation was also greatly facilitated by the fact that the World Bank task team leader was, for most of the project's life, based in the Kampala office, which allowed providing continuous implementation support.

### **2.3 Monitoring and Evaluation Design, Implementation, and Utilization**

32. ***M&E Design and Implementation.*** There were two types of M&E systems in the project: (i) ministerial level M&E systems by each of the technical implementing agencies (i.e. MAAIF and MOH) to continuously and systematically monitor project implementation activities, outputs, and outcomes; and (ii) an overarching framework at OPM that would consolidate project information and feed it into the overall national M&E system.

33. Ministerial level M&E systems were simple and clearly within the project teams' capacity to implement. For the most part, the inputs into the M&E systems were data routinely generated from the project's activities with only a few instances that required simple surveys. However, there were some major weaknesses in the design. First, the outcome indicators only related to the threat to the poultry industry, and none to the threat to humans. Second, the monitoring system was set up late into project implementation, making tracking some of the indicators problematic.

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<sup>6</sup> Initially, the Financing Agreement provided for only one trust fund account. However, when it turned out that each implementation entity would require its own separate account, the Financing Agreement had to be amended accordingly.

34. Similarly, setting up the overarching framework at OPM was also problematic. Establishing the system required the services of a consultant, whose hiring by OPM was very slow, and the system was only put in place in early 2012.

35. ***M&E Utilization.*** The data collected is expected to play a critical role in filling a major analytical gap in understanding the epidemiology of the various diseases covered in the database (such as avian influenza, yellow fever, African swine fever, Ebola, Marburg, small ruminant plague, anthrax, foot and mouth disease, and other threats). For instance, in 2009, only 15 percent of the districts submitted all reports, and most reports had significant data gaps (only 25 percent were full completed). This made epidemiological analyses difficult. However, by project's end, 83 percent of the districts were providing a wide range of potentially useful information on animal diseases.

36. ***Sustainability of the M&E arrangements beyond the operation's implementation period.*** It is not clear how much of the data collection arrangements will be sustained at high levels beyond the project. Whereas the M&E system in MOH is expected to be sustained beyond the project, regular collection of field data under MAAIF (where the data covers a wide array of animals across the country) will require continuous effort and focus by the Government.

## **2.4 Safeguard and Fiduciary Compliance**

### ***Safeguard Compliance***

37. ***Environment.*** The Government had, under the terms of the Financing Agreement, committed to preparing the ESMP within three months of project effectiveness, i.e. by March 02, 2010. However, the final version of the ESMP is dated May 2012, i.e. 2.5 years after effectiveness. The ESMP was comprehensive and the process highly participatory. Its belated production did not materially affect project implementation because there ultimately was no avian influenza outbreak that would have necessitated environmental and social safeguards in culling. Civil works activities, for which the ESMP was most applicable, were carried out towards the end of project implementation. By that time, the ESMP had been prepared and approved by Uganda's National Environmental Management Authority, and found satisfactory by the World Bank. However, issues related to the protocols on handling highly infectious patients and medical waste generated at the Isolation laboratory and the BSL3 facility at the National Influenza Centre laboratory in the Uganda Virus Research Institute need to be addressed.

38. ***Social.*** At appraisal, there were no Social Safeguards triggered by the project as there were no plans for land acquisition, voluntary or involuntary, nor any displacement of people. The main social concern was the maintenance of livelihoods for poultry producers, especially backyard producers, in the event of future HPAI outbreaks. This was to be mitigated through a compensation program established with broad stakeholder involvement and operated transparently, and by a public campaign to deter widespread rejection of chicken by consumers in HPAI-free areas in case of an outbreak somewhere else. There was no outbreak of Avian Influenza and so no culling took place. A compensation policy was developed towards the

project's closing, and was still awaiting Cabinet approval at the time of the ICR. Public awareness was carried out as planned.

### ***Fiduciary Compliance***

39. *Financial Management.* With the exception of a few cases, the project was characterized by good financial management across the three implementing agencies. Acceptable IFRs were always submitted within the submission deadlines throughout the project duration. Similarly withdrawal applications were consistently submitted on quarterly basis, save for the final withdrawal applications that were delayed beyond the application deadline.

40. The first audit report from the Auditor General for FY 2010/11 issued a clean opinion but raised issues of poor book keeping at MAAIF, poor advance management at MOH, and inadequate fixed asset recording at OPM. The FY 2011/12 audit was a qualified opinion on the basis that project payment vouchers and supporting documents for US \$ 323,338 at the OPM were not availed for audit. These were later availed in the subsequent audit and cleared. The audited financial statements for June 30, 2013 were submitted after the submission deadline of December 31, 2013. The audit report was unqualified opinion on the financial statements. The three audit reports also reported some weaknesses most of which were addressed. Similarly any weaknesses noted during FM Supervisions missions were always satisfactorily addressed.

41. *Procurement.* The procurement processes, including planning, publications, bidding, evaluation and award were generally compliant with World Bank Procurement guidelines. The Procurement Plan as approved at project design was adhered to, and any changes/updates to the plan were approved by IDA. However, even when there was compliance with Bank guidelines, capacity weaknesses in procurement especially at the beginning of the project undermined project implementation and progress. Weaknesses in capacity affected the procurement for civil works for the isolation unit and diagnostic laboratories, the medical equipment and furniture for the isolation unit and for the BSL3 laboratory at NADDEC. The capacity weaknesses, coupled with the decision not to adopt emergency procurement procedures, as allowed under the provisions of OP/BP 8.50, contributed to implementation delays which underlie the two extensions of the project closing date. There were no reports of procurement violations although there were some instances of poor record keeping.

### **2.5 Post-completion Operation/Next Phase**

42. As the two BSL-3 laboratories were completed in the final days of project implementation, it was not possible to facilitate their full functionality before the project's closing, although Government has committed to doing that. For instance, MOH has committed to operationalizing the isolation unit, including proposals to use it for multiple drug resistant tuberculosis patients. It will be critical that Government fully equips and staffs these laboratories to enable them to perform their intended tasks.

43. It will also be important that surveillance activities be maintained. This will not only entail availing adequate funding and other resources, but also exploring ways and means of leveraging technology where applicable (such as SMS-based systems) in order to minimize surveillance

costs. It will be important to maintain coordination among the various ministries, especially MAAIF and MOH, for effective surveillance and response. There will also be a need for greater understanding of the epidemiology of the various threats. A better understanding of the attack rates, the principal risk factors, high risk locations, etc., will facilitate better utilization of surveillance resources.

### **3. Assessment of Outcomes**

#### **3.1 Relevance of Objectives, Design, and Implementation**

##### ***Relevance of Objectives***

*Rating: High*

44. The project's objectives remain as highly relevant today as they were at project appraisal. With growing human population, urbanization and the related expansion of human activities into forests and other natural habitats and intensification of livestock production, there is growing interaction between humans, animals (domestic and wild) and the environment and with this, an increase in the risks of virus mutations and disease transmission from animals to humans. Therefore, the objective of *preparing for, controlling, and responding effectively to future avian and human influenza pandemics and other infectious disease emergencies in livestock and humans* is still very relevant especially because of the persistence of the threat of an avian influenza epidemic worldwide, including in Egypt and Cambodia, where people are still dying every year because of the disease, (ii) the current outbreaks of Ebola in West-Africa, and (iii) the recent emergence of the Middle-East Respiratory Syndrome (MERS) that has already killed 286 persons and for which camels seem to play a role in virus transmission. Uganda is still vulnerable to these zoonoses and several others, such as Ebola, swine flu whose early detection and containment requires the kinds of systems, procedures, equipment, infrastructure, and institutional coordination supported by this project. Prior to the project, preparedness levels to curtail or otherwise contain such major threats – while growing with support from the US Government, DANIDA, UNICEF, FAO, WHO, and other agencies – still had significant gaps in all the above spheres.

##### ***Relevance of Design and Implementation Arrangements***

*Rating: High*

45. The design, which allowed for both joint and parallel interventions to build capacity in the human and animal health systems, was highly relevant. The importance of effective communication, including avoiding unnecessary panics but also changing behaviors (for producers, consumers, animal and human health professionals) was well captured in the design and addressed through a dedicated component. The design also addressed several important aspects of reducing the risk of avian influenza and other emerging zoonotic diseases, including surveillance, quarantine, outbreak control, compensation, pandemic preparedness, and diagnostic capability which remain relevant today. For instance, although domestic diagnostic capacity had improved with the upgrading of the Makerere University Veterinary Laboratory to BSL-2 in

May 2008, with another upgrade of the Entebbe Laboratory to BSL-2 underway (completed in 2009), the addition of a BSL-3 facility in the country has added a capability for rapid confirmation of the diagnoses in order to better calibrate the nature and scope of response. This is especially important given the mounting threats from deadly diseases such as Ebola and Marburg, among others (although perhaps one BSL-3 laboratory facility would have been sufficient). There was also an appropriate balance between short term actions aimed at averting/containing an immediate threat should one occur, and long term actions to build capacity for meeting future threats.

46. The multi-sectoral approach taken under the project, including mainstreaming the animal health activities into MAAIF and human health activities into MOH, were good design features which, among other things, ensured coherence with regular sectoral programs and enhanced sustainability. But as indicated earlier, project coordination by OPM which was initially very inadequate and improved over time with staff changes, raised the issue of whether the coordination function of all multi-sectoral projects should necessarily be placed with OPM, or whether more practical alternatives could be considered, while keeping OPM involved in some other form.

### **3.2 Achievement of Project Development Objectives**

*Rating: Moderately Satisfactory*

The project has significantly contributed to reducing the threat of HPAI and other zoonoses to the poultry industry and humans and also enhanced the country's level of preparedness, control and response to future zoonoses, including but not limited to avian and human influenza. The project has strengthened the capacity for animal disease surveillance and monitoring, strengthened the national veterinary service, improved veterinary technical competence for emerging disease prevention, built the infrastructure for a balanced veterinary epidemiology surveillance program, improved public health planning and coordination on AHI, improved public health surveillance systems, and strengthened AHI and other disease prevention and preparedness capabilities. This has been achieved through: (i) raising awareness among key stakeholders on the risks of HPAI; (ii) elaborating and distributing standard operating procedures; (iii) surveillance — including equipping and facilitating field surveillance teams, instituting e-reporting from all districts, establishing community based surveillance in high risk areas, support to sero-prevalence surveys and increasing the number of sentinel sites from 3 to 14; (iv) training health workers and local administration/community leaders; (v) enhancing the country's diagnostic capability; (vi) supporting the refurbishment and operationalization of a number of quarantine centers and checkpoints; and availing drugs and sundries including Personal Protective Equipment, (vii) developing and disseminating guidelines for infection control and management of AHI; (viii) development of district preparedness and response plans; (ix) support to development of a strategic plan and harmonization of policies for infectious disease research in the country; establishment of isolation facilities, among many others (see Annex 2). While there was no HPAI outbreak, as an outcome of these efforts, the systems which were put in place under the project facilitated a rapid and effective response to several outbreaks of other diseases such as yellow fever, swine flu, Ebola, Marburg, etc. An instructive example is the case of Ebola where although the incidence of outbreaks has increased, the duration,

geographical spread, and fatality rates from the outbreaks has considerably declined as the result of the response capacity in MOH that was developed with support of the project and other donors<sup>7</sup>.

47. But the project also had some shortcomings. For instance, out of the 6 planned isolation units, only one was constructed towards the project's closing. As a result, it is not possible to attest to its functionality, including on issues related to adequate staffing, equipment, and overall management. Similarly, the belated completion of the two BSL-3 laboratories did not permit ensuring their functionality during the life of the project and makes it hard to discern the extent of their future functionality. Otherwise, most of the outcome indicator targets as defined in the results matrix were achieved and some even surpassed:

48. **Outcome 1: Increased percentage of annual suspected HPAI cases in poultry reported and fully investigated (both laboratory and field) in ten high risk districts (end of project target = 80 %).** The percentage of suspected poultry cases that are fully investigated in the 10 high risk districts (which later became 15 because of splits) increased from a baseline of 0% in 2009 to 100%, thus exceeding the end of project target of 80%. As indicated earlier, the project's scope was broader than just HPAI. Reporting and investigation improved for a wide range of other diseases as well (anthrax, poultry diseases, swine fever, ruminant plague, and foot and mouth disease, among others). A number of sero-prevalence surveys of HPAI and re-emerging zoonotic diseases were carried out in order to ensure early detection and rapid response. This capability was enhanced by establishing an active community based surveillance system in some high risk districts. It was also enabled by providing all districts adequate GPS equipment and transport facilities for the control of HPAI and other threats.

49. **Outcome 2: Proportion of veterinary facilities with capacity to diagnose HPAI in at-risk districts (end of project target = 80 %).** The capacity to diagnose HPAI has been increased in three out of four veterinary facilities in "at risk" districts. This represents a 75% percent achievement compared to a target of 80% at appraisal. Laboratories in 15 at risk districts were supplied with rapid detection kits that screen influenza type A, although with limited reliability of the results.

50. **Outcome 3: Percentage of districts with sufficient stocks of PPE, disinfection units, burdizzos, and asphyxiation systems (end of project target = 100 %).** At project's end, all districts in the country had sufficient stocks of PPE, disinfection units, and burdizzos ready for use in case of an avian and human influenza outbreak. All proposed asphyxiation units were procured and were ready for dispatch in case of a HPAI outbreak.

51. **Outcome 4: Percentage of commercial poultry farms, poultry slaughter facilities, and live bird markets practicing acceptable bio-security standards (end of project target = 60 %).** The percentage of commercial poultry, poultry slaughter facilities, and live bird markets practicing acceptable biosecurity standards now stands at 63% compared to an end of project target of 60%. The project undertook active veterinary surveillance in live bird markets in

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<sup>7</sup> Before the project, Ebola outbreaks would spread in more than one district but now, the outbreaks are typically contained at source. The duration of the outbreaks has also reduced from an average of 6 months to 3 months and there are fewer fatal cases per outbreak.

various – especially high risk – districts including Kasese, Bushenyi, Kabarole, Bundibugyo, Dokolo, Soroti, Kaberamaido, and Lira.

52. **Outcome 5: Percentage of veterinary facilities meeting OIE standards for diagnostics (end of project target = 80 %)**. The percentage of veterinary facilities meeting OIE standards for diagnostic laboratories has increased from 0% to 75% (three out four) in terms of adequacy of physical facilities, equipment, and reagents. At the national level, three technicians underwent training in Reverse Transcriptase Polymerase Chain Reaction diagnostic techniques in Austria in October/November 2010. However, as stated above, the late completion of the BSL3 laboratory at the National Animal Disease Diagnostics and Epidemiology Centre did not make it possible for the project to facilitate this laboratory’s functionality.

53.

### 3.3 Efficiency

54. In the event of an H5N1 outbreak, economic losses would not only arise from the birds lost or destroyed, but also from the likely loss in consumer confidence which would depress demand for poultry and possibly other meat products, a decline in tourism, etc. This would disrupt the livelihoods of those who produce or trade in these products, or depend on tourism services. In this case, the project’s benefits derive from the potential losses prevented. Assessing these potential losses requires assumptions about the probability and severity of occurrence of such outbreaks, parameters for which there is no good data in the literature (a major shortcoming of this analysis). Similar to the approach taken at appraisal, this ICR run simulations on Gross Attack Rates ranging from 0.7 to 2.5 percent, with the following results (see Annex 3 for complete set of updated assumptions):

**Table 1: Internal Rate of Return at Various Gross Attack Rates**

|            | <b>Gross Attack Rates</b> | <b>IRR</b> |
|------------|---------------------------|------------|
| <b>I</b>   | 0.7%                      | 12%        |
| <b>II</b>  | 1.0%                      | 19%        |
| <b>III</b> | 2.5%                      | 40%        |

55. These simulation results were broadly consistent with those obtained at appraisal. In reality, the returns are most likely much higher. First, this analysis is limited to the likely impact on poultry meat and eggs. It doesn’t account for possible decline in the demand for poultry/meat products in the counterfactual. Such an analysis wasn’t done due to the lack of reliable data on the elasticity of demand. Accounting for such a demand shift would increase the return on the investment. Second, it does not include the impact of the project’s surveillance and disease prevention and containment activities for other livestock (cattle, small ruminants, pigs). Yet, these sectors are also benefiting from the project. This analysis was also not done for lack of reliable data. Third, it does not include the value of reduced human morbidity from avian influenza related illness which, too, would have added to the project’s rate of return, nor the benefits from tourism if a major outbreak is thwarted.



56. Additionally, a comparison of total project cost per capita (per inhabitant) and total project cost per bird across a number of countries where similar interventions funded out of the GPAI were implemented shows that the cost per capita in Uganda was the lowest while the cost per bird was in the middle range pointing to a high level of efficiency relative to other countries.

| Country    | Total project cost per capita (US\$) | Total project cost per bird (US\$) |
|------------|--------------------------------------|------------------------------------|
| Uganda     | 0.4                                  | 0.53                               |
| Turkey     | 0.8                                  | 0.17                               |
| Azerbaijan | 0.81                                 | 0.36                               |
| Romania    | 1.75                                 | 0.39                               |
| Albania    | 1.97                                 | 0.98                               |
| Armenia    | 3.5                                  | 2.14                               |

### 3.4 Justification of Overall Outcome Rating

*Rating: Moderately Satisfactory*

57. The project achieved most of its output and outcome targets at a relatively high level of efficacy and efficiency. This is in addition to the high relevance of the project objectives and the design. One shortcoming was the belated completion of the civil works, making it difficult to ascertain the functionality of the facilities after closure of project implementation.

### 3.5 Overarching Themes, Other Outcomes, and Impacts

*Rating: Moderate*

#### *(a) Poverty Impacts, Gender Aspects, and Social Development*

58. *Poverty Impact.* The project's impact on poverty was largely in the form of thwarting threats to the health and livelihoods of the poor. As indicated earlier, the poultry industry in Uganda is overwhelmingly characterized by backyard free range systems, especially among the rural poor. No avian influenza threat materialized during the time of the project, although the project created awareness on how to avoid contracting the disease in future outbreaks. In addition, the capacity to prepare for, control, and respond to other zoonoses is expected to have a strong poverty impact.

59. *Gender.* The project was not gender specific. However, as backyard poultry is the predominant chicken production system in Uganda (about 80 percent), and since backyard poultry tend to be owned by women, efforts to limit the spread of diseases among poultry, especially among backyard systems, would indirectly preserve this aspect of women's livelihoods.

60. *Social Development.* The project impacted on social behavior, including hygiene – especially on food handling. Most especially, it empowered local communities in taking control

of their own monitoring thus making them active partners in combating threats to their livelihoods and welfare.

***(b) Institutional Change/Strengthening***

61. Significant institutional capacity strengthening were carried out, ranging from training, to reinforcing surveillance systems (both at the community level as well as the institutional level), to laboratory diagnostic capacity.

***(c) Other Unintended Outcomes and Impacts***

62. None.

**3.6 Summary of Findings of Beneficiary Survey and/or Stakeholder Workshops**

63. There was no Beneficiary Survey/Stakeholder Workshop.

**4. Assessment of Risk to Development Outcome**

*Rating: Moderate*

64. Significant progress was made towards putting in place mechanisms for responding to zoonotic and non-zoonotic threats, and the system was tested out in some outbreaks as discussed earlier. District response teams have been put in place, community surveillance systems established in high risk districts, an operational reporting system has been put in place, curricula in veterinary institutions have been put in place to facilitate improving awareness about zoonotic threats and containment modalities among graduates, among other things. The level of collaboration among various institutions, especially between animal, health, and wildlife staff has been enhanced. However, there will be need for adequate funding (especially through the relevant Ministries' budgets) to maintain a minimum level of monitoring and preparedness. Second, the laboratory diagnostic capability that was put in place needs to be functional (staffing and materials). These challenges constitute a moderate threat to the Development Outcome.

**5. Assessment of Bank and Borrower Performance**

**5.1 Bank Performance**

**Bank performance in ensuring quality at entry**

*Rating: Moderately Satisfactory*

65. The project was prepared in 2008 following the blueprints of the GPAI design. Under the Bank's leadership, this was a pioneering and innovative design that brought together the animal and public health Ministries to address a common objective. This approach was a forerunner to the current "One Health" concept that breaks down the silos between human, environment and animal health. These AHI projects, including this one in Uganda, were pioneers in trying to

break these silos. The design also had many good features, such as the focus on biosecurity in order to reduce the probability of outbreak and a specific component on communication and public awareness which is crucial in any sanitary crisis. Quality at entry would have been enhanced if: (i) more attention had been paid to procurement arrangements to make sure they were better suited to an emergency response; (ii) the design had provided for strengthened coordination with other partners and harmonization of initiatives from other donors; and (iii) there was better articulation of the results framework to more fully encompass animal health outcomes as reflected in the development objective. These slight weaknesses for an otherwise excellent and innovative technical quality of the project at entry justifies a Moderately Satisfactory quality at entry rating

### **Quality of supervision**

*Rating: Moderately Satisfactory*

66. The country-based Bank team provided substantial implementation support on work programming, financial management, procurement, and safeguards, among others. Implementation support missions were composed of a broad skill-mix, regular, and provided detailed aide memoires countersigned by the Government and with clear actions that needed to be performed. There were also several “mini” support missions in between the principal missions, which were mounted by the country office-based staff.

67. However, the Bank team appears to have not worked sufficiently with other partners during implementation, including undertaking a joint approach to supervision. Even though other partners’ activities were running parallel, there was room for collaboration.

## **5.2 Recipient Performance**

### **Government performance**

*Rating: Moderately Satisfactory*

68. The initial Government request for support is evidence of a progressive approach to addressing zoonotic diseases. The Government was also supportive during project implementation, especially during the second half of project implementation. As a result, the majority of the output indicators were achieved. However, there were some shortcomings as well. For instance, the Government could have been more proactive in urging Parliament to table the Project for discussion earlier than almost 12 months, and did not seem to have explained the broad scope of the project to parliamentarians who initially rejected, then later approved, the project. Counterpart funding for health activities was at times slow in coming. By project’s end, the draft compensation policy was still with Cabinet awaiting approval.

### **Implementing agency or agencies performance**

*Rating: Moderately Satisfactory*

69. The project was jointly implemented by MAAIF for the animal health component and MOH for the human health component, with OPM ensuring coordination as required of projects that are implemented by more than one ministry. As discussed earlier, project coordination by OPM was initially very inadequate, although it improved after personnel changes and greater commitment from the Permanent Secretaries. Similarly, project implementation by the two ministries also had a slow start, compounded by the belated initiation and later inadequate management of the procurement process. Procurement for civil works was particularly protracted, and its implementation beset by many factors including poor contract management. However, strong commitment from the Government team towards the end of the project ensured completing all activities within the 18 month extension.

### **Justification of rating for overall recipient performance**

70. The overall borrower rating of “*moderately satisfactory*” is because of the uneven performance for both the government and the implementing agencies: off to a slow start but gathering pace towards the end. A more consistent performance would have resulted in better project outcomes, especially on the project’s civil works activities.

### **6. Lessons Learned**

71. *More flexible implementation arrangements might be more suitable in emergency operations.* Had there been a major avian and human influenza outbreak during the course of project implementation, Government wouldn’t have fully benefited from the project largely because of the slow procurement processes that characterized the project. There is need for greater pragmatism and flexibility during emergency projects. Options might range from using the procurement staff of existing/ongoing projects with experienced personnel for the more urgent items, while non-urgent items are procured by the relevant line ministry staff whose capacity might still need some strengthening, to hiring experienced consultants for the duration of the project, to pairing line ministry staff with more experienced short-term consultants for on-the-job training. In addition, it is important to constructively use the time before project effectiveness to make progress on procurement (especially where procurement accredited staff in the ministries already exist), instead of waiting for project effectiveness before starting the procurement process.

72. *Better contract supervision is critical for enhancing contractor performance.* For civil works contracts under execution, it is important for the Borrower’s contract managers to supervise the contractor regularly (such as weekly) to establish the capacity/readiness of the contractor. The frequency of visits can be increased or reduced depending upon the contractor’s strengths or other measures taken for noted poor performance.

73. *Designing implementation arrangements through Government structures should, during project appraisal, take into account not just staff’s technical competency but their actual availability as well.* OPM tends to be a favored choice for coordinating projects of a multi-sectoral nature, as was the case in this project. With the growing tendency for multi-sectoral approaches, hence the risk of overwhelming OPM’s capacity, the choice of OPM for project coordination should be weighed against the available capacity to fulfill the function. As it turned

out, project coordination was deficient early in project implementation (as the assigned person had other priority tasks), although it improved over time after staff changes. Alternative implementation arrangements (such as conferring coordination responsibilities to the ministry with the preponderance of project activities) might have been more suitable.

74. *Engagement with parliament during project preparation can facilitate timely approval of projects by parliament.* Adequately engaging key parliamentarians about the project's broad scope and the varied and persistent nature of the threats addressed under the project could have potentially facilitated an expedited and favorable consideration of the project in Parliament. It is particularly important that relevant parliamentary sectoral committees be closely associated with the project preparation process.

75. *Working across sectors can be an effective way of addressing zoonotic diseases.* With the growing and persistent threat from zoonotic diseases, a culture and effective *modi operandi* of collaboration between the ministries in charge of health and livestock are critical in ensuring adequate monitoring of, and rapid response to major zoonotic disease outbreaks.

76. *A single major threat can act as a good entry point for building capacity to address a wide range of other threats.* The national and global attention to address HPAI and the systems put in place for its surveillance and response to its outbreak have been used to great effect in responding to and containing other diseases that had previously not commanded similar attention.

## **7. Comments on Issues Raised by Recipient/Implementing Agencies/Partners**

### **(a) Recipient/Implementing agencies**

Please see Annex 5.

### **(b) Other partners and stakeholders**

None

**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**  
**Annex 1: Project Costs and Financing**

**(a) Project Cost by Component**

| <b>Component</b>           | <b>Allocated<br/>(USD Million)</b> | <b>Percentage of<br/>Total</b> | <b>Disbursed<br/>(USD Million)</b> | <b>Percentage of<br/>Total</b> |
|----------------------------|------------------------------------|--------------------------------|------------------------------------|--------------------------------|
| Animal Health              | 6.66                               | 55.5%                          | 5.50                               | 51.7%                          |
| Human Health               | 3.06                               | 25.5%                          | 3.42                               | 32.2%                          |
| Communication              | 1.83                               | 15.3%                          | 1.25                               | 11.8%                          |
| Coordination, M&E          | 0.45                               | 3.8%                           | 0.46                               | 4.3%                           |
| <b>Total Project costs</b> | <b>12.00</b>                       | <b>100.0%</b>                  | <b>10.63</b>                       | <b>100.0%</b>                  |

Figures may not add up due to rounding

**(b) Financing**

|      | <b>Appraisal<br/>(USD Million)</b> | <b>Percentage of<br/>Total</b> | <b>Disbursed<br/>(USD Million)</b> | <b>Percentage of<br/>Total</b> |
|------|------------------------------------|--------------------------------|------------------------------------|--------------------------------|
| IDA  | 10.0                               | 83.3%                          | 8.65                               | 81.3%                          |
| AHIF | 2.0                                | 16.7%                          | 1.99                               | 18.7%                          |
|      | 12.0                               | 100.0%                         | 10.63                              | 100.0%                         |

Figures may not add up due to rounding

**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**  
**Annex 2: Outputs by Component**

**Component 1: Animal Health**

***Part I: Preparedness and Prevention***

77. All the 112 districts in the country now report on veterinary services through E-reporting procedures. Standard Operating Procedures for reporting between MAAIF and other line ministries were developed and the curricula for the Faculty of Veterinary Medicine and Para-Veterinary reviewed. Eight sero-prevalence surveys covering HPAI and other zoonotic diseases and non-zoonotic priority diseases (Pestes des Petits Ruminants, Foot and Mouth Disease, Anthrax, Contagious Caprine Pleuro-Pneumonia, Rift Valley Fever, and Brucellosis) were undertaken compared to the four surveys that were envisaged at appraisal. The project operationalized four quarantine centers and forty checkpoints in support of strengthened National Veterinary Service quarantine capacity.

78. A compensation policy for HPAI for induced death or culling of poultry was drafted and now awaits cabinet approval. All districts in the country were linked to the National Veterinary Service incident command system for management of logistics and a central command at MAAIF coordinating the District Rapid Response Teams for Avian Influenza and other Trans-boundary Animal Diseases was set up. Significant progress towards attaining full diagnostic competency for HPAI has been registered after the recently completed BSL-3 laboratory at National Animal Disease Diagnostics and Epidemiology Center becomes fully functional.

***Part II: Response and Recovery***

79. Funding for response and recovery was intended to provide support for containment and control of HPAI in case of an eventual outbreak. The project would support immediate reaction to the outbreak, implementation of sanitary measures, quarantine and movement control and compensation. However, there was no HPAI outbreak in the country and funding under this activity was re-allocated to other project components.

**Component 2: Human Health**

80. The project under the human health component sought to enhance capacity of the health sector to detect early, respond and contain avian influenza and other zoonotic outbreaks at source. The following are the subcomponents: (a) strengthening of surveillance of humans for influenza; (b) strengthening capacity for avian and human influenza prevention, containment and control and case management; and (c) strengthening capacity of the Uganda National Health Research Organization (UNHRO).

***Part I: Preparedness and Prevention***

**Surveillance of Humans for Influenza:**

81. The project contributed significantly to improving surveillance capacity for HPAI in the sector. From the original number of three sentinel sites, 14 sites were established across the country during the project period. The project also supported training of health workers and other key district staff including community leaders, and equipped and facilitated the field surveillance teams. As a result of the improved surveillance all districts report weekly on influenza-like illnesses using the Integrated Disease Surveillance & Response (IDSR) system. This is well and above the original project target of 50 percent. The percentage of districts with bulletins/IDSR feedback reports increased from 2.6% to 100% while that of regional referral hospitals with bulletins/IDSR feedback reports increased from 15 % to 100 % by December 31, 2013. Fourteen epidemiological mapping exercises of HPAI risk factors were undertaken in the high risk districts compared to the 10 mapping exercises that were projected. While there has been no HPAI outbreak, the inbuilt surveillance capacity has enabled the MOH to respond and contain other zoonotic disease outbreaks such as Ebola and Marburg fever.

*Avian and Human Influenza Prevention, Containment and Control and Case Management:*

82. Through the project: (a) MOH developed and disseminated guidelines for infection control and management of avian and human influenza; (b) districts developed preparedness and response plans; and (c) support was extended to control specific zoonotic disease outbreaks like Ebola, rabies and Marburg. Drugs and sundries including personal protective equipment procured under the project were used in the containment of the outbreaks. The improved state of preparedness and response was demonstrated by the fact 92% of districts had in place appropriate avian and human influenza plans compared to a baseline of 30% of the districts. In addition, several community mobilization activities were conducted including simulation exercises in selected high risk districts.

83. Activities on improving food safety and environmental hygiene were undertaken involving training of inspectorate staff on assessment and handling of food and raising awareness of vendors in the markets and along major highways on avian and human influenza. In the process a number of protocols and manuals were developed and disseminated including: (a) manual for the prevention and control of avian and human influenza and other zoonoses of public health concern in Uganda; (b) medical examination protocol for poultry and food handlers; and (c) food safety guidelines for prevention and control of avian and human influenza and other zoonoses.

*Uganda National Health Research Organization (UNHRO):*

84. UNHRO, a new organization still in its infancy received project support to establish its Secretariat. It was also supported to develop a 5 year strategic plan and to strengthen the institution and to harmonize policies and strategies for infectious disease research in the country. The project also strengthened research and diagnostic capacity by training staff, provision of laboratory supplies and reagents.



Establishment of Isolation Facilities and Upgrading of the National Influenza Center Laboratory:

85. Due to limited funds, only one isolation facility linked to Entebbe Grade B Hospital was constructed instead of the six originally planned. MOH will need to ensure that this facility is properly managed, including providing adequate staff and equipment, as well as ensuring proper handling of medical waste generated at the facility since Entebbe Grade B Hospital does not have capacity to manage such a facility for highly infectious patients. It was not clear at the time of the ICR which category of highly infectious patients will be admitted to the facility and how the infectious waste material generated by the facility will be handled. MOH will need to set up a team comprising staff from Entebbe General Hospital and MOH to develop a plan of action to handle outstanding issues.

86. The National Influenza Center Laboratory in Uganda Virus Research Institute was upgraded to BSL 3 and handed over to MOH in December 2013. It will be important that MOH take appropriate measures to equip and staff the facilities, and provide for the handling of highly infectious medical waste so that operations can commence without delays. The institute should put in place safe and adequate provisions for decontamination and handling of infectious material from the laboratory.

***Part II: Response and Recovery***

87. Under the subcomponent the project was meant to build capacity to respond to an outbreak of pandemic influenza of avian origin. The project supported (a) facilitation of the rapid response teams to undertake active case investigations, (b) collaboration with the veterinary services in the areas of disease surveillance and (c) provision of personal protection equipment. While Uganda did not experience an outbreak of HPAI, the capacity built with project support assisted in the containment of outbreaks of several diseases during the project period. Most of the measures including exceptional ones such as quarantine and restricting movement of people, closure of schools and markets were applied during the recent Ebola outbreaks.

**Component 3: Communication**

88. The component aimed at addressing the low risk perception and a general lack of knowledge of avian and human influenza among the general public and a wide range of stakeholders, especially the small-scale back-yard poultry farmers. While MOH was responsible for coordinating communication-related activities under the project including holding the budget, each agency was responsible for implementing its communication-related activities. The project supported several joint communication-related activities including sensitizing key policy makers and opinion leaders in the districts as well as farmers and households with back-yard poultry, local government officials, and religious and cultural leaders on the risks of avian and human influenza; orientation of village health teams on HPAI; and development and dissemination of Information, Education and Communication materials. As a result increased awareness, over 80% of the population in the high risk districts could report about avian and human influenza activities both planned and under implementation.

#### **Component 4: Coordination, Monitoring & Evaluation**

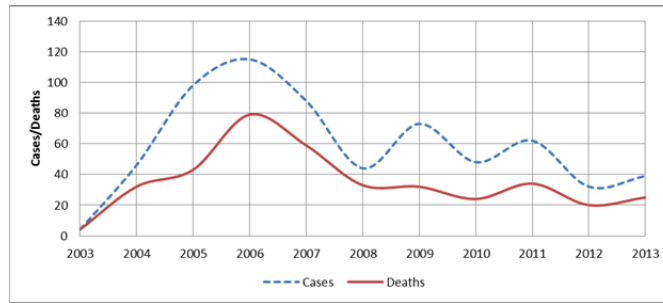
89. Coordination activities under OPM focused mainly on coordinating site meetings, and resolution of issues identified during these meetings and visits, and their follow-up. Several meetings following the site meetings and visits were held. These meetings proved useful, for instance, in helping resolve the slow payment of contractors' interim certificates especially in the MOH, and speeding up the work at their two sites as a result.

**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**  
**Annex 3: Economic and Financial Analysis**

**Background**

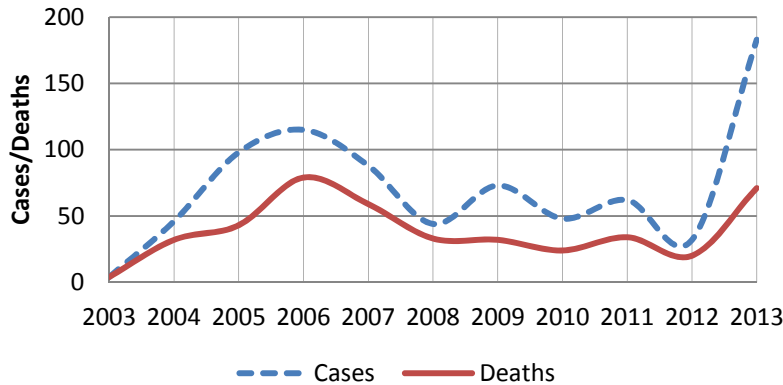
1. Globally, outbreaks of H5N1 have tapered off. However, H5N1 is still around, and it is difficult to tell when another major outbreak will occur. The virus is believed to have mutated into dozens of highly pathogenic strains, which keeps the threat levels high.

**Figure 1 – Number of Confirmed Human Cases for H5N1 Worldwide Reported to the World Health Organization**



2. There is also a growing threat from other types of avian influenza, most recently from H7N9. According to the World Health Organization, there were 144 confirmed human cases of H7N9 with 46 deaths in 2013, and several reports are continuing in 2014.

**Figure 2 – Number of Confirmed Human Cases for H5N1 and H7N9 Worldwide Combined, Reported to the World Health Organization**



**Economic Impact**

3. In the event of an H5N1 outbreak, economic losses would not only arise from the birds lost or destroyed, but also from the likely loss in consumer confidence which would depress demand for poultry and possibly other meat products, and a decline in tourism, among others.

This would disrupt the livelihoods of those who produce or trade in these products. Therefore, the project’s benefits derive from the potential losses prevented. Assessing these potential losses requires assumptions about the probability and severity of occurrence of such outbreaks.

4. The PAD had pointed to the lack of data to assist in predicting the probability of any of the scenarios for which a possible impact of HPAI can be estimated. At the height of the H5N1 crisis, Indonesia and Thailand witnessed poultry Gross Attack Rates (GARs) that were as high as 10 percent, although GARs in most countries were far less. On this basis, GARs ranging from 0.7 to 2.5 percent were used in the impact simulations during project appraisal.

5. Other assumptions made at appraisal include: growth in poultry of around 2.2 percent per annum; the price of 8,400 shillings per bird (each of 1.2 kg); 10 eggs per bird (each at 150 shillings); and a 15 year investment horizon from the first year of implementation. One simulation was run for an assumed outbreak in Year 2, and another simulation for an outbreak in Year 4. Based on these assumptions, the project’s internal rates of return had been estimated as follows:

**Table 1: Internal Rate of Return in the Event of Outbreaks in Years 2 and 4**

|     | <b>Gross Attack Rates</b> | <b>IRR<br/>Outbreak in Year 2 Scenario</b> | <b>IRR<br/>Outbreak in Year 4 Scenario</b> |
|-----|---------------------------|--|--|
| I   | 0.7%                      | 11%  | 7%   |
| II  | 1.0%                      | 20%  | 13%  |
| III | 2.5%                      | 70%  | 34%  |

6. No outbreak occurred in Uganda during the project period, although a major threat is still likely. The 2013 H7N9 outbreak in East Asia has demonstrated the danger that these viruses continue to pose.

7. In updating the economic analysis, this ICR retains the investment horizon of 15 years, but adjusts the other assumptions as follows: 15,000 shillings per bird, 300 shillings per egg, the ratio of eggs to birds of 14.3 (according to Government statistics), and an annual poultry growth of 3 percent (also based on recent Government statistics). No speculation is made as to when a future outbreak might happen (since there is no hard data to back up such a precise prediction). Instead, an assessment is made of the return on the prevention/mitigation measures that have been put in place should an outbreak occur today well understanding that the returns diminish the further out the event occurs (although not linearly since other parameters are also changing over time).

**Table 2: Internal Rate of Return in the Event of an Outbreak in 2014**

|     | <b>Gross Attack Rates</b> | <b>IRR</b> |
|-----|---------------------------|------------|
| I   | 0.7%                      | 12%        |
| II  | 1.0%                      | 19%        |
| III | 2.5%                      | 40%        |

8. In reality, the returns are much higher. First, this analysis is limited to poultry meat and eggs. It doesn’t account for possible decline in the demand for poultry/meat products in the

counterfactual. This analysis wasn't done due to a lack of reliable data on the elasticity of demand. Accounting for such a demand shift would increase the return on the investment. Second, it does not include the impact of the project's surveillance and disease prevention and containment activities for other livestock (cattle, small ruminants, pigs). Yet, these sectors are also benefiting from the project. This analysis was also not done for lack of reliable data. Third, it does not include the value of reduced human morbidity from avian influenza related illness which, too, would have added to the project's rate of return.

**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**  
**Annex 4: Bank Lending and Implementation Support/Supervision Processes**

| <b>Name</b>                        | <b>Title</b>                           | <b>Responsibility</b> |
|------------------------------------|--|-----------------------|
| <b><i>Preparation</i></b>          |  |                       |
| Wilson Onyang Odwongo              | Rural Development Specialist           | Team Leader           |
| Madhur Gautam                      | Lead Economist                         |                       |
| Mohammed Taqi Sharif               | Consultant                             |                       |
| Edith Mwenda                       | Senior Counsel                         |                       |
| Francois Le Gall                   | Lead Livestock Specialist              |                       |
| Luis Schwarz                       | Senior Finance Office                  |                       |
| Peter Okwero                       | Senior Health Specialist               |                       |
| Mary Bitekerezo                    | Senior Social Development Specialist   |                       |
| Jane Kibbassa                      | Environment Specialist                 |                       |
| Grace Nakuya Musoke Munanura       | Procurement Specialist                 |                       |
| Patrick Umah Tete                  | Senior Financial Management Specialist |                       |
| Veronica Schreiber                 | Health Specialist                      |                       |
| Yves Jantzem                       | Operations Analyst                     |                       |
| Harriet Kiwanuka                   | Team Assistant                         |                       |
| Meseret Kebede                     | Program Assistant                      |                       |
| Patrice Sade                       | Team Assistant                         |                       |
|                                    |  |                       |
| <b><i>Supervision</i></b>          |  |                       |
| Abel Lufafa                        | Senior Agricultural Specialist         | TTL                   |
| Constance Nekessa- Ouma            | Social Development Specialist          | Social                |
| Edith Mwenda                       | Senior Counsel                         | Legal                 |
| Edwin Moguche                      | Financial Management Specialist        | FM                    |
| Elizabeth Annet Mutesi             | ET Consultant                          | Procurement           |
| Grace Nakuya Musoke Munanura       | Senior Procurement Specialist          |                       |
| Harriet Kiwanuka                   | Program Assistant                      |                       |
| Herbert Oule                       | Environmental Specialist               |                       |
| Howard Bariira Centenary           | Senior Procurement Specialist          |                       |
| Marie-Claudine Fundi               | Language Program Assistant             |                       |
| Joseph Oryokot                     | Senior Agricultural Specialist         | co-TTL                |
| Madhur Gautam                      | Lead Economist                         |                       |
| Martin Fodor                       | Senior Environment Specialist          |                       |
| Mary Bitekerezo                    | Senior Social Dev. Specialist          |                       |
| Michael Okuny                      | ET Consultant                          |                       |
| Mohammed Taqi Sharif               | Consultant                             |                       |
| Paul Kato Kamuchwezi               | Financial Management Specialist        |                       |
| Peter Okwero                       | Senior Health Specialist               |                       |
| Rasit Pertev                       | Senior Agriculture Economist           |                       |
| Rosemary Birungi Kyabukooli        | Program Assistant                      |                       |
| Stephen Kibuuka                    | Consultant                             | Civil Engineer        |
| Veronica Schreiber                 | Health Specialist                      |                       |
| Wilson Onyang Odwongo              | Senior Rural Development Specialist    | TTL                   |
|                                    |  |                       |
| <b><i>Completion Reporting</i></b> |  |                       |
| Abel Lufafa                        | Senior Agricultural Specialist         | Task Team Leader      |
| Eustacius Betubiza                 | Consultant                             | Principal Author      |

### Organizations

| Organization Name                                      | Type                | Contact | Title | Office Phone              | Phone Email           |
|--|---------------------|---------|-------|---------------------------|-----------------------|
| Ministry of Finance                                    | Borrower/Recipient  | Finance |       | 2564144707000             | finance@finance.go.ug |
| Ministry of Agriculture and Animal Industry, Fisheries | Implementing Agency |         |       | 256414531411              | ps@agriculture.go.ug  |
| Ministry of Health                                     | Implementing Agency |         |       | (256-414) 340-872         | ps@health.go.ug       |
| Office of the Prime Minister                           | Implementing Agency |         |       | (256-41) 434-2231/259-498 | ps@opm.go.ug          |

**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**  
**Annex 5: Summary of Borrower's ICR and/or Comments on Draft ICR**

**A1. Background**

In May 2008, Government of Uganda with development assistance from the World Bank designed an integrated national plan for action for preparedness response to Avian Influenza (AI) which in the medium term was implemented through the Avian and Human Influenza Preparedness and Response Project (AHIP). By design the project was to be a precursor for future nation-wide response to emergencies related to highly pathogenic AI infection and other emerging or re-emerging infectious diseases to animals, birds and humans such as yellow fever, rabies, anthrax, hepatitis, Ebola haemorrhagic fever, Marburg haemorrhagic fever, Crimean Congo haemorrhagic fever. While the focus of the project was on the eminent outbreak of AI, the project allowed broadening this focus to also consider response to other eminent infectious diseases away from only AI. This was very critical to the success of the project especially in fortunate event that no AI outbreak did occur in Uganda.

As a required by the World Bank, this independent evaluation was commissioned by the Office of the Prime Minister to: a) document the successes and failures registered by the project; b) present an evaluative assessment of its performance with a purpose of highlighting lessons learned during implementation and c) providing recommendations that would aid similar interventions in the future.

**A2: Project's Relevance and Appropriateness**

The AHIP project was assessed to be appropriate and relevant with national development agenda and implements part of the National Development Plan (NDP 2010/11-2015/16) which calls for a national readiness effort to address what is documented as *'the threat of fatal viral infections such as ebola, marburg, SARS, and avian influenza which have negative implications for health and trade, tourism and investment'* (NDP page 246). In addition, implementation of the project in all districts of Uganda is in consonance with Uganda's policy of decentralization, and by design this eventually ensured a national coverage and spread of capacity in all corners of the country. Owing to the unpredictability of the next emergency of infection or outbreak, it was appropriate that surveillance and responsiveness capabilities are strengthened in every part of the country.

A key aspect of the project design that negatively impacted its performance was the approach to timing of its actual start date. Seeking approval of Parliament when the project had already become effective caused a delay of a year and one half yet GOU was being charged on its loan. It is recommended by this evaluation that effective start date of similar projects be after and not before approval of Parliament

**A3 Project's Efficiency in Achievement of intended Results**



### **A3.1 Animal Health Sub-component**

Under The AHIP project, the Ministry of Agriculture Animal Industry and Fisheries (MAAIF) has strengthened capacity overall for animal disease surveillance, monitoring and emergency disease control at the national and district levels. Working with District Veterinary Officers (DVOs) and District Rapid Response Teams (DRRTs) set up during the project there is now – than ever before- a level of preparedness to respond to emergency outbreaks in as much as more can be done to improve the processes and speed of collection, safe storage and testing of samples of suspected infected birds and animals across the country. The project procured 13 vehicles as well as motorcycles; laptops and internet modems to facilitate this process. The larger part of the investment under the Animal Health Component was the construction of the NADDEC laboratory in Entebbe. In as much as the NADDEC laboratory at Entebbe has been set up, it was not functional at the time of the evaluation. Works were on-going at the site to install equipment and it is hope that the laboratory will be officially commissioned by mid-2014.

Other accomplishments have included improving the capacity of the National Veterinary Services through provision of training on various aspects of response and Surveillance guidelines for AHI were developed and disseminated to this effect. In addition, through the improved veterinary technical competences there is now improve capacity for early detection and rapid response that district rapid response teams have been trained to carry out.. Setting up of a working and balanced veterinary Epidemio-surveillance program is work in progress and rating the level of performance of this program is indeterminate since it has just been set up. However, there is broad agreement that with the end of this project evidence-based veterinary rapid response capacity for emerging infectious disease preparedness, detection and control is a very important outcome that should emanate from the AHIP experience.

### **A3.2 Human Health**

The AHIP project has improved public health planning and coordination not just for AI but other emerging infectious diseases. The project went beyond surveillance and response capacity building and developed training manual for food handlers, veterinary and public health inspectors on prevention and control of AI and other zoonoses of public health concern in Uganda. The component also developed food safety guidelines for prevention and control of AI funded jointly by MOH and MAAIF.

Under the project MOH supported Uganda National Health Research Organization (UNHRO) to develop a strategy plan which was finalized and is helping coordination of programs related to research being conducted by various institutions (including Makerere Institute of Public Health) on zoonoses. District Health Officers were facilitated to coordinate training related to public health surveillance and response to emergencies. When Marburg and Ebola outbreaks occurred, the resilience of these response capabilities was tested and MOH working with other support organization was able to bring these outbreaks under control.

There is now improved public health surveillance system guided by the standard operating procedures for AHI on outbreak communication response. The operating procedures were prepared by the communication technical working group in 2012. In addition to this, the component also developed the case definitions and action thresholds for integrated disease surveillance.

MOH has under this project undertook technical commissioning of the National Isolation Unit at Entebbe and with collaboration with Uganda Virus Research Institute and Medical Research Council in advanced stages to complete a new testing laboratory.

### **A3.3 Communication component**

Both implementing entities i.e. MOH MAAIF and OPM undertook a joint effort aimed at increased awareness and participation in HPAI by all stakeholders and all nationals. A lot of material was printed and disseminated across the country showing the danger signs of various infections, case descriptions of would-be infected persons and how various infections present in the animals and in human body. Radio and TV talk-shows were organized across the country to communicate messages about how to respond to eminent outbreaks and not just AI but all other zoonoses. Developed dissemination messages on printed brochures were also translated into various languages. An AI communication M&E system for the project was developed but never used since no outbreak of AI occurred. While communication was a cross-cutting component, MOH was tasked to coordinate the component which came with some challenges Respondents from the MOH would have liked that each implementing institution implement, report and account for work done under communication sub-component.

### **A3.4 Coordination and Monitoring and Evaluation**

A national steering committee was formed and chaired by the OPM responsible for planning and coordination of policy activities of the AHIP and other emerging diseases. This was supported by five task-forces on surveillance; public awareness and advocacy; food hygiene and safety containment; case management; and resource mobilization. These task forces constituted the National Project Committee. The National Project Steering Committee; Nation Task force on Avian and Human undertook coordination and using entry forms obtain data from districts on performance and issues were discussed to address emerging challenges.

## **A.4 Project Efficiency and Value for Money**

AHIP was a \$10 million project and underwent both internal and external audits and annually an audit report was sent to the Speaker of Parliament by the Auditor General. The larger part of this investment was spent on construction and related procurement of equipment for the NADDEC laboratory, National Isolation Unit and Human Infections Laboratory at UVRI all in Entebbe. The AHIP is on course in terms of setting up an early warning system for occurrence of epidemic diseases. However, the delay in start of project implementation for nearly two years negatively impacted on achievement of key outputs.

The evaluation noted issues related to poor and late accountability from some districts; inconsistencies in recording expenditures against initial cost estimates, cases where activities were implemented long after funds were advanced; inability to follow budget codes properly in preparation of financial reports to the World Bank; and some inconsistencies related to conversions between Uganda shillings and United States dollars. By the time of this evaluation, while all laboratories had been constructed and fully furnished, they lacked equipment and none of them had been officially handed over to Government. Only one (1) of the planned six (6) isolation units was constructed. While there is growing optimism that more will be done by GoU to sustain the project investments- there is no concrete government allocation within the current rolling MTEF to satisfy this optimism. However, the isolation unit at Entebbe was technically handed over during this evaluation and beds and equipment had been installed and had become functional with the admission of patients. It is the overall assessment of the evaluation that only when the laboratories and the National Isolation Centre at Entebbe are fitted with all procured equipment that the country will affirm the absolute value for money as had been anticipated at the start of this project- the likelihood of which is positive (as evidenced during the site visits).

#### **A5. Overall Assessment of Impact**

For a project whose span was 3 years, it is very difficult to assess impact, but rather the likelihood thereof. The project made a positive impact on the country's responsiveness through capacity built in districts, as well as MOH and MAAIF for preparedness, surveillance and possible response to emerging infections. It is the overall assessment that as a result of the AHIP project the country is now better placed than ever to respond to outbreaks such as AI, and other infectious diseases to animals, birds and humans such as yellow fever, rabies, anthrax, hepatitis, Ebola haemorrhagic fever, Marburg haemorrhagic fever, Crimean Congo haemorrhagic fever. If the project had not delayed for a year and a half at the start, it was possible that equipment would have been installed in the laboratories and tests conducted – while providing further opportunities for hands-on training for national and district level staff.

#### **A6. Sustainability and Replicability**

It is 'hoped' that GoU will sustain the project investments and carry on the level of support provided to the MOH and MAAIF as well as in all districts. Through the sector budgets allocations are planned to support the project investments after the end of World Bank funding. However, a review of the medium term expenditure framework for the next three years did not provide the evaluation with any evidence to this regard. The GoU Project Implementation Plan (PIP, 2013/14-2015/16) includes the AHIP project but the earmarked resources are those that the project possessed at the time of the PIP (as of June 2012) and no further earmarked resources are documented. It will now depend on the level of 'fiscal responsibility and flexibility' within the health and agriculture ministerial statements for the coming financial years if indeed resources are earmarked to sustain the project investments. This evaluation noted that other development partners including Japan International Cooperation Agency (JICA) have supported such investments in the

past and could proceed with the support going forward.

### **Recommendations from Lessons Learned During Project Implementation**

- i. The successes recorded by the project were as a result of the flexibility within the project design that allowed for GoU to focus on other emergencies related to highly pathogenic AI infection and other emerging or re-emerging infectious diseases to animals, birds and humans such as yellow fever, rabies, anthrax, hepatitis, Ebola haemorrhagic fever, Marburg haemorrhagic fever, Crimean Congo haemorrhagic fever. It is therefore recommended that successor projects give room for re-orientation of the design in a manner that maximises/spreads impact. In addition, decentralizing project implementation across the districts has increased capacity for surveillance across the country in as much more can be done in the coming years to engage the current district response teams to take up any emergent response.
- ii. Projects of this nature should be designed in a manner that ensures that the date of effective project start is after and not before their approval of Parliament. This would help to avert the delays such as those that the AHIP project suffered.
- iii. The project ought to have designed a monitoring and evaluation system from the on-set so that it guides routine reporting, monitoring and both internal and external reviews including value for money audits. Without this system tracking performance became problematic for some indicators. In addition, the project should have set up a small dataset manned by a recruited M&E officer attached to the OPM under the component of coordination and monitoring. While the delays at the start forced the project to move quickly on all fronts, the evaluation still feels that there should have been time at the end of 2012 to commission a mid-term external evaluation.
- iv. Inter and Intra Sectoral Coordination improved with a narrow focus to deliver project outputs as expected rather than develop longer lasting coordination mechanisms that are key to sustainability of a number of activities that had been purposively developed to deliver AHIP results. OPM does not seem to have the capacity to build a post AHIP coordination 'future and it is more likely that it is collaboration between MOH and MAAIF that will be instrumental in future outbreak responses than coordination by OPM.
- v. There was a lot of commendable synergies in operation and implementation of activities between MOH and MAAIF however and more needs to be done to set up a national response readiness mechanism backed by emergency financial resources preferably through a public insurance pool. Recent outbreaks of nodding disease and Bududa mudslides (albeit not related to this project) demonstrated that response to such outbreaks is not swift and leaves the country looking around for emergency resources to address such a situation. The state

Ministry of Disaster Preparedness needs to be on board in implementation of similar projects in the future.

- vi. While capacity has been built for DVOs and DHOs the district veterinary officials seemed to be overwhelmed by work. In most districts visited under this evaluation showed that veterinary department lack skilled technical manpower and struggled to specify personalities to be on district response teams.
- vii. While communication component was spread to MOH, MAAIF and OPM, reporting and accountability was vested with the Human health component which in some instances made coordination problematic. It is recommended that each implementing institution puts up own mechanisms to account for funds allocated to them against work plan activities which would have eased the reporting and accounting burden on the Human Health Component Head.
- viii. The project exit strategy required a financial allocation within the project budget. With the project ended, there seemed to be no clear preparation to take off where the project ended. At MAAIF, although the BSL3 lab had been constructed, staffing was yet to be resolved. At MOH, funding for the isolation unit at the Entebbe Grade B Hospital was yet to be approved at the time of this evaluation.

**Republic of Uganda**  
**Avian and Human Influenza Preparedness and Response Project**  
**Annex 6: List of Supporting Documents**

1. Emergency Project Paper for the Uganda Avian And Human Influenza Preparedness And Response Project, Report No 43545-UG, May 28,2008
2. Financing Agreement for the Uganda Avian and Human Influenza Preparedness and Response Project, Credit Number 4482-UG, October 10, 2008
3. Environmental and Social Management Plan for the Avian and Human Influenza Preparedness and Response Project: Environmental Impact Statement (OPM/SRVCS/10E11/00229), Final Report, May, 2012
4. Program Framework Document for a Global Program for Avian Influenza Control and Human Pandemic Preparedness and Response, Report No: 34386, December 5, 2005
5. Restructuring Paper for the Uganda Avian and Human Influenza Preparedness and Response Project, Credit Number 4482-UG, May 23, 2013
6. Implementation Status & Results Reports the Uganda Avian and Human Influenza Preparedness and Response Project, Sequences 01-11
7. Aides Memoires for the Uganda Avian and Human Influenza Preparedness and Response Project IDA Cr. 4482-UG and Avian and Human Influenza Grant no. TF092919 (P110207) — Implementation Review Missions of: March 19-30, 2012; December 12 – 19, 2012; November 25 – 29, 2013.